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# INDEX TO VOLUME LXXXIV.

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1903.



WE have just closed a year memorable for two important events at least; the great festival of the King's Coronation, and the successful termination of a war which was unavoidable, but which has cost not only many lives but much treasure, and has been a heavy tax on the resources of the country and on the pocket of the individual tax-payer. Such events belong essentially to the realm of politics, but they are not without their effect on the realm of art.

It has been usually the result of a successful war to give new impetus to architectural display in the conquering country, as was notably the case in Germany after the great war of 1870. But one can hardly expect the termination of our recent war, stubbornly contested and costly as it has proved, to have the same effect on the public mind and on the efflorescence of architectural ambition as was produced by Germany's sensational triumph over a great rival European Power. If, however, the event is not calculated to produce a new enthusiasm for art at home, it may have the effect of providing a new outlet for English architects abroad. There is no doubt

that as soon as South Africa, or that part of it with which we are concerned, settles down into an ordered regular course of life, there will be a great deal of new building, and probably a considerable development of architectural taste, or at all events of the desire for it. And it is not improbable that a good deal of this will be done by English architects of the younger generation who will be tempted out to the new land by the new opportunities open to them there. And if this comes to pass, it is to be hoped that English architecture in South Africa may develop some new life and colour from the influences of a new climate and associations, and may show something better than that mere inferior and second-hand reproduction of English conventional types of imitative architecture which, with a very few exceptions, seems to be all that our modern building in India has been able to rise to.

Recurring to a phrase used a few lines back, is there anything we can hope for which will have the effect of producing a new enthusiasm for art at home? The past year has not given us any great reason for hoping for an improvement in this respect in the tone and temper of the average English mind in regard to art and architecture. We have a satisfactory note in Lord Curzon's address at Delhi the other day (referred to on

another page); but on the other hand we have had the important governing body of London prepared to carry out a new bridge of the very worst description artistically (for we know that they were fully prepared to be satisfied with that first design until they found the outcry that it raised from artists), and resenting as an intrusion and an impertinence any suggestion that they ought to employ an artist to assist in the design. "Let the bridge go on, and let artists and architects take a back seat," was the characteristic exclamation of a member of the London County Council; a sentiment which exactly represents the general feeling of the English public about art; as Mr. Oldbuck says in "The Antiquary"—"There spoke all Fairport in one voice!" What is one to hope for English art with a public spirit such as this? One can hardly look to the leading artistic body, the Royal Academy, to enlighten the public mind; for though Lord Leighton, during his presidency, did his best towards rendering it in reality what it professes to be—an "Academy of Arts," under the present management it is becoming more and more a mere emporium for the exhibition and sale of popular pictures.

All we can hope for at present is the gradual effect of a better educated public opinion, which may in the end compel both Academies and County Councils to listen to its voice: but obviously the time is not yet.



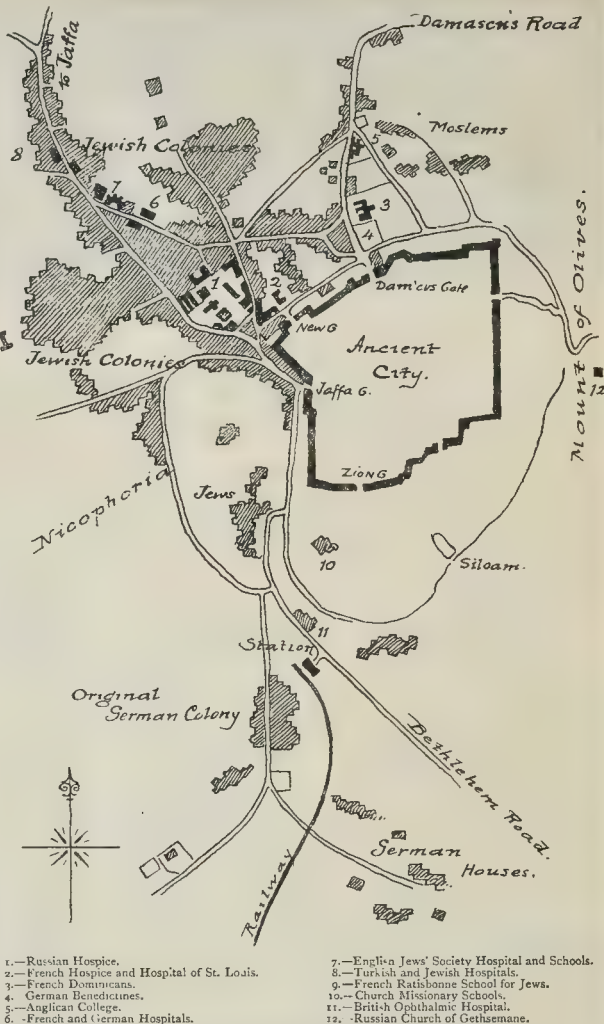
## MODERN JERUSALEM.

JERUSALEM has been the focus of many religious enthusiasms in earlier ages—enthusiasms which usually took the form of crusades or revolutions amongst the fanatical sects of old-world Christianity, Judaism, or Mohammedanism. But the greatest change in the appearance of the city was brought about in modern times by the singular ambition to "restore" the Jewish race to what was considered their particular and appropriate home. Up till the year 1860 Jerusalem retained its Oriental character as a sleepy, old-fashioned capital of a Turkish Pashalic, and the open country extended from the city wall on every side—a treeless waste, with but scanty signs of human habitation. All this has been changed during the past forty years. On the western sides of the city immense straggling suburbs of squalid, one-storied houses have been built by the Mohammedan landowners to house the tens of thousands of pauper Jews who have been imported into the country during that period, and these suburbs still show increase, although the Jews are said to be decreasing in number.

For the present purpose it would hardly be necessary to mention the squalid slums which reach for a mile along the old Jaffa road and hem in the city on its western side, but for the fact that this immense Jewish immigration may possibly have incidentally influenced the building of some of the huge edifices belonging to Christian sects which now give such a remarkable appearance to the famous city. The Jews appear never to have been a building race—at least, no monuments of any importance have ever been identified with them—and it would consequently be useless to expect any trace of art in these modern squalid colonies, where even the synagogues are merely rented houses of the same form as the rest.

The Jewish immigration, although it has increased the population of the Holy City by more than half—perhaps three-quarters—seems likely to leave but few traces behind it. On the other hand, the Christian communities, representing but a very small part of the inhabitants, have spent immense sums in rearing a singular series of hospices, hospitals, schools, and convents, more especially during the last ten years. Of these buildings some owe their existence to the missionary attempt to convert Jews into Christians, such as the great Ratisbonne School, built by the Roman Catholics, and the church and hospital of the London Society for converting Jews.

Many if not all these modern public buildings, built with money subscribed in Europe, and the property of various religious and philanthropic societies, are really monuments of that rivalry and emulation natural to a mixed community of so many races and religions. The buildings which seem the most used are the schools and convents occupied by the teaching institutions. The hospital accommodation would appear to be somewhat in excess of present requirements, and the hospices are, of course, only intended for temporary use at the great pilgrimage season during the months of February—May. All these properties are occupied by foreigners, under the protection of their consuls and in accordance with treaties, many of which date back to the Middle Ages. The Turkish Government exercises hardly



Plan of Modern Jerusalem.

any control within the high walls which are usually built around them, and in most cases there are certain exemptions from taxation and other privileges which give a particular and unique character to these independent colonies representing all parts of the civilised world.

Between 1850 and 1870 Jerusalem underwent that transformation from a simple old-world Oriental town—almost Mediæval in every characteristic, where genuine pilgrims bought scallop shells in its grimy, narrow bazaars, and were lodged in the crowded "khans" of the different religions—into that chaotic assemblage of different nationalities which we see at the present. During this early period of modern development the French and Russians initiated schemes for ameliorating the very deplorable conditions under which pilgrims from their respective countries were in the habit of visiting Jerusalem. The English and Germans combined together, about the same time, for the purpose of missionary enterprise, by found-

ing the Anglo-German Bishopric. As solid and permanent results of this European movement, the Russians obtained a large tract of waste ground outside the city—the Meidan, or parade ground—on which they built the great Russian Hospice. The Roman Catholics obtained an equal portion of territory within the city, which is now covered by the Latin Patriarchal Palace, and schools and hospitals. The English were even earlier in the field (1845), but they seem to have been content with a very modest holding within the city upon which a small hospital, a few missionary residences, and a curious little church were built by the London Jews' Society.

This church (described by Thackeray in his "Voyage from Cornhill to Grand Cairo") seems to have been considered also as the Cathedral of the evanescent institution of the Anglo-German Bishopric. It is an example of the deplorable "Perpendicular" of the period before Pugin, transplanted direct from England and carried out with all the

- 1.—Russian Hospice.
- 2.—French Hospice and Hospital of St. Louis.
- 3.—French Dominicans.
- 4.—German Benedictines.
- 5.—Anglican College.
- 6.—French and German Hospitals.
- 7.—English Jews' Society Hospital and Schools.
- 8.—Turkish and Jewish Hospitals.
- 9.—French Ratisbonne School for Jews.
- 10.—Church Missionary Schools.
- 11.—British Ophthalmic Hospital.
- 12.—Russian Church of Gethsemane.





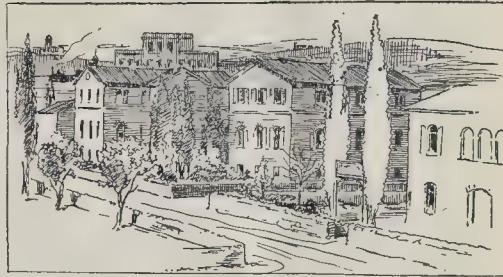
The New German Hospital.



New French Hospice.



Russian Church; Valley of Jehosaphat.



View in German Colony.



Doctor's House, English Hospital.



In the Russian Hospice.



Masonry Details, Schools of St. Vincent de Paul.



— Russian Hospice — French Consul — French Hospice — Franciscan Hospice — Latin Patriarch

Some of the Principal Modern Buildings, as seen from Nicophoria.

Sketches of Modern Buildings in Jerusalem.



apparent wastefulness of material and labour which characterises buildings under such circumstances. The workmen who executed the elaborate moulded stone and wood-work are said to have been brought from Malta. The cost of the building must have been very great, as the foundations are said to have been carried down 40 ft. through the accumulated debris which almost everywhere forms the soil of modern Jerusalem. The design for this church was furnished by an English architect named Hillyer, who died soon after the works were commenced in 1845. A clerk of works named Crutchlow seems to have carried it on, but certain errors in the application of architectural detail betray the absence of an educated architect. It is curious to notice, in some contemporary portions of the neighbouring Armenian Convent, "Perpendicular" doorways and windows, copied from the English building, which have a quaint effect amidst their Eastern surroundings. It is probable that Armenian workmen, who still retain a certain reputation as builders in this district, were also employed on the English Church.

The Latin Patriarchal Church and Palace, which are in the same quarter of the town as the English building, were probably erected shortly afterwards. The long list of subscribers engraved in marble slabs on the walls contain a majority of Belgian names—curiously reminiscent of the home of Godfrey de Bouillon. Unfortunately the architecture is more suggestive of early efforts to represent a "Gothic" castle on the stage than of any ancient ecclesiastical style. The church is, of course, on a very much larger scale, and in a more substantial style of construction than its English rival. But as an architectural design it is beneath criticism. It is of a cruciform plan, vaulted throughout; a triforium of the same dimensions as the aisle beneath was intended originally to accommodate the female part of the congregation, but is now disused. Details intended to be in the "Gothic" taste are crammed into every available space, and the whole mass of meaningless vulgarity is daubed over internally with painted decorations of saints and cherubs reclining on clouds, &c., of the poorest nineteenth century Italian style. The whole group of buildings, church and palace, constitute a remarkable example of that combination of tasteless fatuity and extravagance which was characteristic of the middle of the nineteenth century. The large "Gothic" windows with iron tracery are filled with landscape transparencies in coloured glass of the period. Close to this remarkable edifice is the Franciscan church of S. Salvador, occupying the site of an older church, this seeming to have been rebuilt about the same time, but in an inoffensive "Classic" style, which is quite pleasing by contrast.

To this earlier period belong the church and older portions of the great Russian Hospice. The Russian Palestine Society—a philanthropic institution founded about the time of the Crimean War for the purpose of regulating the immense pilgrimages which were then becoming a mania amongst the *moujiks*—erected a large church and several caravanserais upon the ancient "Meidan" which had been allotted to them outside the city wall. At that time it was still considered necessary to enclose such a property

with a wall 12 ft. or 15 ft. high, and this wall, with its iron gates, still surrounds the hospice. Around this great Russian enclosure the modern suburbs of Jerusalem have gradually grown up. The early Russian buildings are almost devoid of any architectural detail, and all that can be said of the church is that it contrasts by its simplicity most favourably with the contemporary examples of English and French art. A certain picturesqueness always attaches to Russian buildings, with their innumerable domes and spires of varied outlines and colours. In Jerusalem these characteristics assert themselves to the full, and these features, many of which have been added of recent years, give a thoroughly national air to the institution.

During the '70's and '80's a great deal of building was done in Jerusalem and on the Mount of Olives. The very remarkable Russian tower on the highest point of the latter, which forms a landmark for almost the whole of Palestine, rises to a height of about 150 ft. It is an uninteresting-looking object, ornamented with flat plasters at the angles and divided into equal stages with large round arched openings. Close to its base is a pretty little Byzantine church (modern), with green painted domes. The immense Carmelite Convent close by was built about the same time; it is one of the



Entrance to a Jewish Colony.

few interesting modern buildings near Jerusalem; its cloister, which also forms an entrance-court, is a fairly good copy of the curious castle court at Kula't el Hosyn, in North Syria. This convent is evidently the work of a clever French architect, and may have been designed by M. Mauss, who held the appointment of "Colonial Architect" for the French Government in the days of Napoleon III. M. Mauss superintended the very excellent restoration of the old crusading Church of St. Anne—the only instance of "restoration," in the modern sense in Jerusalem.

But the changes from an Empire to a Republic in France seem to have been disastrous for the architecture of Jerusalem. The official "colonial" architect no longer visits the Holy Land, and the huge modern buildings at present rising all over the French properties are abandoned to the irresponsible caprices of individuals, and the inevitable consequences of being built without the usual drawings, estimates, or any intelligent oversight or control. The often very curious results of such a system may be studied in the examples of the new French Hospice and the School of S. Vincent de Paul. Although the Hospice seems to have been intended to have a principal façade of a regular character, the two sides which were built at different periods have developed in a totally different manner.

Several reasons may be assigned for this unfortunate patchwork result in the modern buildings of Jerusalem. As a rule, the immense French establishments take years to complete, and during that time many changes take place in the *personnel* in charge of them. In many cases the guardians or temporary owners of the properties are females or native agents, who can hardly be expected to exercise much influence from a European standard in such matters. The money expended has been raised through loans and voluntary contributions, which, from their uncertain, intermittent nature, are always productive of an unsatisfactory patchwork result.

Almost any attempt to carry out a large building according to the routine of architectural practice in a civilised country is practically impossible in Turkey. In the first place, the native builders have very vague ideas about contracts, and, in fact, it is found better for the sake of all parties concerned to avoid anything which would only lead to complicated relations impossible of solution. European notions of financial credit and capital necessary for the completion of a contract are also quite unknown, and the employer has consequently to act as paymaster in detail. As a consequence, there is a complete absence of any exact standard of expenditure. Everything is done piecemeal, and is the source of endless bargaining. To these difficulties must be added the ever-present obstructiveness of the local government and other officials, whose only means of existence seems to be the extraction of "backshish" from the unhappy owners of property. The most absurd pleas are put forward for such purposes, after the buildings have been commenced and carried on to some extent. The local authorities then discover that certain clauses in the "firmans," or permits to build, have not been complied with, and it is decreed the work cannot be proceeded with. A band of ragged Turkish soldiers with rusty muskets sometimes appears on the scene to enforce such orders, and threaten imprisonment to the workmen. If matters of the kind are contested, a delay of months may result whilst they are passing through the circumlocution offices of an embassy in Constantinople. Delay and intrigue are, therefore, usually avoided by offering a prompt "backshish" to subordinate officials, whose objections are generally of the most puerile and ridiculous nature. In one recent case a church tower was stopped halfway up whilst the question was discussed as to whether the cross upon it would stand higher than the crescent on a neighbouring minaret. In another case, the ornamental battlements of a flat-roofed house were declared to be of a threatening character, although they only measured 2 ft. high from the inside gutter, with a thickness of 9 in. Such a terrible suggestiveness of fortification was considered sufficient to create a popular ferment, until the authorities concerned were induced to forget the matter by a conciliatory present.

There is, perhaps, one consolation in the mode of building in Turkey—the Society for the Protection of Ancient Buildings would at least think so—there is no such thing as "restoration." The Turk has not yet become sufficiently Europeanised to be able to comprehend any reason for the replacing or rebuilding of a monument. We



are, therefore, spared the distressing effect—as such it would be—of seeing the few surviving antiquities of the City “restored.” With the exception of the church of St. Anne, already referred to, no attempt of the kind has ever been made, and in that particular case the ancient church fell into very good hands. The native builders have fortunately a strong dislike to using old materials. A lingering superstition about “Afreet” (ghosts) still influences them perhaps, and so the old buildings are not so much destroyed as might be expected. This, unfortunately, does not prevent the probable disappearance of the grand old city wall, which still seems to act as a protection to all that is of any historical interest within the city from the squalor and vulgarity of the western suburbs. Part of the wall is now quite buried amongst the buildings of the Latin community, and within a very few years little, if anything, will be visible of it between the Damascus and Jaffa Gates.\*

In selecting a few of the modern buildings for our sketch illustrations the idea has been to draw attention to the very extraordinary element of what may almost be deemed a “new style,” which seems to result from the peculiar conditions of Jerusalem. This “style”—if such it can be called—is as far removed from any European models as it is from the natural ancient Saracenic of the country. The Moslem builders are puzzled to provide houses for Europeans, whose habits remain entirely different from anything native, and who, at the same time, demand a certain ornamental display for their money. The natural result is an unintelligible jumble of all sorts of ideas. In fact, we may here study the consequences of ornamental building or architecture attempted without traditional forms, or the intervention of a professional architect. Only in a very few instances have European architects been employed, and their work has lost much of its European character through being entrusted to native clerks of works.

It is very regrettable that in what has been thus dignified with the name of a “new style” no traces remain of the somewhat original adaptation of the “rococo” forms which may be found still surviving in other parts of the Turkish Empire. In Syria and Asia Minor the old buildings are often decorated with fairly well executed imitations of scroll work, festoons, &c., of Louis XV. style, but used in an interesting way which reminds one of their non-European origin.

The method of building in Jerusalem tends to produce a coarse, clumsy style of workmanship and design. The walls are of immense thickness—sure sign of bad construction—and are constructed merely of large facing wedge-shaped stones filled inside with pebbles, small stones, and mud-mortar. This wretched construction seems to stand for a long time however, and is often carried to a height of 60 ft. Such walls have to be kept very carefully “pointed” with a strong cement made of lime and powdered potsherds, or with a kind of putty made with oil. The most singular thing is to find so extensive a use of iron joist construction for the floors; the joists merely resting on the edges of the stones which, in their turn, are often without any bed at all—mere “shiners,” in fact. But for the extreme dry-

ness of the climate and the care with which the winter rains are excluded, such buildings would be but short-lived. Even the arched construction to doors and windows is practically a sham. The stones are merely selected with two faces at right angles to follow the surface of the wall and the soffit of the arch, but no proper bedding of stones is ever thought of. Jerusalem is, in fact, a city of mud houses of the largest size, faced with stones which, from their size, give an impression of immense solidity and endurance. But, alas, appearances are deceptive, and these vast modern buildings are doomed to that fate which accounts for the 60 ft. high mounds of rubbish and debris constituting the levels of modern Jerusalem.

At the present day the buildings which attract most attention are the great French hospice of “Notre Dame de France,” on the outside of the city wall near the New Gate, the immense convents of St. Etienne and of the “Reparatrici” in the same district, and the educational establishments of Ste. Anne (Cardinal Lavignerie’s mission) and the schools of St. Vincent de Paul. These buildings are in process of being completed.

During the past few years the Russians have built, and are now completing, the magnificent church of the Garden of Gethsemane with its curious Asiatic ornamentation outside, terminating in wonderful gilded cupolas of the “onion” shape, on whose brilliant sides the landscape is reflected in an odd manner. The very remarkable Russian hospice adjoining the Holy Sepulchre Church in the centre of the city also deserves mention, not so much in the way of its architecture as for the singular manner in which the priceless fragments of Constantine’s Basilica have been ingeniously preserved within the new building. Here, within a stone’s throw, may be seen collected together some of the most extraordinary evidences of the successive phases in the history of Jerusalem. The buildings of the first Imperial patron of Christianity (it seems doubtful if Constantine was ever really a Christian), superimposed upon the fragments of a much earlier time, are easy to distinguish, whilst the succeeding ages of Moslem and Christian occupation of the spot are represented by the remains of a mosque and the well-preserved ruins of the Augustinian Priory of the neighbouring Church of the Holy Sepulchre. Altogether the Russian hospice in the centre of the city is quite the most interesting of all the modern buildings of Jerusalem from an archaeological, if not from an architectural, point of view.

Almost adjoining the Russian hospice in the city is the new German Protestant church, the ostensible object of the German Emperor’s visit to Palestine in 1897 for the purpose of consecration. This is a small building occupying the site of the ancient Crusading Church of S. Maria Maggiore, once the property of a female hospice connected with the Order of St. John. The intention of the architect—a certain Professor Adler, of Berlin—has been to “restore” the former building, the plan of which is to some extent preserved. The result is, however, anything but satisfactory; the exterior is covered with a vast quantity of very uninteresting modern Romanesque detail, and the only portion of the ancient structure really preserved—the remains of a sculp-

tured round arch portal on the north side—has been patched together with modern insertions into a veritable botch. The most imposing part of the structure is the bell-tower, which is of crushing proportions in relation to so small a building. The whole seems intended as an assertion of German importance in the Holy Land, a fact which hardly needs such demonstration. The mention of this German monument naturally suggests some reference to the very remarkable colonisation of Palestine by Germans. These colonies at Jerusalem, Jaffa, and Haifa are the most prosperous and most civilising elements in the modern life of the country. There is nothing to be compared with them, and their influence upon the development of Jerusalem in particular is remarkable. But, unfortunately for architecture, the “Bauer” of Palestine cares for none of these things. He is content with his comfortable square house surrounded with pleasant, orderly gardens and neatly laid-out roads—a startling contrast to the native house, a combination of luxury and squalor with indescribably filthy surroundings. The German colonists are all of a peculiar sect called the “Temple,” but it seems to be a religion for which a material temple is not requisite. It is supposed that about 500 of these Germans constitute the colony of Jerusalem; the principal shops and hotels of the town are in their hands, and their enterprise and industry have contributed almost as much to transform the ancient city as the presence of the great Jewish colonies already referred to. A view in the German colony might be thought to represent a village of the Fatherland, but the only important public building is the school-house, where the rising generation is educated and the general business of the community is transacted.

The English community of Jerusalem, consisting exclusively of missionaries and their dependants, is represented by three modern buildings of a monumental description, which belong to the three principal missionary societies of London. The small Church of St. Paul, with parsonage attached (C.M.S.), was built about 1880. It is evidently the work of local genius, probably designed by one of the German builders of the colony.

About 1892 the London Jews’ Society determined to build a new hospital for their missionary purposes in the city, and commissioned Mr. Beresford Pite, of London, to visit the Holy Land and carry out their intention. This hospital is now finished, and appears to answer the purpose admirably. It is, of course, planned with due regard to modern ideas of isolation and sanitation on the pavilion principle. The pavilions, of one ward each, are arranged like the divisions of a fan connected together by a semicircular cloister, at one end of which is the house of the medical officer, at the other the dispensary, and in the middle the administration block. An agreeable garden occupies the space surrounded by the semicircular cloister, and divides the building from the road. Like all the public buildings of Levantine towns, the English hospital fails to attract the notice of visitors, however, on account of its unfortunate site. The original promoters of such buildings invariably select sites without any reference to what has to be built upon them, and as a consequence the unfortunate

\* See the *Builder*, June 15, 1901, for article on this wall.



architect who is called in eventually to design something to fit the more or less suitable piece of ground is always handicapped. Mr. Pite may be congratulated on having produced a highly satisfactory hospital—which also from its simplicity of style harmonises with the surroundings of Jerusalem—although the site is an unfortunate one, and instead of having worthy surroundings is confronted on the opposite side of the road by a row of squalid backs of houses.

The only other important building erected with English money during late years worthy of mention is the Anglican College—situated in a very curious manner above the French property known in olden times as the Tombs of the Kings, a series of splendid rock-cut excavations on the Damascus high road to the north of the city. This collegiate institution (the property of a trust fund in London) was commenced in 1893 chiefly for the purpose of providing a residence for the Anglican Bishop in Jerusalem. It is still far from finished—it has been gradually erected with money subscribed from time to time in England. The buildings, designed by Mr. G. Jeffery, an English architect residing in Cyprus, surround a cloistered quad entered from the high road under a massive gate tower. Facing the gate is the chapel; on the south side of the quad is a large house for the bishop, and on the north is a building intended partly as a clergy house, and partly as a school. The quad is 100 ft. square; the chapel is 100 ft. long, about 33 ft. wide, and about 40 ft. high. The chapel is covered with a groined wood ceiling, and fitted internally with choir screen, font, &c., of Italian marble. The windows also, which are of elaborate tracery, were executed in Italy, it being almost impossible to get any masonry of sufficiently precise workmanship for such a purpose executed in Turkey. The marble of the windows harmonises well with the hard limestone of the walls, and indeed is hardly distinguishable from it. The group of buildings, although in a style of art which slightly recalls the latter forms of the French Gothic, is distinctly reminiscent of one of the large colleges of Oxford and Cambridge, and the clergy from those Universities for whose residence it is intended, doubtless experience a homely feeling within its walls. The site is a pleasant one, bounded on nearly all sides by high roads and with open spaces, which will secure the buildings from that crowding squalor and want of sanitation which seem inseparable from modern life in Jerusalem.

The development of modern Jerusalem still continues without abatement. The Jewish colonies may not appear very flourishing or much on the increase, but the Germans seem spreading over the Plain of Rephaim, to the south of the city, and with their advantages of wealth and superior intelligence they will before many years constitute an element in the population of the city equal, if not superior, to the great Jewish immigration of the nineteenth century. The opening up of the vast unknown hinterland of Jerusalem seems now within a measurable distance of realisation. The new railway on the other side of the Jordan will within a few months be open as far as the parallel of Jerusalem, and the connecting of it with the Jerusalem-Jaffa railway will follow as a matter of course. By this means Jerusalem will be placed in direct com-



*A Bit of Japanese Ornament.*

munication with Constantinople when the great German trunk system of Asia Minor, now open for traffic as far as Iconium, is joined on to the North Syrian line which now runs from Beyrout to Homs and Hamath through Baalbek.

The mineral and agricultural resources of the vast districts traversed by these railways invite extensive colonisation. Civilisation of earlier days withered before the advance of the Arab savages because it was not protected by the appliances nor supported by the liberal institutions of modern times. At the present day the Arab, with his insolence and ignorance and his racial prejudices against the foreigner, is doomed to disappear, and the German settlers of Palestine are probably paving the way for a very much greater colonisation than their most zealous leaders ever contemplated. Jerusalem may in course of time become the capital or centre to some extent of the southern extremity of this vast new-developing district. At the same time it would appear somewhat inconveniently situated for a commercial city; and so perhaps it is more probable that in spite of the influence which an old-established capital exerts in attracting a still larger population, the city of the Herods may eventually sink into the condition of some old cathedral town filled with religious and educational institutions, but sequestered from the busy haunts of men.

The last chapters in the history of this most famous of cities are perhaps as singular, and exhibit as curious traits of humanity at large, as any written in the earliest ages. The Jewish immigration, apparently without a scope, the objectless rivalry of the Christian sects, the unforeseen consequences of a small German colonisation, are as remarkable in their degree as the Crusades or the Biblical stories. An unfortunate fate hangs over Jerusalem—its history is the most interesting in the world, but of all its innumerable phases hardly a fragment remains in any monumental or artistic form. It seems a city doomed to perish perpetually, with every successive generation of its inhabitants. It remains to be seen if modern influences will have any effect in giving to the city monumental buildings of a more permanent character.

**NEW INFECTIOUS HOSPITAL, ACKTON.**—The building of a new infectious hospital is about to be commenced at Ackton in the Urban District of Featherstone, for the accommodation of the districts of Castleford, Normanton, Featherstone, Whitwood, and Alkofia. Mr. W. Hamilton Fearnley has been appointed architect for the work.

#### THE DECORATIVE ART OF THE JAPANESE.—I. *Lacquer Ornament.*

**I**N a series of articles, of which this is the first, I propose to make further research into the great decorative art of the Japanese—the art by which they, as it were, introduced themselves to the world; for until a very few years ago, it was by this art alone that the Japanese were known and recognised by the multitude. Yet no attempt has yet been made to treat the art as a whole. Even in Japan itself the subject has so far been treated only in most rudimentary fashion. One reason for this, is, probably, that the line between decorative and pictorial art, hard enough to trace in the West, is still more hard to determine in the East. Another reason no doubt lies in the complication and multiplicity of the subject; it seems impossible to get to the end of it, and all that can be attempted in these papers is to give a fairly comprehensive summary of it.

All the limitations—the faults, as many consider them—of Japanese pictorial art spring from the imperfect means which the artists have at their command. You could not do much with water-colours if you had to paint on blotting-paper; and the rapidly absorbent paper or prepared silk on which the Japanese paint their pictures is not very far removed from blotting-paper, and it is responsible for much of the peculiar qualities of their art—good as well as bad. The wonder is that they achieve so high a technique. I recommend anybody who is anxious to understand the initial difficulty of the Japanese artists to get a piece of their paper and try to lay on a wash. He will turn from his task a crosser but a wiser man. So, as I say, they know the difficulties—they understand how far they can go, and go no further. And so it is with everything they do, whether they work in silk, in metal, in painting on textile fabrics or porcelain, in enamels; whether they work with the hand or the loom, the brush or the chisel; they know how far off Nature any attempt to copy her must be, and they therefore fall back on conventional design. The process of lacquer working and ornamentation demand: absolutely flat treatment, and, though gold is used of various tints and brightness, and colours also, very little, if any, gradation of tone is possible. The subjects, therefore, are rigidly conventional.

It is necessary to say, by way of paren-



thesis, that the treatment of landscape in flat gold masses is not in any way a departure from the general principles of their art. The means at the disposal of the landscape-painter on paper reduced much of their work to monochrome pictures with an easily definable scale of tones. In the simpler work there are very few—often as few as three or four. These subjects are therefore well adapted to gold work on lacquer, and produced a class of design which I may call, without disrespect, "conventional landscape." It is exceedingly interesting on account of the dexterity of workmanship, but it falls outside the scope of the present articles, which deal with purely conventional ornament.

In the ornament of the Japanese there are two well-defined classes. Language is in its art department terribly poor, and writers are always being driven to invent terms, which, as often as not, till their meaning is grasped, seem an indirect survival from the first confusion of speech. But I think that the two expressions, "natural conventionalism" and "conventional naturalism," convey a definite meaning. By natural conventionalism will be understood the conventional treatment of natural forms; the term serves to mark designs which base their form on Nature, and to distinguish them from pure line ornament—"geometrical design" as it is sometimes called—arabesques, and all that is merely "line for line's sake." But in "conventional naturalism" the form is preserved to a great extent; it is only the treatment that is conventional. This is the main characteristic of Japanese decorative art: they delight in monochrome pictures of flowers as well as of landscape; in fact, unless they use body-colour they are almost driven to monochromatic treatment. And the transference of the medium from water-colour to lacquer, or to embroidery or metal work, is as easy to follow as in the case of landscape. Each person may have his preference for the one or other class, but I think that all will admit that both are legitimate.

The present series of articles will not differ from previous attempts to deal with the subject in the fact that they make no pretence to be exhaustive, but they deal with one branch of it at least that is practically new to study—the Classic ornament of the Buddhist Temples. Before treating of this, however, I propose to deal with some of the finest examples of Japanese work as it is generally understood—the work which comes from lacquer boxes and utensils. It is here especially that the contents of the treasure-house seem inexhaustible—yet even here it will be found that some classification is possible.

The first example (plate 1, fig. 1, see lithographs) is a very free and informal treatment of sprays of peony, in gold and colour on the lid of a black lacquer box. The dark tone of the illustration represents the normal shade of gold which is used as a flat wash for the leaves: one of them (showing lighter in the illustration) is treated differently, in very dull gold with darker veining; it is intended for a faded leaf probably. The petals of the flowers are done in very bold gold outline; the veins are of finer gold lines drawn on the surface of the coloured lacquer, which is crimson for the larger flower and pale yellow for the smaller. This is a fine example of what I have called the conven-

tional naturalistic treatment. The outline of the petals is really true to Nature. Except at one or two points, that is how you would draw a peony. The thick bold outlining is the first step in the conventionalising of the flower; and already there is the suggestion of the classical treatment of the acanthus leaf, which becomes more and more marked as the conventionalising process is developed. The peony appears again in the second illustration (fig. 2), which is in two shades of gold, without colour, on black. The conventional spirit has seized on the stalk and smaller leaves, and reduced them to their most rigid form. This form has become the classical model for a line-scroll ornament, which is very prevalent in Japan. In the third illustration (fig. 3) there is a narrow panel of chrysanthemums and butterflies, in which a very charming and original effect is produced by the simplest means. Three shades of gold are used—dull for the leaves, with brighter lines for the veins; and the petals of the flowers and the butterflies' wings are highly burnished.

In the remainder of the illustrations given on plate 1 there is a more formal art, in which deliberate limits are set to the play of fancy, yet wherein it will be seen that fancy still is free in spite of limit. The circle is used as the ground-plan of a great deal of Japanese design. The plum tree will be recognised in fig. 4, which is from the outside of a very precious gold lacquer box, the property of Captain Brinkley, R.A., of Tokyo, the inside of the lid being given in fig. 5. In fig. 6 the pine tree and a primitive water-plant are bent into conjoined circles, and in the tail-piece at the end of this article an *Iris Japonica* is also subjected to the circular treatment.

Designs in a circular form constitute, however, a special class, and must be dealt with separately. The circle, as I suppose many of my readers know, holds a charmed position in Eastern art. It stands for completion, and hence perfection; and everything that makes a perfect whole was expressed by a circle sub-divided in the manner shown at A. The male and female element, positive and negative, light and darkness, and generally things which are the complement of one another, are expressed by their complementary subdivisions of the circle. So it was



not unnatural that the "comma" figure—the *tomoyé* (B)—which is also symbolic (though the dispute as to what it is symbolic of is not yet settled, nor is likely to be, as there are at least six independent theories) should give rise to two circular figures, C and D, which are well known in Japanese design, known respectively as the *hitatsu-tomoyé* (the double comma), and *midu-tomoyé* (the triple comma). The double comma, it is not unimportant to note, must not be confused with the symbol of completeness already given, for it is essentially different

in its composition, and, moreover, the two commas do not make a complete whole. The symbol of completeness, it may be noted, is the crest of the kingdom of Corea. And so, in perfect sequence, according to the laws of natural development, the crests of the great nobles of Japan came, in many instances, to be based on the circle. E and F are two well-known examples. A third (G) is typical of many others; the last (H) is the floral emblem of the Imperial house.

So, too, the national sequence of things ordained that the circular form should become a means of decoration, and should be formally adopted by decorative art. It is so familiar now that its parentage is lost, and its origin almost ignored. For, like all other religious symbols which Japanese art delighted to seize on for its own purposes, it became invested with the grace of the national artistic idea; and its artistic adornment has embellished the traces of its birth out of existence.

The decoration of a circular surface, it is hardly necessary to point out, is peculiarly adapted to a tangential flow of subsidiary lines. But presently the decorated circles themselves became items of ornament, and were used, either singly or in combination with ornamentation of surfaces, which are often to be seen "*semée* of circles," to use a term of heraldry—*semée*, of course, with that peculiar and subtle grace of arrangement—that "most admired disorder"—which is the keynote of Japanese art. And when once these decorated circles came to be used in this way, it was natural that they should be subjected to the same treatment as other items of ornament—clouds, waves, leaves, flowers, petals—and come to be massed, or broken up, on what, for want of a better name, I may call the "broken-cloud" principle. The designs which are given in this number (plate ii.) are all taken from a very handsome black lacquer box (also the property of Captain Brinkley), that is to say, a pile of five square trays, with an ultimate lid: the whole being about 8 in. square, and standing about 15 in. high. These designs belong to the order which I have termed "conventional naturalism," the form both of flower and leaf being preserved, and their colours (in the original work) more or less adhered to in so far as the lacquer pigments allowed; but the treatment is flat, the wave of the petal is indicated by lines merely, and there is an absence of any attempt at modelling. The box is a very conservatory of flowers: there are the peony and plum blossoms of course, and a wealth of blossom besides—iris, lily, apple, dianthus, lychnis, hydrangea, "Cape gooseberry," cockscomb—and even the humble grasses are pressed into the artist's service. The colours in the original are as brilliant as Nature's own, and in addition there are sprinkled over the stalks and on the calyxes of the flowers tiny square flecks of gold.

Turning to the composition and to the circular disposal of the plants, it is hardly necessary with respect to it to use a higher term than ingenious, but ingenious it certainly is; for no plant so stiff or ugly in its habit, not even that floral monstrosity the "cox comb," but is made to conform to the circular law, and for its obedience is invested with a grace which is not its own.

The tangential flow of the inner lines of the designs next calls for our attention.



Tangential treatment follows inevitably from the use of a circle as the controlling outer line of the composition, and there are some plants—the iris, for example—which lend themselves specially to this arrangement. Except in the case of the plum branch, where the rugged natural growth is preserved, all the designs have this tangential quality in greater or less degree, according as the plant's habit permits; but it is especially noticeable in the little grass circle, which appears to me one of the most charming of all, with its extraordinary flow and play of lines, the art of them so hidden that they seem to be bending to the breezes in the meadow.

Finally, and chiefly of all, I would draw the reader's attention to these designs as first-rate examples of the cardinal principle of all decoration—the unequal and subtle distribution of masses and spaces, and the sense of completeness which it gives to the design, and consequent repose to the eye. In this respect both parts of fig. 3, the circle on the right of fig. 4, and figs. 8, 9, and 10, are specially noteworthy.

F. T. P.



## NOTES.

**The National Trust.** The seventh annual Report of the "National Trust for Places of Historic Interest or Natural Beauty," states that during the last year the Trust has made by far its greatest acquisition of property, in the purchase of the Brandlehow estate on the banks of Derwentwater. This is about 108 acres in extent, and stretches from the shore of the lake up the hill to the public road bordering the unenclosed Common of Catbells, while its lake frontage extends about a mile from Otterfield Bay to the Brandlehow Lead Mines.

"A large area is thus made accessible to the public, both by land and from the lake, an area over which they may wander without restraint and enjoy unsurpassed views of typical lake scenery. Hitherto the shores of Derwentwater (like the shores of Killarney) have been open to the public only on sufferance. Henceforth there will be at least one spot which they will enjoy as of right."

The Eashing Bridges and approaches are now in the hands of the Trust, and during the winter repairs to the fabric have been carried out, under the supervision of Mr. Thackeray Turner, which while strengthening the bridges where required, have not damaged their beauty. A third acquisition, made during the past year, is that of the monument erected on the Dorset coast to the memory of Sir Thomas Hardy, Nelson's Flag-Captain. The tower has been handed over to the Trust on a 500 years' lease. Perhaps the most interesting matter mentioned in the Report is the proposal of the Trust to purchase Kymyn Hill, near Monmouth, not only a place of remarkable beauty, but also the site of a curious little

building erected in 1800, under the title of a "naval temple," in honour of the British Navy and the great English Admirals of the eighteenth century—Boscawen, Howe, Cornwallis, Jervis (spelt "Jarvis" in the Report, but this is surely incorrect), and Nelson. This is a kind of relic which certainly ought to be kept up, and its destruction is very likely to be the result of the site being sold into private hands. We hope the Trust will procure the funds required for this purchase.

**Lord Curzon on Indian Art.**

LORD CURZON'S speech on opening the exhibition of Indian art at Delhi is a gratifying one to read; it is so seldom that we find an English political ruler with any perception of or any care for art, that it really takes one quite by surprise to find a Viceroy of India showing such a clear perception of the qualities which formerly made Indian art so beautiful and valuable, and of the baneful effects of Oriental people being tempted to Europeanise their art-work. Unless this tendency is stemmed, it will be the ruin not only of Indian but perhaps also of Japanese art. It is to be hoped that Lord Curzon's words will not go unheeded by Indians and Anglo-Indians, since the requirements and tastes of the latter must have a great deal of influence on the former.

**English v. American Railway Management.**

THE correspondence upon this subject is still being carried on both in the daily Press and in trade journals. Many of the suggestions made by various contributors to the discussion, perhaps the majority of them, are simply impracticable, owing to the vastly different conditions prevailing in the two countries. "A Business Man," in the *Times* of December 25, advocates "freight agents," and shows how the American freight man "works up" a length of line with, say, twenty miles of country on either side. But the "country" in which his operations prove so successful has no counterpart here. Our freight agent—for we are not altogether without them—is powerless to "make" traffic as the American agent can in his extensive district. He certainly might be much more useful if empowered to give better facilities in the manner suggested by the *Times* correspondent; for when simply employed in snatching traffic from competitors, his efforts are of no value whatever to the community, and it is very questionable whether the shareholders reap any real benefit either. It is a case in which judicious combination would be advantageous and economical. Mr. Clement E. Stretton, in his recently published "History of the Midland Railway," deals at some length with the question of the construction and size of railway waggons. His verdict is that were we to adopt the American system, "the change would involve such gigantic alterations and so great sacrifice, that it could not possibly pay." And we suppose that in order to successfully advocate any railway reform, it is necessary to demonstrate clearly that it will pay!

**Traction Engines.**

No one can deny the importance of the traction engine industry to the country at large, and yet it is an unquestionable fact that

Local Authorities have generally been anxious to prohibit the use of traction engines by means of harassing by-laws. Curiously enough, this suicidal policy is more particularly rampant in those very districts where road locomotion is of especial value to the inhabitants. A report of the Local Government Board for the year ending March 31, 1902, shows that the effect upon the traction engine industry of prohibitions and restrictions, demands careful investigation, and it appears that the inquiries made by that body have already resulted in many roads and bridges being thrown open to traction engines, in many improvements being effected, and in the expenditure of much money in bringing up the highways and bridges of the country to a better standard. The National Traction Engine Owners' and Users' Association is a body formed for the purpose of representing the interests of members at Local Government Board inquiries, of giving assistance in contesting claims for alleged damage to roads, and of advocating the advantages of an improved standard for highways generally. From the Report recently issued by the Association we gather that satisfactory progress is being made in the desired direction, and that considerable prejudice on the part of Local Authorities has been removed. Unfortunately it is the first instinct of a Local Council in this country to endeavour to suppress any new development whether it be good or bad, simply because it is new. In the present case, as mechanical transport on roads is necessary for the welfare of the people, it is clearly the duty of responsible authorities to do everything in their power for its encouragement.

**More Niagara Power Plant.**

In addition to the 120,000-h.p. power plant on the United States side of the Niagara Falls, a scheme is now in course of execution by the Canadian Niagara Power Company. As the site chosen is within the Victoria Free Park, it is necessary by the terms of the license granted by the Commissioners that all power developed must be transmitted beyond the boundaries for use. Power will be developed by turbines working in a wheelpit 480 ft. long by 21 ft. wide by 170 ft. deep, and a tail-race tunnel, 25 ft. high by 18 ft. wide, which has already been driven. In the present instalment of the plant provision will be made for the development of 50,000 h.p., and it is anticipated that the installation will be ready for operation early in 1904. A second project on the Canadian side is that of the Ontario Power Company, the idea being to develop power in Victoria Park on a principle similar to that adopted by the Niagara Falls Power Company. The power station is to be situated a short distance below the Horseshoe Fall, where work has now been commenced. An interesting feature in connexion with this undertaking is the wing dam, built out for 800 ft. into the river, above Dufferin Islands. The effect of this dam has been to divert the water to such an extent that a large area of the river bed between the dam and the Horseshoe Falls is laid bare, and it is now possible to walk over the rocks whose curiously rounded forms show the influence of the waters that have passed over them for countless ages.



**Tests of Concrete-Steel Floors.** SOME recent fire and load tests of concrete-steel floors for the Bureau of Buildings of Manhattan, New York, show very satisfactory results. In one type of floor construction tested, which we will call (a): the main supports were two 10-in. I beams spaced 5 ft. 6 in. apart; the steel reinforcement consisted of 1 in. by 1 in. tee-bars laid on the lower flanges of the beams; the bottom layer of concrete was 5½ in. thick, and in the proportion of 1 part Portland cement, 1 part sand, and 6 parts steam ashes; the upper bed of concrete was 6½ in. thick, and in the proportion of 1 part Portland cement and 15 parts steam ashes; the under surface was covered with 1 in. of "Acme" plaster. In the other form of construction (b) the framing was of 12-in. I beams spaced 6 ft. 1 in. apart; the steel reinforcement was of 1½-in. round rods 12 in. apart, with three transverse ½-in. rods; the bottom layer of concrete was 5½ in. thick, consisting of 1 part Portland cement, 2 parts sand, and 5 parts steam ashes; the top filling was 8 in. thick, consisting of 1 part Portland cement to 10 parts of cinders, the ceiling being covered with ½ in. of Rockwall plaster. The nature of the tests was briefly as follows:—To subject the floors to an average temperature of 1,700 deg. Fahr. for not less than four hours, under a distributed load of 150 lbs. per square foot, and to extinguish the fire by a water jet at 60 lbs. pressure per square inch. From the official Report, it appears that the plaster of floor (a) was practically intact, the concrete showing a considerable amount of coherence, and the beam protection being effective. The loading test was thoroughly satisfactory. As to floor (b), the Report says that the plaster was all destroyed, two steel rods were exposed by the action of water, but generally the floor remained in good condition. The loading test was perfectly satisfactory. Both types of floor construction were consequently recommended for use in the borough.

**State Buildings in Egypt.** PRACTICALLY all the older public buildings in Egypt appear to be more or less defective in construction. Damp courses are usually absent, foundations consist of inferior material, the walls are not bonded, and have enormous joints of fat lime-mortar, and as a general rule the timbers used are too slight for the spans. In former times, when old flat roofs sagged, it was the practice to thicken up the roofing material for the purpose of filling hollows, and thus to prevent the accumulation of water and consequent leakage. It is not to be wondered at that many old roofs collapsed as a result of this treatment. In Alexandria almost all the roofs of old State buildings exhibit the following construction: top layer of lime, sand, and Kosremil 0·05 m. thick, concrete of lime, sand, and metal 0·35 m. thick, and occasionally a third layer of sea-weed 0·05 m. thick. The weight of this covering is very great, varying from 0·50 to 0·55 kilogrammes per square metre, and cases have been known where the roof covering, acting on joists unsupported by wall plates, has caused differences of level amounting to fully 20 in. Again, the ends of joists are usually bricked up to exclude air, and so they rot away, not infrequently permitting roofs and floors to collapse. Some hundreds

of buildings more or less exhibiting these undesirable features are scattered over Upper and Lower Egypt, most of them being beyond repair. All that can be attempted for the present is to patch them up until funds are available for complete reconstruction. Many new buildings are being erected by the Public Works Department, and in these armoured concrete, on the Monier and Hennebique systems, is being extensively employed with most satisfactory results, both as regards structural characteristics and expense.

Two or three of the houses which are being pulled down at the corner of Buckingham Palace-road (formerly Lower Belgrave-place) and Eccleston-street are associated with the memories of three eminent men. After his marriage in 1807, Sir Francis Chantrey removed from No. 12, Charles-street, St. James's-square, to No. 13 (since demolished) on the west side of Eccleston-street. Six years afterwards he bought Nos. 29-30, Lower Belgrave-place, converted them into one, and built there a foundry for his works in bronze, a studio, and a sculpture gallery. The ante-room of the gallery, lighted from above by a lantern, was designed for him by Sir John Soane in 1831. The house was renumbered No. 1, Eccleston-street—it has latterly been No. 102, Buckingham Palace-road—and Chantrey occupied it until his death in 1841. Some of his commissions were then completed by Professor Henry Weekes, R.A., who, as Chantrey's assistant, had tenanted an adjacent house (since No. 96, Buckingham Palace-road) and then took over the house and studio in Eccleston-street, wherein he lived until his death in 1877. No. 27, Lower Belgrave-place (afterwards No. 98, Buckingham Palace-road) was from 1814 to 1842 the home of Allan Cunningham, the poet, whom Chantrey employed during twenty-seven years as his foreman and secretary, and befriended with an annuity of 100£. In that house was born (1816) his son Peter, a clerk in the Audit Office, who compiled for John Murray the "Handbook of London."

**Society of Oil Painters.** THE exhibition of this Society at the Institute of Water Colours Gallery in Piccadilly is a numerous but not a very select one. It contains a good deal of mediocre work, and some that is positively vulgar—e.g., "Perplexing" (29); "Safe Home Again" (152); "The Girl I left behind Me" (183), and some others; things that are of no use except to be engraved in a popular illustrated paper for the middle-class public, who think nothing of a picture unless it is anecdotic. Mr. J. R. Reid gives the same kind of title to his picture No. 195—"The Lass that Loves a Sailor"; but then the interest in this really lies in the artistic treatment; the title is merely a catalogue label. Mr. Kennington exhibits a large and clever but odd picture, "The Pedlar" (69), a woodland scene in some vague primeval age, where a man little clad in skins offers primitive trinkets to women even less clad; it is essentially a piece of clever figure painting. Among the beautiful works in the gallery is Mr. Melton Fisher's half-length of a girl seated reading (163), with a profusion of flowers in her lap; beautiful both in colour and for the delicate and

poetic character of the head. "A Brunette" (259) is a charming head by the same artist, the Vice-President of the Society. The chief exhibit of the President, Mr. F. Walton, is a landscape (272) with much careful and delicate painting of foreground foliage, and a general completeness of composition and execution which make it a work of high artistic character. Among other figure subjects two by Mr. Gabriel Nicolet, "Le Rêve" (122) and "A Cup of Tea" (338), each showing a single figure in an interior, are noteworthy for a certain *spiritual* character in the figures, combined with very careful treatment of accessories. Mr. Byam Shaw, in "The Poet" (292), paints a curious but very effective idyll. Among the landscapes Mr. Cotman's "Meeting of Waters, Southampton" (279), has a pleasant touch of the old school of landscape about it, as if it had been painted a good many years ago, showing that rather conventional attention to compositions which is regarded as *passé*, but which had its merits. Among other works Mr. John White is excellent in "A Parish Council" of donkeys on a common (291); Mr. D. Y. Cameron's "Dark Angers" (200), the bridge light against the dark masses of the houses, is an effective architectural subject; Mr. Lavery sends an admirable sketch on a large scale under the title "The Bridge at Grès" (206), and Mr. Wetherbee a wild "Ebb-tide" scene (149) with a nude girl reclining among the rocks in the foreground; if not a sea-nymph (apparently she is a "human") she must have a very chilly time of it, but she furnishes the desired element in the composition. Mr. Henry Stock's "Dead Summer" (28) is not so successful, as an effort at imaginative symbolism, as some of his previous works of the same class.

**Landscape Exhibition.** THE exhibition of the small group of landscape-painters—Dudley Gallery. Messrs. R. W. Allan, J. Aumonier, Mark Fisher, Peppercorn, Leslie Thomson, and Sir E. Waterlow—who exhibit collectively from time to time at the Dudley Gallery, is always a welcome event. The present is the eighth of the series. The principle which is at the bottom of their art is indicated by the quotation from Goethe on the fly-leaf of the catalogue—"The head cannot understand any work of art without the aid of the heart"; i.e., this is not an exhibition of realistic landscape painting, but of landscape in which sentiment as well as execution is to be taken into consideration. First on the walls come ten works by Mr. Mark Fisher, painted in that broad and free manner which he has made his own; "The Sluice" is the largest work, but the two finest, we think, are "Shering Mill" and "Summer-time"; the latter we seem to have seen before, or perhaps it only contains the same elements of composition as a former work. Sir Ernest Waterlow's contributions are less broad in style but they are all fine in composition, and "October Evening, Picardy" is remarkably true to the character of the Picardy country, and shows also a most tender effect of light in the sky. Mr. Leslie Thomson's contributions are somewhat "loaded" in style, though fine in composition and feeling. Mr. Peppercorn, whose works occupy the top of the room, sometimes goes a little too far in the attempt to



reduce landscape to a kind of painted poem, but we do not find among the present set any which are open to this objection, and his large painting, "An Evening Effect," is a beautiful work; we like also the sombre composition entitled "A Cornish Valley." Mr. R. W. Allan shares the highest honours of the exhibition with Mr. Fisher; he sends eight works, nearly all fine. The largest one, "A Land of Hill and Glen," is perhaps the finest work in the room; "Early Spring in Kent," a long horizontal composition, is a beautiful little work, as also "Autumn," a sketch on a country road. Mr. Aumonier concludes with nine works, of which "Maldon, Early Morning," is a fine study of a special effect of morning light; "Cottages at Barrington," a view on one of the village greens which are among the special beauties of English rural scenery, is more in the artist's usual manner, and one of the best and most complete works in the collection. Altogether a charming little exhibition.

#### HYDE PARK CORNER; GREEN PARK; PICCADILLY; DOVER, ST. JAMES'S, AND OTHER STREETS; BERKELEY-SQUARE: 1800-1900.

In the course of the nineteenth century two important changes were made in the west end of Piccadilly, with two others equally important in its east end, and at an interval of about fifty years in each of the two localities. In the latter quarter the late Metropolitan Board of Works mutilated a leading feature of Nash's design for the crossing with Regent-street: at the remoter end the Office of Works spoiled the architectural effect of the entrance into the town from the west as planned and designed by Decimus Burton, after the removal of the toll-house and its gates which are plotted in Salway's Survey—see p. 9 of our issue for January 4, 1902.

#### Hyde Park Corner, Constitution Hill, and the Wellington Arch.

Two pictures given in 1888 by Burton's niece, Miss E. J. Wood, to the national collection are respectively labelled: "Unknown—late eighteenth century (?)"; and "By James Holland—b. 1800, d. 1870." Both are drawn from a spot a few yards westwards from the crossing to Grosvenor-place as one looks down the Tyburn valley in Piccadilly. The former view depicts the turnpike with its two toll-houses and gates, a middle group of five standards carrying eleven oil-lamps, some buildings by the walls of Hyde Park (1670) and Green Park (1666-7), Apsley House, of red brick, and in the foreground the east wing of St. George's Hospital (1733): the picture should be compared with Dagaly's coloured aquatint of 1797. I. Ware's own print shows the two wings he added to the north front of what had been Lord Lanesborough's "country house," its main front facing Hyde Park; Wilson's view in oils (1746) of the original building is preserved at the Foundling Hospital. The turnpike had been removed thither from Clarges-street in 1761, having been until 1721 at the end of Berkeley-street, and, as first erected across Hyde Park Corner (from the east corner of Grosvenor-place), consisted of a toll-house on the south side of the main road, three swing-gates and two turnstiles on the footpaths. Thirty years afterwards the toll-house was replaced—as we see in the picture—with two lodges in the road-way, two side-gates, and railings instead of the turnstiles—all designed by Henry Holland (obit 1806). In 1825 an Act was passed for the abolition of certain tolls: on Tuesday, October 4, of that year were sold by auction the Hyde Park Gate with its "engine-house" and weighing machine, in twenty lots; a woodcut of the sale by Abbott will be found in Hone's "Everyday Book," Vol. I., cols. 1357-8; one lodge is inscribed "Piccadilly." The toll-gate was succeeded by a turnpike at Albert Gate, Knightsbridge, which remained there as late as 1856, *vide* a water-colour view of that year, by P. Hosmer Shepherd. James Holland painted his picture (lately

removed to the Tate Gallery) for Decimus Burton (obit 1881). He delineates a trophy of arms upon the blocking above the middle gateway of the Hyde Park screen, and introduces the sculptured podium of the Green Park arch, with ten sculptured figures of Britannia, &c., upon the entablature, and a quadriga, the horses to extend across the formed portions of Burton's original design. Since Holland's painting does not show the iron bullet-proof shutters that were affixed to Apsley House in 1831, but does show the hospital as rebuilt by W. Wilkins, R.A., in 1828-30, and Burton's screen and arch (1828), we may justly conclude that he drew his view during the interval 1828-31, and the costumes corroborate the inference.

Robert and James Adam had made a design in 1778 for an entrance into London at Hyde Park Corner. Sir John Soane prepared designs for two grand triumphal arches, with a colonnade and archways, to extend across the main road. His scheme was set aside—several of his reserved projects have since been revived in substance—for Burton's screen of fluted Ionic columns with three carriage-ways and two footways (1828) on the site of the old Hyde Park gates. In the blocking of the middle gateway is a frieze by Henning. The iron gates, by Bramah, have gun-metal bearings. At the same time Burton erected at the top of Constitution Hill the arch modelled after the "Porta Aurea" at Pola [September 25, 1836], and fitted with gates, also by Bramah. The King's Collection, British Museum, contains a copy of W. Kinnaird's proposed design, 1835, for a similar, but more highly ornamented, arch, carrying a quadriga. In 1840 Matthew Cotes Wyatt and his son James were commissioned to sculpture a figure of the Duke of Wellington mounted upon his charger "Copenhagen" (or, as some say, "Recovery"). The figure was modelled and cast out of captured cannon, in their studio and foundry at Dudley-grove House (opposite the east end of Bishop's-road bridge), Paddington, recently pulled down. The public subscribed about 30,000l. for the statue. In September, 1846, the statue was drawn, with a military escort, to Hyde Park Corner, and raised with crabs on to a base above a vaulting turned in brick at the top of the arch, whence on fine afternoons its shadow used to pass across the front of Apsley House.

With the growth of the town westwards, as well as to the north and south of Hyde Park and Kensington Gardens, the cross-facade along Piccadilly and Park-lane and Grosvenor-place correspondingly increased. As a remedial measure, Hamilton-place was widened and its northern end opened into Park-lane, so as to divert the traffic from the lower and narrow end of the latter street. Various projects were advanced for dealing with the congestion of vehicles. Of those illustrated and described in the *Builder* may be cited the plans of the present Editor [April 22, 1882] for a road from opposite Park-lane, under Piccadilly and under Constitution Hill, into Grosvenor-place, without destroying the perspective of Piccadilly by a removal of the arch and a creation of a shapeless and inconvenient open space; James Fergusson [March 11, 1876], Mr. J. MacVicar Anderson [April 8, 1876], and Dr. Churchill [May 6, 1882], for a subway under Piccadilly, the last-named being similar to one advocated in the *Times* in 1901 by Sir J. Wolfe Barry. Then Mr. G. Shaw-Lefevre, First Commissioner of Works, unfolded in the House of Commons on March 28, 1883, his scheme for alterations of Hyde Park Corner at an estimated cost of 29,000l. Towards that amount the late Duke of Westminster offered to contribute 3,000l., and the late Metropolitan Board of Works agreed to pay 20,000l. At that time Constitution Hill was entered, beneath the Wellington Arch, opposite the middle gateway of Burton's screen; thence it extended southwards to the corner of the wall of the grounds of Buckingham Palace, where it turned eastwards round the old reservoir site, passing to the south of the arch (new site), and so continued, as now, along the side of the wall of the Palace grounds. An official plan made by Sir John Taylor, dated September, 1882, shows that the general effect of the alteration has been to add to the roadway a triangular area measuring 610 ft. along Piccadilly, 560 ft. along Grosvenor-place, and (in a curve) 860 ft. from a point opposite Halkin-street to a point opposite Hamilton-

place.\* The Arch, situated with its north front in alignment with the north front of the Hospital, and at the north of the triangular "island" opposite the north wing of the Hospital, was removed 305 ft. to the south-east, and rebuilt out of parallel with its former position so that it stands askew in respect of every building around; as reconstructed it was opened by his Majesty (then Prince of Wales) on January 21, 1884. Adjustments of boundaries and of the incidence of costs delayed a settlement of the negotiations. In the result an Act was passed in 1887 to exempt the Metropolitan Board of Works from sharing in the expense, and it was arranged that although the railings of Green Park had formed a boundary of a part of St. Martin-in-the-Fields parish, the land taken away from the park should become portion of St. George, Hanover-square, parish, and that the Vestry of St. George should maintain and light the new roadways, the Vestry of St. Martin paying one-third of the cost. Meanwhile, in the bitterly cold and foggy day and night of January 24, 1883, amidst the fitful light of brazier fires, the statue had been lowered on to a level with the keystones of the arch, and thence to the ground within a hoarding which concealed it from public view. For taking it to pieces in May, we are enabled to say that the workmen firstly punched off the rivets that fastened the head, weighing, with the hat (4 ft. by 18 in. high), about 10 cwt, the plume—which, by the way, the Duke did not wear at Waterloo—being 3 ft. across and of copper. A starling's nest was found in the hat. A workman hoisted up to the neck easily slipped through the collar, and, finding plenty of room for walking about inside, ascertained the positions of the bolts that rivetted the body of the rider and the head and tail of the horse. The other portions had been forged together at the foundry, the horse's legs being solid, and all other parts from  $\frac{1}{2}$  in. to 2½ in. in thickness. An illustration in the *Builder* of February 10, 1883, shows the arch on its original site, together with the plan for lowering the statue, which was conveyed to Aldershot, and there set up on a pedestal designed by Colonel R. W. Edis, the Government contributing 6,000l. towards the expenses of its transport. The late Sir J. E. Boehm's equestrian statue [March 2, 1889, with the four angle figures, separately], cast by Mr. Moore, of Dilton, and executed at a cost of 10,000l., subscribed in part by private individuals, was unveiled by his present Majesty on December 21, 1888. The platform, pavement, &c., cost 5,000l.; Mr. Howard Ince helped Boehm in designing the pedestal; exception has been taken to the details of the costume for the year 1815. In 1889 was closed the roadway through the arch that had been previously reserved for a few privileged persons; and in October light traffic was admitted into Constitution Hill by two roads, 14 ft. wide, made on either side of the arch.

#### Green Park.

The author of "Tancred," animadverting upon the monotony of nineteenth century architecture in London, points out how adverse has been the influence of our Parliamentary Government upon the fine arts. Lord Beaconsfield excepted, our statesmen cannot be credited with much regard for effort to enhance the beauty of the capital. We therefore recall the fact, not commonly known, that Sir Robert Peel, when First Lord of the Treasury in 1801, with a presage of the uses which Piccadilly has served as a processional road in our own time, proposed to make a noble terrace and public walk along the whole north side of the park, to be adorned with fountains, statues, balustrades, and so on, overlooking the slopes to the south. Until about twenty years years before the Queen's walk, made in 1720 along the east side for Queen Caroline, and the margin of the basin at the north-eastern corner had formed the resort after dinner, and in their dinner dress, of the most exclusive circles of the *beau monde*. Hence the large sums paid for Royal grants of bowed windows, balconies, and gardens for the houses on that side. At that time the park was entered through doors and gates in the walls, keys being given to favoured persons. A map in "Lockie's Guide," second edition, 1816, plots Penny's

\* The further, yet utterly futile, widening of Piccadilly begun on January 10, 1902, has straightened the curve in its throat, the Arch, extended it to opposite Dow-street, and taken from the Park a strip 15 ft. wide at its broadest part, at a cost of 13,000l., Mr. Akers-Douglas being First Commissioner of Works.

\* Dates within square brackets relate to illustrations in the *Builder*.



gate at the south corner, with the Wilderness to the south and west of the Deputy Ranger's lodge. In the middle of the park stood the snow and ice house cited in "Ruggie's Diurnal," October 22, 1660; and in the hollow lay Cowford pool, through which ran the Tyburn stream. The Queen's Basin, a reservoir of the Chelsea Water Works, and enlarged in 1829 to a capacity of 1,500,000 gallons, is commonly, albeit erroneously, called Rosamond's Pond; the pond, so named correctly, in the north-western corner of St. James's Park had been filled up in 1770. In 1842 Lord Duncannon, First Commissioner of Works, drained and laid out Green Park; he razed the walls, filled up the reservoir and the pool, pulled down the Deputy Ranger's lodge (R. Adam, 1770) and the Hermitage (John Plaw, 1745-1820), opposite Down-street, and added the lodge grounds to the park, which now covers 53 acres. In his "Recollections, 1832-1886," Sir Algernon West says the two stages, modelled after prints by Bartolozzi, and now at Albert Gate, stood in front of Lady William Gordon's ice-house at the lodge. Her husband had succeeded Captain Thomas Shirley as Deputy-Ranger, and expended large sums upon that much-coveted residence. "It is a charming house," writes the Duke of Queensberry to George Selwyn: "how every one will hate you for having got it." Selwyn, with many others, was disappointed.

Sir Charles Barry's second set of designs for Bridgewater House were carried out in 1847-50: the house, erected for Francis, Lord Ellesmere, nephew and heir of the great founder of our inland navigation, stands on the site of Cleveland, formerly Berkshire House, purchased and altered by the last Duke of Bridgewater (obit 1803). "I am come from my home to your palace," said Queen Victoria on one occasion to the Duchess of Sutherland: the encomium is merited, for Stafford House has no compeer in London. It was begun for the Duke of York in 1825 from designs by Sir Robert Smirke, who, when the building had reached the ground floor, was superseded in favour of B. Dean Wyatt. Under the Acts 4 and 5 Vict., c. 27, and 5 Vict., c. 20, the Crown sold the mansion to George, first Duke of Sutherland, for an annual rent of 758*l.* and the cost (72,000*l.*) of the building, the latter amount being devoted to the laying out (by Pennethorne) of Victoria Park. Two years afterwards Barry remodelled the interior, added the masked top story, and built the stabling. For the site were demolished Godolphin House, the last home in London of C. J. Fox, and the Library, built by Kent (1737) for Queen Caroline, of which there is a sectional drawing in the King's Collection.

#### Piccadilly.

**Apsley House.**—In 1810 the Marquis of Wellesley acquired the residence which the brothers Adam had built of red brick after a plain design, for Henry, second Earl Bathurst (obit 1794), who, on appointment as Lord Chancellor, had been elevated Baron Apsley, of Apsley, county Sussex. The site, granted by letters patent from the King of May 3, 1784, included that, adjoining the park gates, of the apple-stall of James Allen, the Dettingen veteran, upon whom George II. had bestowed, in 1750, the fee-simple of his lodging. Allen's successors sold their interest to Lord Bathurst for a considerable sum. The Marquis disposed of his house to his younger brother, Arthur, then living in Hamilton-place. The Duke, in 1828-9, employed Benjamin Dean Wyatt (obit 1850) and his brother Phillip to alter the house by encasing it with Bath stone, converting the attic story, adding a suite of rooms with the "Waterloo" gallery over them on the west side, and building the tetra-style portico with pediment on the south front, at a cost, it is said, of 130,000*l.* The Duke, who on June 15, 1830, bought the Crown interest in the property for 9,530*l.*, would never call his home "Apsley House," nor use that name in his correspondence. The iron shutters which he affixed after an attack by a mob of "Reform" rioters in 1831, and of which he said "if any one be disposed to grow giddy with popular applause I think that a glance towards those iron shutters will soon sober him," were removed by his son.

In front of No. 142, and near the end of Hamilton-place (which has been rebuilt) stood the Hercules Pillars, commemorated in "The Plain Dealer" and "Tom Jones," where travellers were wont to alight on arriving in

London, and in subsequent years a favourite resort of the Marquis of Granby and other military officers. Nos. 144-5 are by S. P. Cockerell (obit 1827), the latter, Northampton House, and we believe inhabited by Cockerell, was bought in 1885 by Mr. Hamar Bass, M.P. for, we gather, 40,000*l.* No. 139, refronted and altered in 1890, occupies the site of No. 13, Piccadilly-terrace, Byron's last home in London before he quitted England in 1816. The adjoining house, No. 138, formed the eastern half of the residence of the notorious Duke of Queensberry (obit 1810). At Gloucester House by the corner, west, of Park-lane, lived Thomas, seventh Earl of Elgin, who there deposited the Elgin marbles before their removal to the west wing of (old) Burlington House, and thence, in 1816, to the British Museum. The Duke of Gloucester purchased the house on his marriage (1816) with his cousin, the Princess Mary. Beyond Park-lane are some houses by Holland. No. 128, completed in November, 1892, for the Piccadilly Club, replaces the Running Horse. No. 116, formerly Hope House, was built in 1848-49 by W. Cubitt & Co., after Professor Donaldson's designs, for H. T. Hope, who removed thither the earlier collection of pictures formed by "Anastasiou" Hope (obit 1831) at his house in Duchess-street, Portland-place. No. 116 (the decorations excepted) cost 50,000*l.*, the two fronts being of Caen stone with marble panels; the iron railings by André, of Paris; and the decoration, carving, the balustrade, and vases, &c., by Dussillion and a staff of French artists.

It is now occupied by the Junior Athenæum Club, who in 1887 had bought the site of the three adjoining houses on the east side of Down-street [March 24, 1888, plan]. No. 106, St. James's Club, on the site of the Greyhound, had been Coventry House, bought by Lord Coventry in 1764 from Sir Hugh Hunlock for 10,000 guineas, and afterwards the Ambassadors' Club, since dissolved. No. 105, on the Stratton estate, the residence of another celebrated collector of works of art, including furniture and musical instruments, the late Sir Julian Goldsmid, Bart., marks the site of Carter's, one of the many stately yards formerly in Piccadilly. The ground had been taken for a house designed by Novosielski, a Polish architect, for the last Earl of Barrymore, who died (1824) before its completion; the house was opened as the Pulteney Hotel, where the Emperor of Russia and his sister the Grand Duchess of Oldenburg stayed during the visit of the allied Sovereigns to England in 1814. The house was rebuilt in 1850-51 from the ground floor, the Portland stones being used again, by Sir Robert Smirke (obit 1867) for the Marquis of Hertford, who, however, never inhabited it, and devised it to the late Sir Richard Wallace, the ground-rent being (in 1896) 1,600*l.* per annum. The Goldsmid collection was dispersed at Christie's in June, 1896; the Isthmian Club removed in November, 1897, to No. 105 from Walsingham House on the south side of the road. Next, on the site of No. 104, stood the leaden figure foundry of John Van Nost who came to England with William III., described in Baldwin's "New Complete Guide for 1754-5" as being "near to the Queen's Mead House in Hyde Park-road." Nos. 101-4 were demolished for the Junior Constitutional Club [January 3, 1891]; the fabric cost about 75,000*l.*, the general contractors being Messrs. Bywater & Co.; the architect, Colonel R. W. Edis, adopted White Norwegian marble from Otten Fjord, with Portland stone for the moulded work, for the facade, which is one of the earliest examples of the use to any large extent of marble as ashlar facing for a London building; the members migrated in December, 1892, from No. 14, Regent-street, the (old) Gallery of Illustration, by Nash. At the rebuilding an opportunity was lost of raising the level of the road and so diminishing the gradient-rates of the inclines due to the course of the Tyburn stream which crossed the main road at the ancient Cowford in the hollow, since known as Stonebridge Close (vide Green Park). No. 100 is the Badminton Club, 1884-5, by Colonel Edis. At the corner (west) of Whitehorse-street stood the house, No. 96, of Charles Dumergue with whom Sir Walter Scott frequently stayed when he visited London. The site of Nos. 96-7 has been taken for the premises built of Ham Hill coloured stone after Messrs. T. & F. T. Verity's designs [January 17, 1891; and October 15, 1892, present design] for Sir Henry Brownrigg, Bart., first occupied by the Green Park

(Ladies') Club; next, until 1898, by the New Travellers' Club; and now by the Junior Naval and Military Club. Since Lord Palmerston's death in 1865, the Naval and Military Club have tenanted No. 94, Cambridge (formerly Cholmondeley) House, erected for Lord Egremont, and the residence of Adolphus, Duke of Cambridge, who died in 1850; and then, 1850-1865, of Lord Palmerston. The Imperial Service Club, No. 84, with a return frontage to Clarges-street, as rebuilt in 1899, is by Mr. George Sherrin. Bath House, one of the most elegantly fitted in the town, was built on the site of the residence of William Pulteney, Earl of Bath, for Alexander Baring, elevated Baron Ashburton in 1835, and contained a famous collection of sculpture and pictures, including Dutch and Flemish paintings from Talleyrand's Gallery. At the opposite corner of Bolton-street stood Wattier's—a "subscription house" frequented by Beau Brummel and his associates in the days of the Regency. The Berkeley Hotel, covering the site of the Three Kings, No. 75, has absorbed the St. James's Hotel, and in 1866-7 was enlarged, after Mr. R. Griggs's designs, on the sites of Nos. 74, formerly a shop of John Camden Hotten, bookseller, and 73. In his "Vestiges of London," 1851, J. W. Archer gives an etching of the then remains of Clarendon House, consisting of two Corinthian pilasters by the entrance into the galleried stable-yard of the Three Kings, whence General Palmer started the first Bath mail-coach.

At the corner (east) of Dover-street is a block built, 1884, in red brick and Ancaster stone at a cost exceeding 102,000*l.*, including 70,000*l.* for the freehold site of 4,550*ft.*, after Messrs. W. S. Weatherley and F. E. Jones's plans and designs [November 28, 1885, with two plans] for Hatchett's Hotel and the New White Horse Cellars, and sold at auction on January 26, 1887, for 65,000*l.* Having been occupied during a brief period by a restaurant club, the Cercle de Luxe, it was bought for 127,000*l.* in August, 1897, and reopened as the Hatchett's Restaurant and the Avondale Hotel. Some relics are preserved there of Abraham Hatchett's hostelry, the headquarters of mail-coaches which travelled into the West of England: confer J. Rosenberg's coloured print, after J. Pollard, of 1828. The Burlington Arcade, by Samuel Ware, and opened on March 20, 1810, was built upon the Duke of Devonshire's land to screen Burlington House and its gardens from the houses along the east side of Old Bond-street; the original leases yielded 4,000*l.* per annum from seventy-two shops. The Duke's project to erect a similar screen along the east side of his property was thwarted by the tenants in the Albany.

**Burlington House.**—Lord George Henry Cavendish, a son of the fourth Duke of Devonshire by his wife Charlotte, Baroness Clifford, daughter and heir of Richard, Earl of Burlington and Cork, inherited a large fortune from his kinsman, the eminent natural philosopher, as well as the Burlington estates, and in 1831 was created Earl of Burlington. In or about 1820 he had secured a renewal of Burlington House of which the demolition had been contemplated, and in the words of Sir W. Chambers saved "one of the finest pieces of architecture in Europe." He employed Samuel Ware, architect to the Duke of Devonshire and surveyor to the Duke of Portland, to rebuild the north front of the house, convert the attic second floor, construct a new roof, make a new grand staircase, and execute extensive internal repairs and decorations at an outlay of 50,000*l.* The Government bought the house and grounds extending to Burlington gardens, and covering 145,000*ft.* superficial, for, it appears, 140,000*l.* in 1854, and assigned rooms there to the University of London, the Royal Society, and the Linnean and Chemical Societies. For the south range of new buildings with two wings [March 25, 1871], by R. R. Banks (obit 1872) and his partner, Charles Barry (obit 1890), were demolished in August, 1867, a house, then numbered "48," and Colin Campbell's screen-wall of brick with stone piers, and great stone gate—confer his "Vitruvius Britannicus," Vol. III.—together with the wing-buildings and the beautiful quadrantal colonnade within [October 28, 1854, the gate, courtyard, and house]; see also A. Pugin's drawing and plan, 1823, "Edifices of London." The colonnade, ascribed variously to Richard, Lord Burlington, Kent, Gibbs, and Leoni, had been modelled after Palladio's palace of Count Vericalli at



Vicenza: its stones were wantonly thrown on the riverside at Battersea Park. The foundations were begun in November, 1868, and Mansfield and Price tendered £28,803, for the superstructure. Rooms in the new buildings have been assigned to the Royal Society, the Antiquaries, the Royal Astronomical, Geological, Chemical, Linnean, and other learned societies, as shown in our plan of March 25, 1871. In 1867-70 Sydney Smirke (*obit* 1877) remodelled and enlarged with an additional story old Burlington House, and built immediately behind it the block containing the exhibition galleries, lecture theatre, &c., that are familiar to most of our readers [February 6, 1869, plans of two floors], for the Royal Academy of Arts, who vacated their rooms in Trafalgar-square in 1869, the general contractors being Messrs. Jackson & Shaw, and the decorations by Leonard Collmann. The late Mr. W. E. Gladstone stated in the House of Commons (May 24, 1894) that the trustees hold the premises for a term of 999 years from 1886 at 1*l.* per annum under a guarantee given by the Chancellor of the Exchequer in 1835. In 1809-1900 Mr. T. G. Jackson, R.A., altered and redecored the vestibule and base of the main staircase, employing for the columns and pilasters a grey-toned cipollino marble from Embosa, not before used in this country, replacing the floor, and inserting in the ceiling some circular panels which Angelica Kauffmann painted, 1780, for the lecture-room in the Academy's rooms at Somerset House and which had been fixed in the ceiling of the library at Trafalgar-square in 1838. The keeper's rooms also were altered and redecored; the library formed the ballroom of Lord Burlington's time, and the Council-room, having richly carved mahogany doors and a painted ceiling, remains as it was in his day.

*University of London.*—At the rear, and facing Burlington-gardens, are the buildings erected in 1868-70 by Messrs. Jackson & Shaw, after Sir James Pennethorne's plans and designs for the University of London [November 23, 1867, view and plan]. The original estimate of 65,000*l.* was exceeded on a change in the design as the work proceeded. The front is constructed of Portland and red Mansfield stone intermixed, with an enriched course of Hopton Wood. The arrangement, at its two ends, of the columnar order of the middle first floor arcade is noteworthy, as the architect, instead of placing an ordinary half-column in the angle with the tower, completes the arcade with a full column (at each end), whilst the pilasters at the lower-angles supply the requisite finish to the order, so that the latter is disposed in the manner of a temple in *antis*.

*The Albany.*—In 1770 Stephen Fox, second Lord Holland, sold to Viscount Melbourne the mansion then known as Piccadilly, and since as Melbourne House, designed by Sir William Chambers [January 4, 1902, screen with entrance gates]. Lord Melbourne exchanged his house to Frederick Duke of York and Albany for Melbourne, now Dover House, Whitehall. In 1804 Henry Holland converted the house, now known as "A," for sets of chambers, and added those at the rear—some of them are freehold. The courtyard and buildings occupy the sites of houses of Lord Sunderland (*imp.* James II.), Sir Thomas Clarges, and Lady Stanhope, their gardens extending northwards to what was Vigo-lane. To St. James's Hall, originally designed and decorated by Owen Jones, and built by Messrs. Lucas [October 4, 1856, former entrance and interior of the great hall; October 18, 1856, portion of interior of great hall], were added the dinner-rooms in 1875. In 1882 were built the new entrance, having a front of red Mansfield stone and Luton brick, with mosaics, a vestibule with a small hall above it, a withdrawing-room for members of the Royal Family, and a tower rising to 100 ft. [February 24, 1883], by Messrs. Walter Emden & Co., the architects, who, in 1885 and 1891, made further and extensive alterations of the interior.

*Piccadilly Circus.*—The memorial, dedicated in June, 1893, to the philanthropist Anthony seventh Earl of Shaftesbury (*obit* 1885) was cast by Messrs. G. Broad & Son, the figure being, we believe, in aluminium, after designs by Mr. Alfred Gilbert, R.A. [July 29, 1893]. Messrs. J. Mowlem & Co. executed the foundation and stone work for the London County Council at a cost of 1,500*l.* The removal in 1894 of the dwarf wall enables one to see the exterior of the lower basin which presents the

best part of the purely decorative portion of the design. In a Continental city such a composition would be hailed with expectant appreciation; the ordinary criticisms of the day evinced how little prepared were the general public for so novel a departure from the commonly-accepted type of "fountain" after the bowl-and-pipe kind—as, for instance, in Trafalgar-square. The fountain is awkwardly situated in an awkwardly-planned space, and is out of axis with each of the five roads that meet in an area contrasted with which Seven Dials is regularly itself.

In the winter, 1884-5, the late Metropolitan Board of Works had begun the southern end of Shaftesbury-avenue; in August, 1885, they demolished the three-sided block, including the north-eastern quadrant of Nash's Regent-circus (1820), facing Tichborne-street (a formerly Shug-lane) and Piccadilly; they then pulled down the northern side, Nos. 1-11, of Tichborne-street. Under their Act of 1877, 40-1 Vict. c. 235, the Board had acquired land for rebuilding the London Pavilion music hall, opened June 23, 1859, which they bought from Mr. Loibl for 109,300*l.* in 1879, and took into their own management, and subsequently let to Mr. E. Villiers at an annual rent of 7,000*l.* On January 8, 1885, Mr. Villiers contracted to take over the site for 15,000*l.* premium, a ground rent of 3,000*l.*, and a covenant to spend 40,000*l.* upon a new building. Those transactions were investigated by a Royal Commission of Inquiry—Lord Herschell, Mr. B. Sanquet, Q.C., and Mr. Grenfell—in 1888. Disclosures made of corrupt practices on the part of certain members and officials concerned concurred to the abolition of the Board in the following year. The rapid rebuilding of the Pavilion is noteworthy: it was closed on March 25, 1885; on May 11 Messrs. Peto Bros. laid the first brick; on September 25 the music hall, having a capacity for 3,000, was ready for the magistrates' inspection, and on September 30 was reopened. The works, costing 75,000*l.* had occupied four months and three days, 350 men by day and 150 men by night being employed, and there, for the first occasion in London, electrical light was used for building at night time. Steam-saws, and twenty hand-sawyers worked the Westwood stone of which each block ran throughout from 3 ft. to 6 ft. deep in bed, and averaged over 60 ft. The elevations, having frontages to Piccadilly (135 ft.), Great Windmill-street (165 ft.), and Shaftesbury-avenue (155 ft.), and designed by Mr. R. J. Worley, arc of Portland stone up to the capping of the plinth and for the columns, with the superstructure of Bath stone from the Westwood Ground quarries; the planning and interior equipment are by Mr. J. Ebenezer Saunders [December 26, 1890, view and plan]; the carving and carved woodwork in the restaurant are by Mr. A. Lonnie; in 1889-90 Messrs. J. T. Wimperis & Arber, and Messrs. Wyllson & Long effected interior alterations and improvements.

Neglecting (old) Regent Circus for the while and crossing the road, one notices that the Criterion (opened on November 2, 1873) has displaced No. 221, the White Bear Tavern. Messrs. Spiers & Pond invited fifteen architects to prepare plans and designs for a decorations and equipment excepted; Mr. Clark, of Pain & Clark, acted as professional adviser. The four premiums, from 150 to 50 guineas, were gained by T. Verity (*obit* 1891), Mr. Phéné Spiers, E. Power, and Messrs. Evers & Mileham respectively. Messrs. Hill, Keddell, & Waldram contracted to build up to the party-walls for 7,995*l.*, Messrs. G. Smith & Co. being the general contractors. The building, after T. Verity's plans and designs, was completed at an outlay of 80,000*l.* [July 8, 1871, with front, and plans of two floors]. The theatre, below ground, has a capacity of 800; the ballroom takes up all the first floor of the Piccadilly front, which, as also the façade in Jermyn-street, is of Portland stone, the sculpture being by Mr. Edward W. Wyon. Nos. 208-9, at the corner (west) of Eagle-place, is the St. James's branch of the National Provincial Bank of England, with separated residential chambers in the upper three floors, built by Messrs. W. Brass & Son and, for the iron and steel construction, by Messrs. Handyside & Co., of Derby, after Messrs. A. Waterhouse & Son's plans and designs [May 27, 1893] to replace the former branch bank, No. 212 [June 21, 1873] designed by John Gibson (*obit* 1892), of which the ground floor has been altered

for a restaurant, the front being opened, and two columns inserted to carry the wall above. Passing by the north front of the Museum of Geology, by Sir James Pennethorne, 1830-8, and St. James's Rectory-house, rebuilt in 1848, we see that Nos. 100-9, 193 (Chapman & Hall's), 104-5, and 106 (Pickering's) have given place to Prince's Hall, changed six years ago into a restaurant and hotel, built by Peto Bros. from Mr. E. R. Robson's designs, with busts in the façade by the late E. Onslow Ford, R.A., two symbolical figures by Mr. Verheyden, and carving by Mr. McCulloch [March 13, 1886, the doorway of the Royal Institute of Painters in Water Colours; May 27, 1893, plan]. The restaurant company lately enlarged their premises on the site of Rawling's Hotel in Jermyn-street, employing Messrs. J. T. Wimperis and Arber as architects [June 3 and November 25, 1899, ceiling of reception-room by Mr. H. C. Brewer]. The Egyptian Hall, 1812, by P. F. Robinson, the figures of Osiris and Isis, by Gahagan, had, until sixteen years ago, its counterpart in a similar and, in point of style, a more correct structure, on the east side of Welbeck-street, southern end. It was built at a cost of 16,000*l.* for W. Bullock's natural-history museum and a part of the Leverian collection, dispersed seven years afterwards. During the interval 1812-52 the Hall formed the scene of as many as fifty-three shows, dioramas, and other exhibitions, including pictures by Haydon and Sir George Hayter, Captain Siborne's model of Waterloo (1838 and 1845), now in the United Service Museum, Whitehall; Dupressoir's views of Paris (1835); models of Jerusalem (1847); and Bonomi's panorama of the Nile (1850). In 1852 Albert Smith first gave his popular entertainment—the ascent of Mont Blanc. The Walsingham House block, 1886-7, by Mr. W. O. Milne, stands on the site of Nos. 150-4, Piccadilly, and Nos. 23-4, Arlington-street, the property of Lord Walsingham. No. 23 (or No. 24), Arlington-street, was Sir Robert Walpole's first home in that street; the drawing-room, it is said, is depicted in the second picture of Hogarth's "Marriage à la Mode." The (old) White Horse Cellar is now a parcels receiving-house, No. 155, Piccadilly.

*Old Bond-street* (1686).—The Western Exchange was built on the site of the Red Horse as a bazaar or appanage to the Burlington Arcade with which it communicated through a door now blocked up. A range of wide galleries, carried upon plain deal squared posts, formed the upper floor, lighted from above. Having been wrecked by a storm fifty-six years ago the Exchange was taken over by Messrs. Holland & Sherry, woollen cloth finishers and dealers, who, in 1887 let the premises to a firm of coach-builders; for the latter firm the Exchange was rebuilt No. 10 and rehabilitated the Exchange in the rear. The posts have been ornamentally encased, the galleries thrown open again (their original railings being retained), and some light tasteful decoration added to the woodwork. The London, City, and Midland Bank is by Mr. Gwyther; of other new buildings we may mention No. 22, by F. C. Inwood (*obit* 1840); No. 23A, by Mr. William Wallace; No. 31, by Mr. Beresford Pite, the "Four Seasons" in the façade modelled by M. Chavalland; and No. 39B (on the site of No. 41, where Sterne died) for Messrs. Thomas Agnew & Sons, a house memorable for the robbery there in May, 1876, and the recovery of his death in 1878. Some uncertainty obtains whether the house—one of the finest in this quarter—was that which was built for Henry Jermyn, Lord Dover, who lived in Dover-street, and whose widow sold her husband's house there in 1727.\* If, as it seems, the purchaser was John, first Earl of Ashburnham, the house was, or stood on the site of, Jermyn's, situated in a commanding position along the entire side of the steep

*Dover-street.*—On December 2, 1897, were sold the materials of Ashburnham House; the site, with the garden, and stables in Berkeley-street, were taken for the erection by Messrs. Prestige & Co. of a block of flats planned and designed by Mr. J. MacVicar Anderson. The house had been the home of the late Earl of Ashburnham, owner of the Stowe, Barrois, Libri, and other famous collections of MSS., dispersed since his death in 1878. Some uncertainty obtains whether the house—one of the finest in this quarter—was that which was built for Henry Jermyn, Lord Dover, who lived in Dover-street, and whose widow sold her husband's house there in 1727.\* If, as it seems, the purchaser was John, first Earl of Ashburnham, the house was, or stood on the site of, Jermyn's, situated in a commanding position along the entire side of the steep

\* See an interesting article by Colonel Prédreaux in *Notes and Queries* of September 18, 1897.





The Egyptian Hall, Piccadilly, amid its original surroundings, as "Bullock's Museum."

incline of Hay-hill to the Tyburn valley. In the Crace Collection is Bjyth's print of the porter's lodge and gateway, 1773, designed by Robert Adam for the second Earl, to whom also were due the beautiful interior decorations. No. 34 has been altered and enlarged at the rear, after Messrs. Young & Spencer's designs at a cost of 72,000*l.*, for the Bath Club opened on December 16, 1804; Nos. 47-8 have been rebuilt as the Premier Hotel—Mr. G. D. Martin, 1808; No. 11 is by Octavius Hansard (*obit* 1807); the (old) Scottish Club, by E. P. Loftus Brock; and No. 35, with stabling in Berkeley-street, was pulled down in June, 1893, for the Empress Club [September 2, 1809, with plans], by Messrs. J. T. Wimpey & Archer, the members migrating from No. 32 in July, 1809. In November, 1809, the Arts Club (1863) quitted "sweet Seventeen," Hanover-square, for No. 40, Dover-street. John Nash lived at No. 29 when he was carrying out his plans for Waterloo-place and Regent-street.

**St. James's-street.**—When John Crockford retired in 1840 with a heap of bad debts and a reputed fortune of one million and a quarter pounds, there were twenty regular gaming-houses in the parishes of St. James, St. George, Hanover-square, St. Martin-in-the-Fields, and St. Anne, Soho, besides countless "copper-hells" in nearly every part of the town. The house particularly associated with his career was built for him in 1826-7 by Benjamin Dean Wyatt and Philip Wyatt. On the passing of the Act of 1846 the gambling-houses decreased in number, and "Crockford's," from the first a private club, was closed. In 1849-51 it was taken for the Military, Naval, and County Service Club, and then converted into the Wellington Dining-rooms. Ultimately C. J. Phipps (*obit* 1898) altered the interior for the Devonshire Club. In or about 1835 Ephraim Bond, whose career is sketched in Lord Beaconsfield's novel "Henrietta Temple," and his brothers removed from No. 26 to gambling-rooms, "Raggett's Junior," in the house next to Crockford's at the corner of Bennet-street, since the St. James's Club, and now, as rebuilt, a coachmaker's shop. Brooks's Club (1778) by Henry Holland has been enlarged on the site of two houses in Park-place, 1888. On February 26, 1799, the Literary Club, or The Club, left Parsloe's, in this street, for the Thatched House, and in 1857 the Royal Society Club went thither from the Freemasons' tavern upon the removal of the Royal Society from Somerset House to Burlington House. It was frequented also by the Dilettanti Society (1734), and by John Hunter's club, the Pow-Wow, dissolved in 1830. A part of the tavern, and No. 76, Elmslev the bookseller's, were taken down for the building, in 1843-5, of the Conservative Club, by George Basevi the younger (*obit* 1845) and Sydney Smirke the elder, whose joint designs were selected in

competition—the decorations being by Frederick Sang and his son, Mr. Henry B. B. Sang. The rest of the Thatched House was taken for the Civil Service, since the Thatched House Club, altered and decorated in 1894 under Mr. R. C. Murray's superintendence. Thomas Hopper (*obit* 1856), who competed for the Conservative Club, was architect of Arthur's, 1826-7, originally White's chocolate house, established on that site at the end of the seventeenth century. The freehold was sold at auction on March 7, 1871, for 45,000*l.* Of Fenton's Hotel, No. 63, formerly Peyrault's, or Pero's, bagnio, there is a coloured drawing (1801) by C. Tomkins in the Crowle Pennant; having been demolished in 1888 for the Meistersinger's Club, and since occupied by the New Lyric Club; the house is now the home of the Royal Societies Club. The New University Club established themselves in this street in 1864; having since acquired the frontage to Arlington-street they rebuilt their premises, Nos. 57-8, after Mr. Alfred Waterhouse's plans and designs [May 16, 1868]. The main front is of Portland stone. Messrs. Farmer & Brindley executed the carving, and Messrs. Heaton, Butler, & Bayne the decorations. Palace Chambers and the Post Office have replaced the St. James's coffee-house, which, until 1806, stood at the south end of the street (west side); at the north corner is No. 48, the Royal Insurance Office, built in 1857-8 for the Sovereign Life Assurance Company by Pritchard & Co., contractors, for 45,000*l.* [April 18, 1857], and designed by Sir Horace Jones (*obit* 1887). The upper part of the façade is of Bath stone, the front of the ground and mezzanine floors, with the cornices and dressings, of Caen stone. Mr. William Farmer executed the carving. For White's James Wyatt (*obit* 1833) designed a new façade with two porticos, depicted in T. Malton's print of November 15, 1800, which Lockyer altered to its present and more decorative form [April 17, 1832] for Raggett in 1851 when the four bas-reliefs by Sir George Scharf were affixed, the works being carried out by W. Cubitt & Co., and the interior decorations by W. Morant; minor changes, including the famous bow window (1811) had been made by Higgins, John Goldicutt (*obit* 1842), and J. B. Papworth (*obit* 1847). Of White's, whose history is that of fashionable life during nearly two hundred years, the lease and effects were sold in 1888 for about 3,000*l.*, and in January, 1890, the club was converted into Recreations, Ltd., which in September of that year was sold for 15,000*l.* on behalf of the debenture-holders. At the corner, south-east, of Pall Mall, is No. 1, designed for the Alliance Insurance Co. by Mr. R. Norman Shaw, R.A., and having a sign [November 14, 1885], hand-forged in iron by Alfred Newman under the superintendence of Lord Battersea, a director

of the company. Sir James Pennethorne (*obit* 1871) designed No. 10, in 1832, for Crockford, as the St. James's Bazaar, with a saloon 190 ft. by 40 ft.; in 1882-3 the premises were readapted for the Junior Army and Navy Club by Wyatt Papworth (*obit* 1894), who remodelled the front with bay windows in the lower story and added a curb-roof to the return front in King-street.

**Berkeley-square.**—Sir Robert Smirke enlarged Lord Powis's house, No. 45, and designed the gallery for Lansdowne House (Robert Adam). Mr. H. Huntly Gordon designed No. 3 for his own occupation [June 6, 1895], the front being in Winsley Ground with a plinth of Portland stone: No. 40, by Messrs. Ernest George & Peto [May 1, 1897, No. XII., "Sketches of London Street Architecture"], was built in 1891 for Mr. W. S. Salting, of brown Portland stone, the iron grilles, with all the metal work within, including some interesting locks, being by Messrs. Starkie Gardner & Co. Two sheets of Horwood's Survey of 1792 and 1819, respectively, remind us of a circumstance that is commonly overlooked in notices of this square. When Horace Walpole removed in October, 1779, from No. 5, Arlington-street, the numbering of the houses began from the south-west corner; but in his life-time, or shortly after he died in 1797, the houses were re-numbered from the south-east corner. Thus the old No. 11 is now No. 42, and the old No. 40 became No. 11—mentioned by Walpole in a letter, October 14, 1779, to the Countess of Ossory:—

I am come to town this morning to take possession of Berkeley-square. . . . Lady Shelburne being queen of the palace [since Lansdowne House] over against me has improved the view since I bought the house.

No. 11 was afterwards occupied by Walpole's niece, the Countess of Waldegrave; No. 8, where Lord Clive ended his life, is now No. 45; No. 15 was No. 36, and so on. In terms of the London Government Act, 1899, the three parishes, St. George, Hanover-square, St. James, Westminster, and St. Martin-in-the-Fields, have been included in the Royal borough of the City of Westminster.

#### Some Notabilia.

**Piccadilly.**—Mr. Leonard Stokes's plan for the Circus [March 26, 1887]; underground conveniences for St. James's Vestry, 3,500*l.*—Messrs. B. Finch & Co. [August 11, 1899 plan]. The Criterion: East room, 1899—Mr. Frank T. Verity; new buffet and smoking-room, 1899, decorated by Messrs. Burke & Co. with marbles from Tennessee and Vermont, U.S.A., first used in England. J. Henry Egg the gunsmith's, pulled down in 1885. Bullock's Liverpool Museum opened, 1895, at 22, in the room formerly used for Astley's evening performances. 16, Lord Byron in 1806. 23,



birthplace of Nelson's daughter, Horatia, Mrs. Ward, ob. 1881; Nelson was then lodging in Arlington-street. *St. James's Church*: East window, by Wailes, 1846; window in memory of the late Mr. Westley, of 24, Regent-street, optician, and another to commemorate the two-hundredth anniversary of consecration in 1684, both by Messrs. Ward & Hughes; choir vestry—Messrs. J. T. Wimperis & Arber, 1899; organ by Harris, 1685; rebuilt by Bishop, 1852. *Melbourne House (the Albany)*.—Cipriani, Wheatley, and Rebecca decorated the ceilings for Lord Melbourne. The chambers: A. 2, Lord Althorp, Lord Byron in 1814 and Sir E. Bulwer Lytton (Lord Lytton) in 1837; A. 5, George Canning in 1810; E. 1 and F. 3, Lord Macaulay, 1840-56; H. 1, Sir Robert Smirke, 1807-9; K. 1, M. G. ("Monk") Lewis, Lord Clyde, Sir Charles Napier (when Commodore); D. 5, freehold, sold for 600*l.*, November 8, 1802. *Eurlington Arcade*.—Installation of electrical light (1809), by Messrs. T. Clarke & Son; iron-work by Messrs. Hart, Son, & Peard, from Mr. A. Baldwin Hayward's designs; 54-5, Messrs. Young & Spencer; 57, reputedly the oldest baker's shop in the West of London, with five houses at the corner of Old Bond-street, area 3,210 ft., bought on July 16, 1897, by the Prudential Assurance Office for 115,000*l.* In 1840 a portico, substituted for the original main entrance and steps of Devonshire House, built by Kent for the third Duke, who died in 1753; the state staircase of marble with a gilt and glass balustrade in the north front, as altered by D. Burton, is also modern; and in 1896 the iron gates from the Duke's house at Chiswick were inserted in the screen-wall, Piccadilly. 80, whence Sir Francis Burdett was taken to the Tower, April 6, 1810; in the "Dictionary of Architecture," Vol. I., p. 135, ascribed to R. F. Brettingham, but in Vol. V., p. 152, to Robert Mylne, between 1806 and his death in 1811. No. 124, Bramah, the locksmith's; 145, Wm. Beckford; 169 was Wright the publisher's, where Gifford beat Wolcott (Peter Pindar) and the *Anti-Jacobin* was published; 177, at the "Aldine Anchor" Pickering's stock sold in 1854; 151B, J. Camden Hotten's; 190, B. M. Pickering, bookseller.

*Burlington House*.—Royal Academy rooms, Mr. George Murray won the Royal Academy prize for the mural decorations, "Harvest" and "Calliope," at head of stairs to refreshment-rooms [December 31, 1898]. Royal Academy Professors of Architecture since the foundation—T. Sandby, 1768-98; G. Dance, 1798-1805; Sir John Soane, 1805-37; W. Wilkins, 1837-9; C. R. Cockerell, 1839-56; S. Smirke, 1865-6; Sir G. G. Scott, 1867-72; E. M. Barry, 1874-9; G. E. Street, 1879-80; Mr. G. Aitchison, appointed in March, 1887.

*University of London, Burlington Gardens*.—Sculptured figures: over portico—Bentham, Milton, Newton, and Harvey—Durham; roof-line, western half—Archimedes, Plato, and Justinian—W. F. Woodington; roof-line, eastern half—Cicero, Galen, and Aristotle—J. S. Westmacott; west wing niche—Locke, Bacon, and Adam Smith—W. Theed; east wing niche—Cuvier, Leibnitz, and Linnaeus—P. McDowell; roof-line, west wing—Hume, Hunter, and Sir H. Davy—M. Noble; roof-line, east wing—Galileo, La Place, and Goethe—E. W. Wyon (1869). Interior, marble statue of Queen Victoria, 1889—Sir Edgar J. Boehm.

*Tichborne-street*.—Weeks's Museum opened, about 1803, at 3, ceiling of the big room, by Wyatt, painted by Rebecca and Singleton, contents (see Leigh's "New Picture of London," 1824-5) sold at Christie's, May, 1864; in 1837 showroom of the Rockingham ceramic works, since Dr. Kahn's anatomical museum. *Swallow-street*.—Nearly all absorbed for Regent-street. Scottish church, the oldest in London, now the Theistic church. *Old Bond-street*.—24 and 29, Sir Thomas Lawrence. *Dover-street*.—17, O. W. Holmes, in 1886. *Grafton-street*, 1723.—4, Lord Brougham; flats and shops on site of 12.—Mr. F. M. Elgood, 1898. Buildings on site of 1-2, and at the corner of Hay Hill—Messrs. Boehmer & Gibbs, 1898. Premises at the corner of Albemarle-street—Mr. R. J. Worley. *Hay Hill*.—A one-story building, 1900—Mr. Basil Slade. *Berkeley-square*.—15, decorated by Gillows, under Professor Aitchison's superintendence; 21, Lady Anne Barnard, authoress of "Auld Robin Gray"; 23—Messrs. J. T. Wimperis & Arber.

*Albemarle-street*, c. 1685.—The Royal Institution, 1799, library, repository, and theatre (1800), by James Spiller, though ascribed to Thomas Webster, and (1809) to Crake; façade

of the original five houses, 1839—Lewis Vulliamy (ob. 1871); the Davy-Faraday Research Laboratory (1890), founded and endowed by Dr. Ludwig Mond, F.R.S., who also enlarged the old laboratory, library, and reception-rooms; No. 21, Faraday, 1813-58. St. George's Proprietary Church, 1810, 23, Alfred Club (Byron's), 1808, amalgamated with the Oriental Club, Hanover-square, c. 1856. Albemarle Hotel—Mr. Ernest George. John Murray the Second removed (1812) from Fleet-street to 50A (Miller's), where his son, John Murray the Third, died April 2, 1892. *Stratton-street*, c. 1693.—8, Messrs. Ernest George & Peto; 17, Mr. R. J. Worley; 16, Mr. C. J. H. Cooper, 1899; a house for Colonel Graham—Soane (ob. 1837); 7, W. Gifford; 1, Baroness Burdett-Conn's installation of electrical light by Messrs. Townsend & McIntyre, under Mr. V. G. Middleton's superintendence, all the crystal candelabra, lamps, &c., in use for over 100 years past being utilised—gas never having been employed (1894). *Charles-street*, 1717-8; 3, Lord Macaulay in 1838; 11, Lady Hamilton in 1805; 12, Edmund Kean many years after 1814; 14, W. Mitford, 1808-14. *Bolton-street*.—11, Mme. d'Arblay, whither Rogers took Scott to visit her. *Charles-street*.—33, Sydney Smith, 1836-9. *John-street*.—Berkeley Chapel, 1880—Sir A. W. Blomfield. *Herford-street*.—36 (since 35A), Lord Lytton; 10, Sheridan, 1793-1801; 14, Dr. Jenner; 25 (since 26), Charles, Lord Liverpool. *Dorset-street*.—Almost wholly rebuilt; Hazlitt in 1824. *Hamilton-place*.—Rebuilt 1805, and again since; 1, Lord Eldon many years, until his death in 1838; 2, Queen Caroline; 4, Thomas Grenville, who bequeathed his library to the British Museum.

*St. James's street*.—Block of shops and chambers on the site of 66-7 and 1, St. James's-place, 1809—Mr. R. J. Worley; Felix Rowland's macassar oil shop, in front of the Thatched House; 8, Byron, in 1809-13, where he awoke one morning and found himself famous; 29, Gillyray, in 1815, his plates bought by H. G. Bohn as old copper; 64, the Cocoa Tree.

*St. James's-place*.—38, Captain Maryatt, 1832. A house for Sir John Lubbock, Bart.—Thos. Leverton (ob. 1824); 22, by James Wyatt for Samuel Rogers (drawing-room bookcase painted by Stothard; Flaxman carved the cornices and mantel-pieces; for account of contents see the *Art Union Journal*, 1847); 13, Mrs. Robinson ("Perdita"); 25, Lord Guildford, and Sir Francis Burdett about twenty years until his death in 1844.

*Cleveland-row*.—5, Theodore Hook, 1827-31. *Arlington-street*.—On pulling down 23, Lord Walsingham's, in 1886, was discovered a dipter painting of Hercules and Omphale (life-size) in the grotto of Mount Tmolus, with a landscape in the background (confer Mr. E. J. Tarver's letter in the *Times*, October 19, 1886); C. J. Fox, in 1804-5, at 9.

*Jermyn-street*.—Cox's, formerly Dorant's, Hotel—Henry Rhodes and T. Chawner; St. James's Hotel, where Scott rested in July, 1832, on his return for the last time to Abbotsford, now 76, Hammam-chambers; the Baths—Mr. G. Somers Clarke. *Bury-street*.—Properly Berry-street. Marlborough Hotel, on the site of Ramsay's Hotel and 13, with 12 and 14, Ryder-street, by Messrs. John Bennett & Co., 1867-8—Mr. G. D. Martin; buildings on site of 36-8, and 19 and 21, Ryder-street—Mr. R. J. Worley; 33, Thomas Moore, 1804; Steele's house (1707-12)—the third house, right-hand turning out of Germain-street, he writes to his wife—pulled down in 1830. *Bennet-street*.—4, Lord Byron, winter of 1813-4. *Duke-street*.—8, Maryat, in 1837-9; 10 (Sussex-chambers), Thomas Campbell, of the Literary Polish Association, 1832; 15, Thomas Moore in 1833.

PROPOSED EXTENSION OF GALASHIELS MUNICIPAL BUILDINGS.—A special meeting of Galashiels Town Council was held on the 26th inst. for the purpose of inspecting the sketch plans of the proposed extension of the municipal buildings. The architect, Mr. John Hall, was present, and explained the sketches which he had prepared, showing offices and Boardroom for the Parish Council, Burgh Chamberlain, police-cells, charpenter, and Chief Constable's room on the ground floor; Town Council chambers, courtroom, two committee-rooms, two witness-rooms on the first floor; and offices for the Burgh Surveyor and water officer and store-rooms on the second floor. The two plans which the Committee were most satisfied with were estimated to cost 4,100*l.* and 4,250*l.* respectively, exclusive of architects' fees.

## Illustrations.

### IN THE BELFRY: RINGING IN THE NEW YEAR.

THIS illustration must be accepted as a kind of New Year's card from the Editor, accompanied by his best wishes for the New Year to all his readers.

The drawing is an attempt to convey the picturesque effect of a belfry stage with the old-fashioned timber framing, especially when all the bells are in full swing. The music of the bells is indicated in the stave underneath, ending as is often done on occasions of rejoicing, with three clashes of the whole peal. The eight bells do not all come into the picture; that would have been difficult to manage; but the others may be imagined.

H. H. STATHAM.

### "COMMERCIAL ART."

In this composition I have attempted to show how commercial buildings can be invested with picturesqueness. Before the age for modernisation set in there were many Flemish towns in which the buildings devoted to trade were conspicuous for their beauty. The divorce between business and art in the realm of architecture is of recent origin. There is no necessary antagonism between picturesqueness and utility; even such structures as the warehouse and the crane can be made pleasing to the sight; indeed, Pugin somewhere says that the railway-station affords opportunities for architectural display excelled only by the cathedral. Unfortunately, the modern "practical man" thinks that when artistic design is considered utility must be sacrificed; and this erroneous idea, more even, perhaps, than lack of taste, is responsible for the hideousness of so many of our commercial buildings.

H. W. BREWER.

### THE GIANT'S STAIRCASE, DOGE'S PALACE, VENICE.

This illustration, from a beautiful sepia drawing by Mr. A. C. Conrade, shows the celebrated staircase from a rather new point of view. The colossal statues of Neptune and Mars are by Sansovino.

The artist has rendered the scene more real and interesting by peopling it with figures in the costume of the sixteenth century.

### RICHMOND BRIDGE.

MR. MONK's effective drawing of Richmond Bridge will, we fear, have soon to stand as a memorial of that which has passed away. It is understood that Richmond Bridge is to be destroyed, under the usual pretence of heavy gradient and insufficient width. The traffic over it is not large, and in our opinion it might very well stand for the present; but one knows by experience that when once the idea of pulling down a picturesque old bridge is mooted, nothing will long stop the joy of the authorities in the work of destruction. It would be perfectly possible to build a new bridge as picturesque as the old one, with the required gradient and width; but we can have no hope that any attempt to do this will be made, and probably the old bridge will be replaced by the kind of thing that County Council engineers produce.

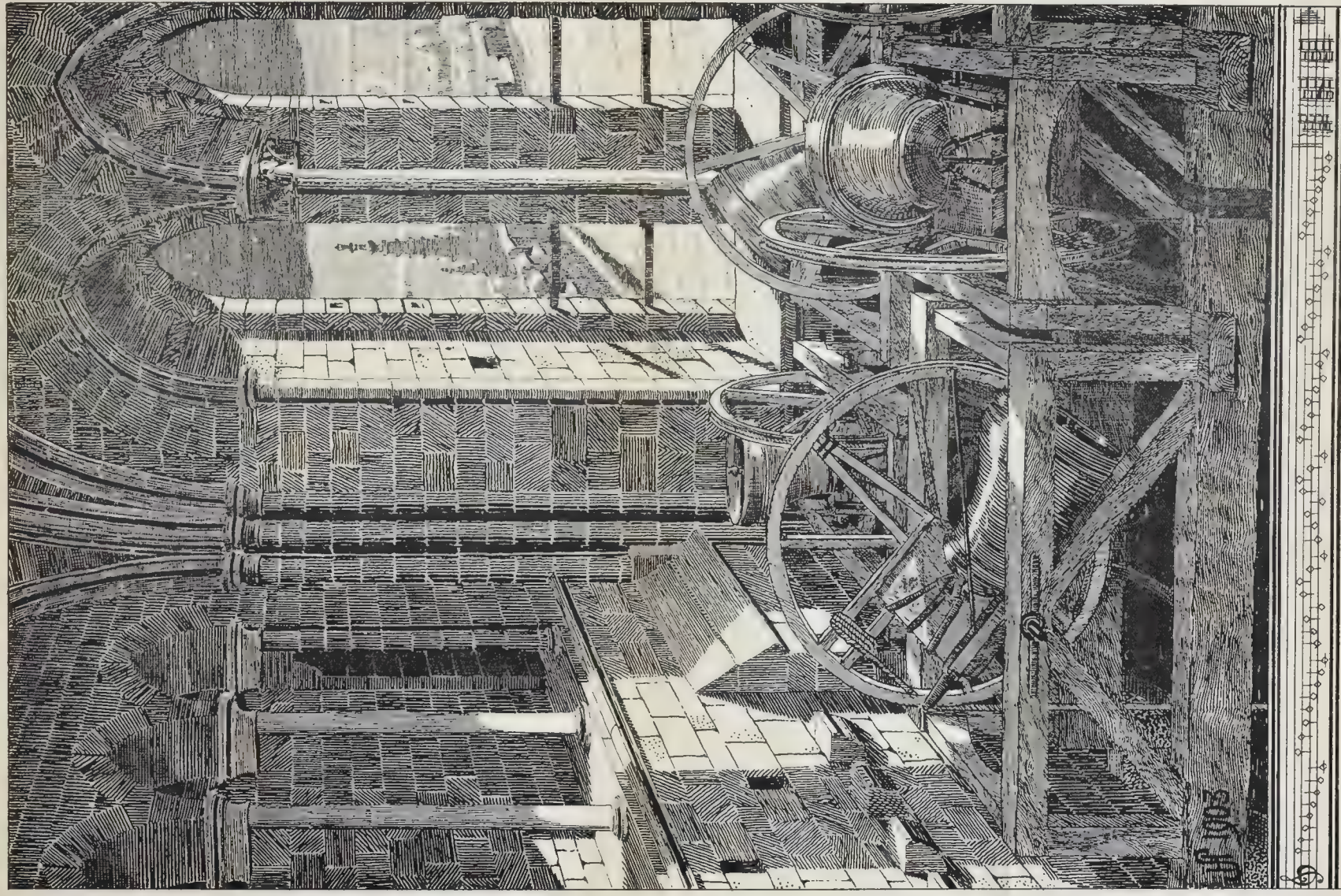
The bridge was built in 1780, from the designs of James Payne.

### DESIGN FOR A MODERN ANGLICAN CATHEDRAL.

We were so struck with the fine character of the "Sketch Design for a modern Anglican cathedral" submitted by Professor Beresford Pite in the Liverpool Cathedral Competition (and passed over without recognition by the assessors), that we proposed to him to make a perspective of his design for publication in this issue, which has been done with his consent and approval.

The lines of the perspective were laid down by Professor Pite's assistant, Mr. Wingate, and the drawing was finished by Mr. W. Curtis Green. A birds-eye view was adopted as the only means of showing the grouping and arrangement of the buildings; this does not give the best aspect in regard to architectural effect, as it shows too much of roof expanse





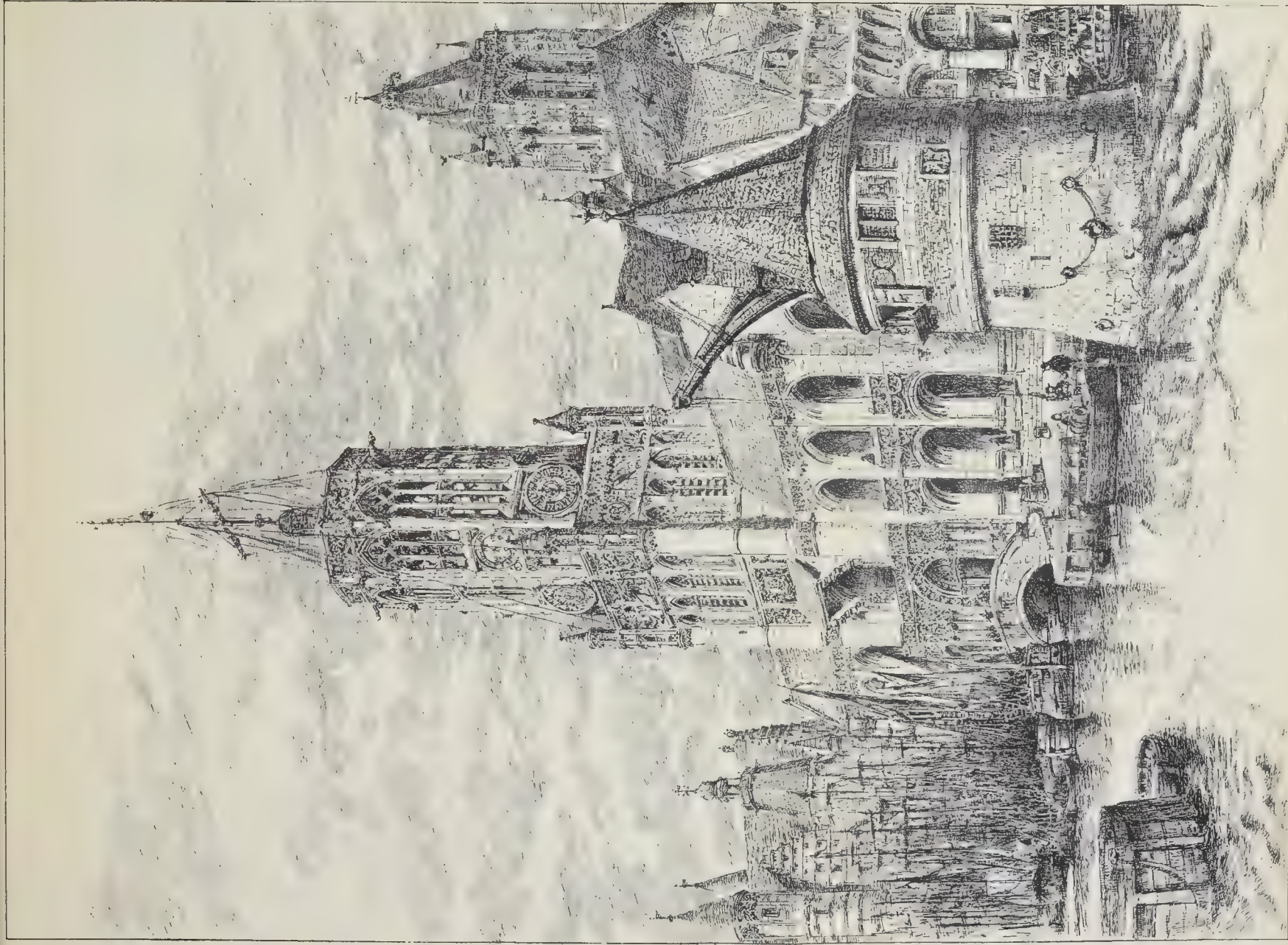
IN THE BELFRY: RINGING IN THE NEW YEAR.—BY THE EDITOR

PHOTO 1740 SPRING AC - 11 4 55 EAST WARDING STREET CATER LANE EC









WOOD, TWO SPRING FOUNTAINS, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

"COMMERCIAL ART" HARBOUR OFFICE AND CUSTOM HOUSE—DRAWN BY MR H W BREWER









THE GIANTS' STAIRCASE, VENICE.—DRAWN BY MR. A. C. CONRADE









RICHMOND BRIDGE. Drawn by MR. W. M. S. K.

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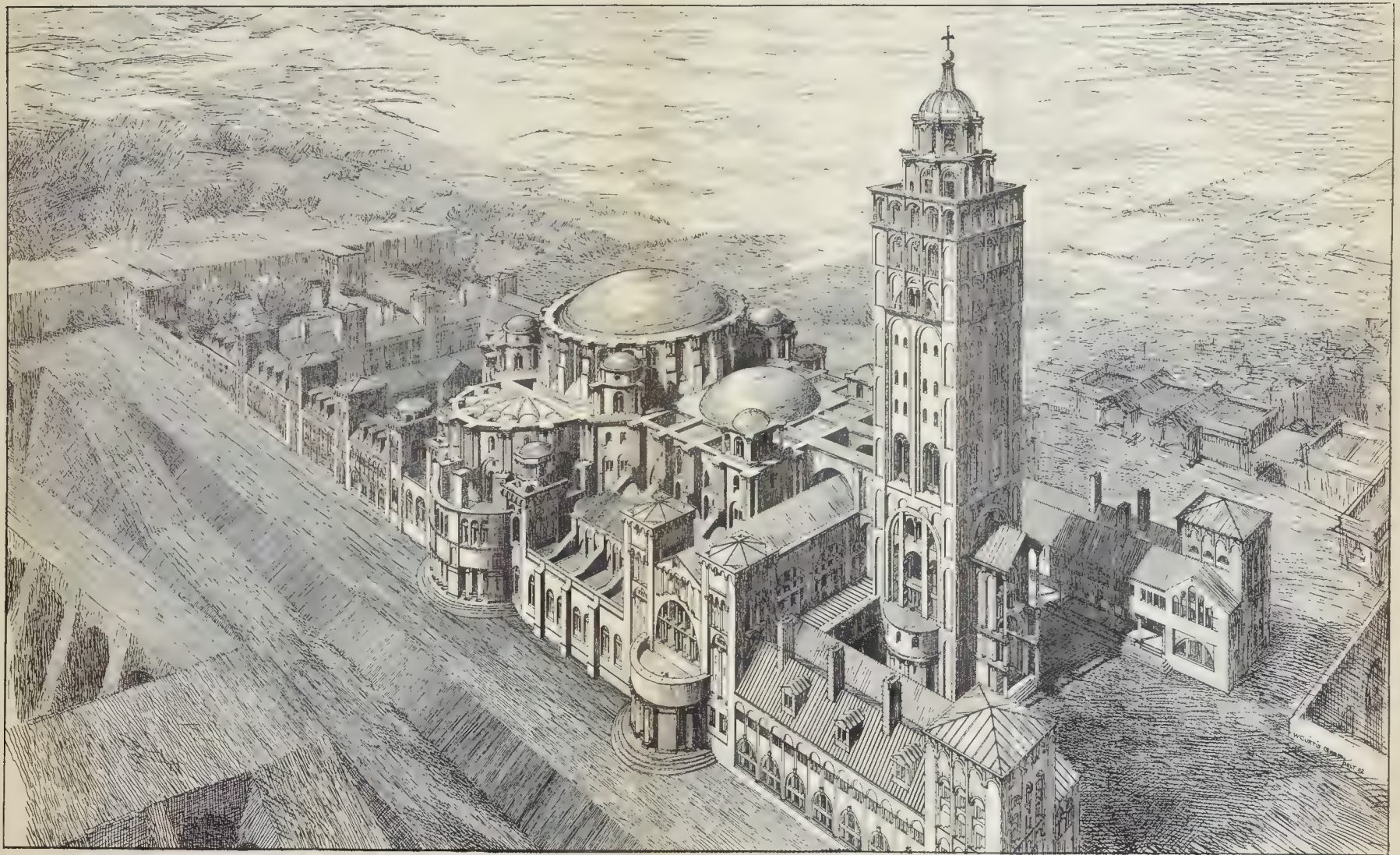


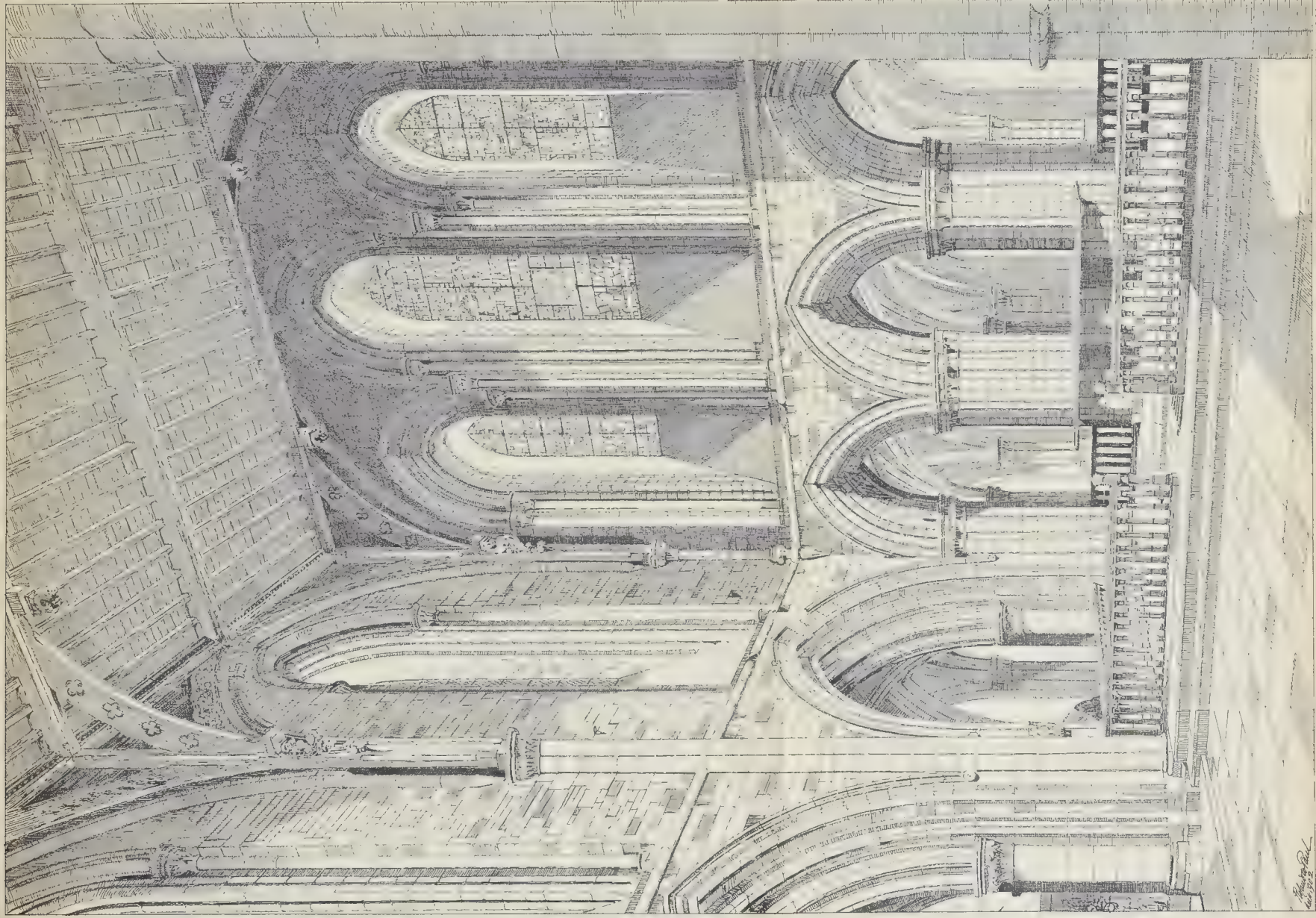
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PERSPECTIVE VIEW OF DESIGN FOR A MODERN ANGLICAN CATHEDRAL BY PROFESSOR BERESFORD PITE, F.R.I.B.A.  
DRAWN BY MR W. CURTIS GREEN







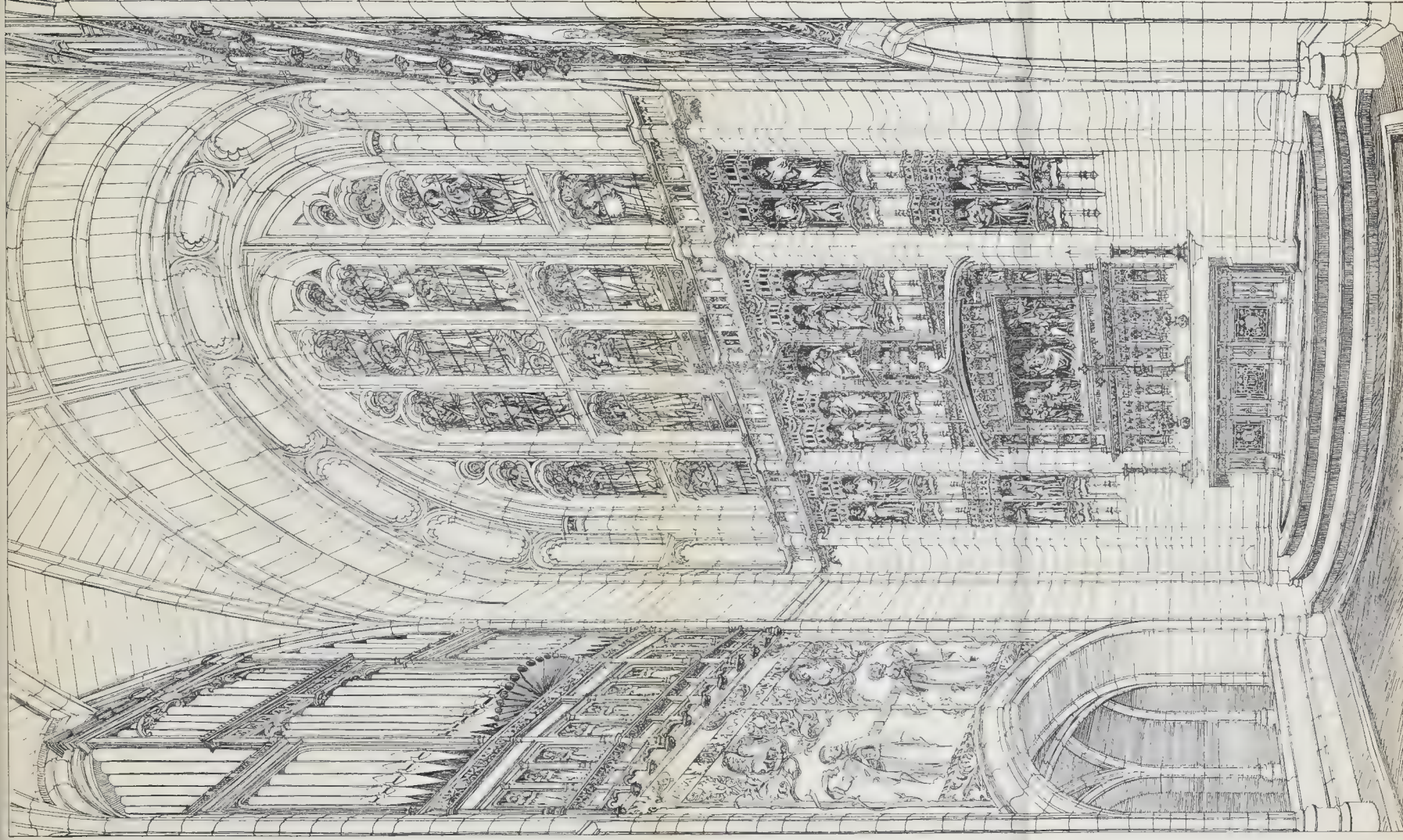


ABBEY DORE CHURCH, WREFOED THE PRESTERY, AS RESTORED BY ROLAND W PAUL, F.S.A., ARCHITECT





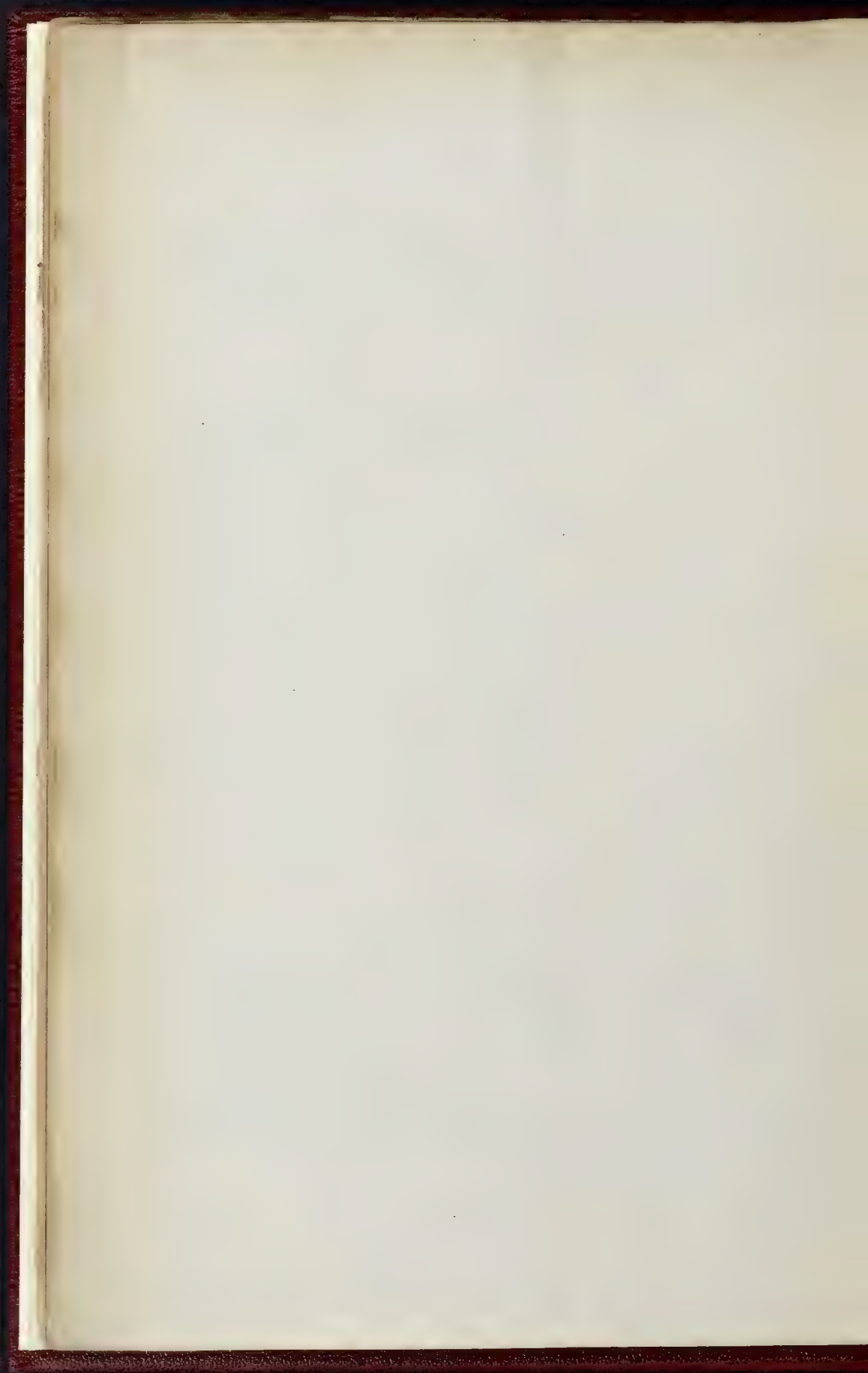




A. J. DODD, LONDON, ENGLAND. PHOTOGRAPH BY J. H. DODD, LONDON, ENGLAND.

CHRIST'S HOSPITAL, HORSHAM : EAST END OF THE CHAPEL.—MESSRS. ATTON WEBB, A.R.A., & INGRESS BELL, F.R.I.B.A., ARCHITECTS.









CHALMERS HOSPITAL, HORSPAM: THE SCHOOL HALL. MESSRS. ASGHEN WELLS, A.R.C.A., & ISAAC S. BELL, F.R.I.B.A., ARCHTENTS.









CHRIST'S HOSPITAL, HORSHAM. THE DINING HALL. Messrs. Aston Webb, A.R.A., & Knodes Ltd., F.R.I.B.A., Architects.

THE BUILDER, JANUARY 3, 1903



CHRIST'S HOSPITAL, HORSHAM. DETAIL OF ENTRANCE TO SCHOOL HALL. Messrs. Aston Webb, A.R.A., & Knodes Ltd., F.R.I.B.A., Architects.





THE NEW HÔTEL DE VIL



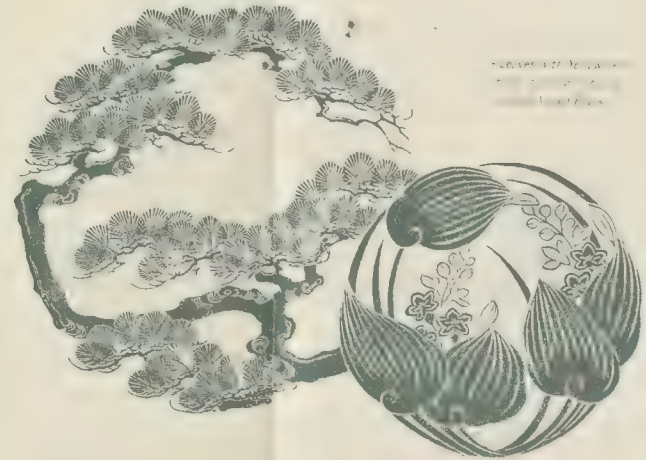
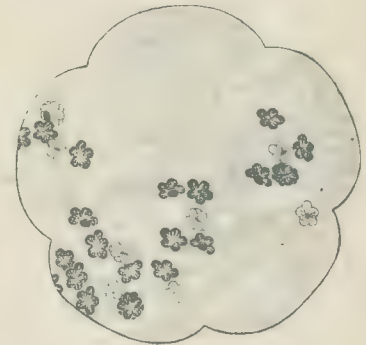
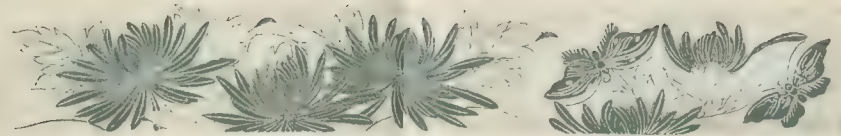


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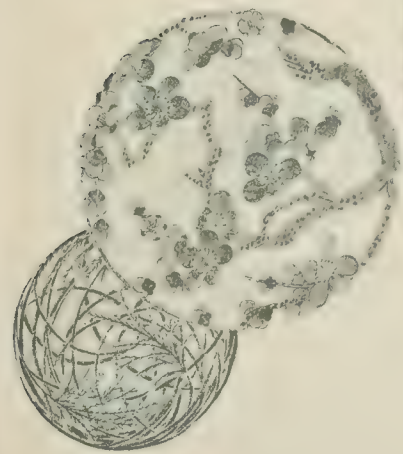




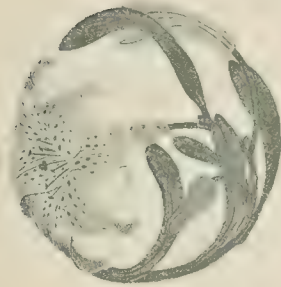




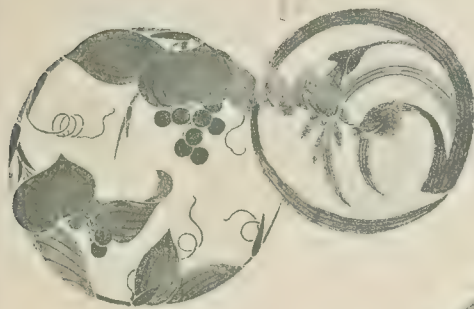




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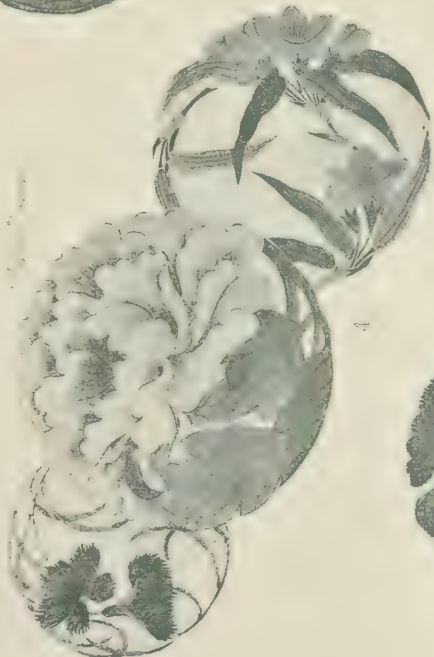
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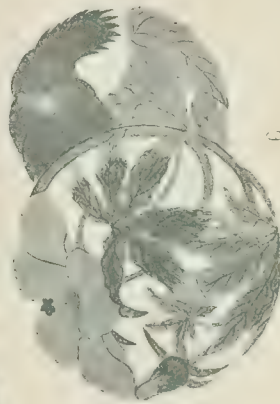
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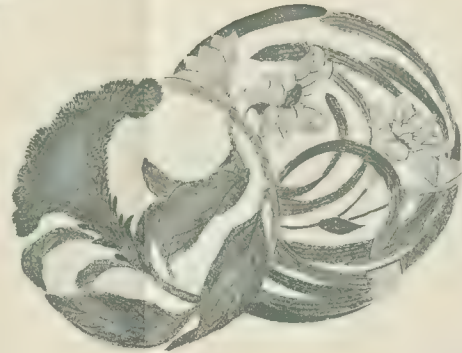
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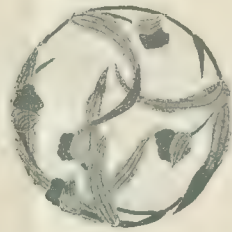
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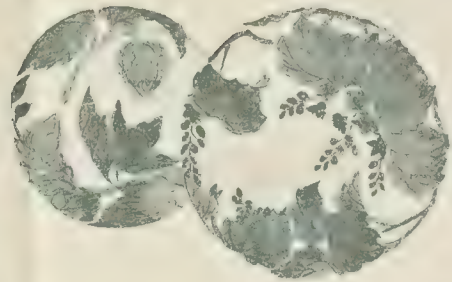
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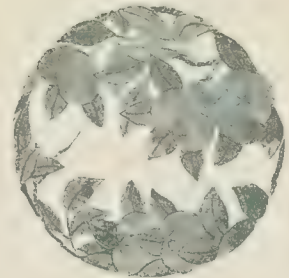
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Albemarle House



The "Three Kings," near Berkeley Street.



The "White Bear" (formerly "The Feathers"), Piccadilly.



House of Sir Thomas Clarges (site of Sackville Street).



Ranger's Lodge, Green Park



Old Houses, St. George's Place, Hyde Park Corner



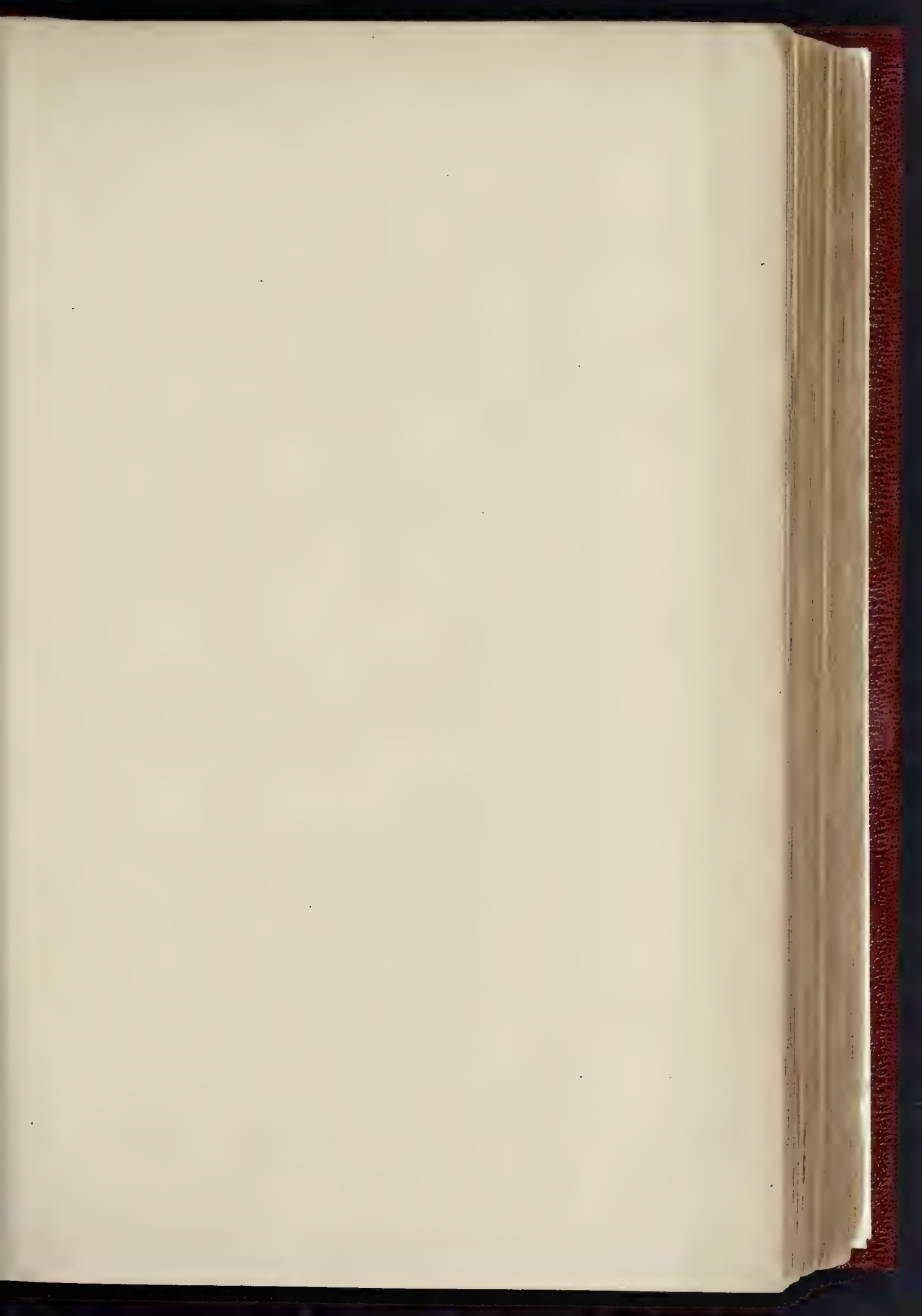
The Colonnade and Gateway of Burlington House, from the Courtyard.

BY PHOTO SPRAGUE & CO. 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.



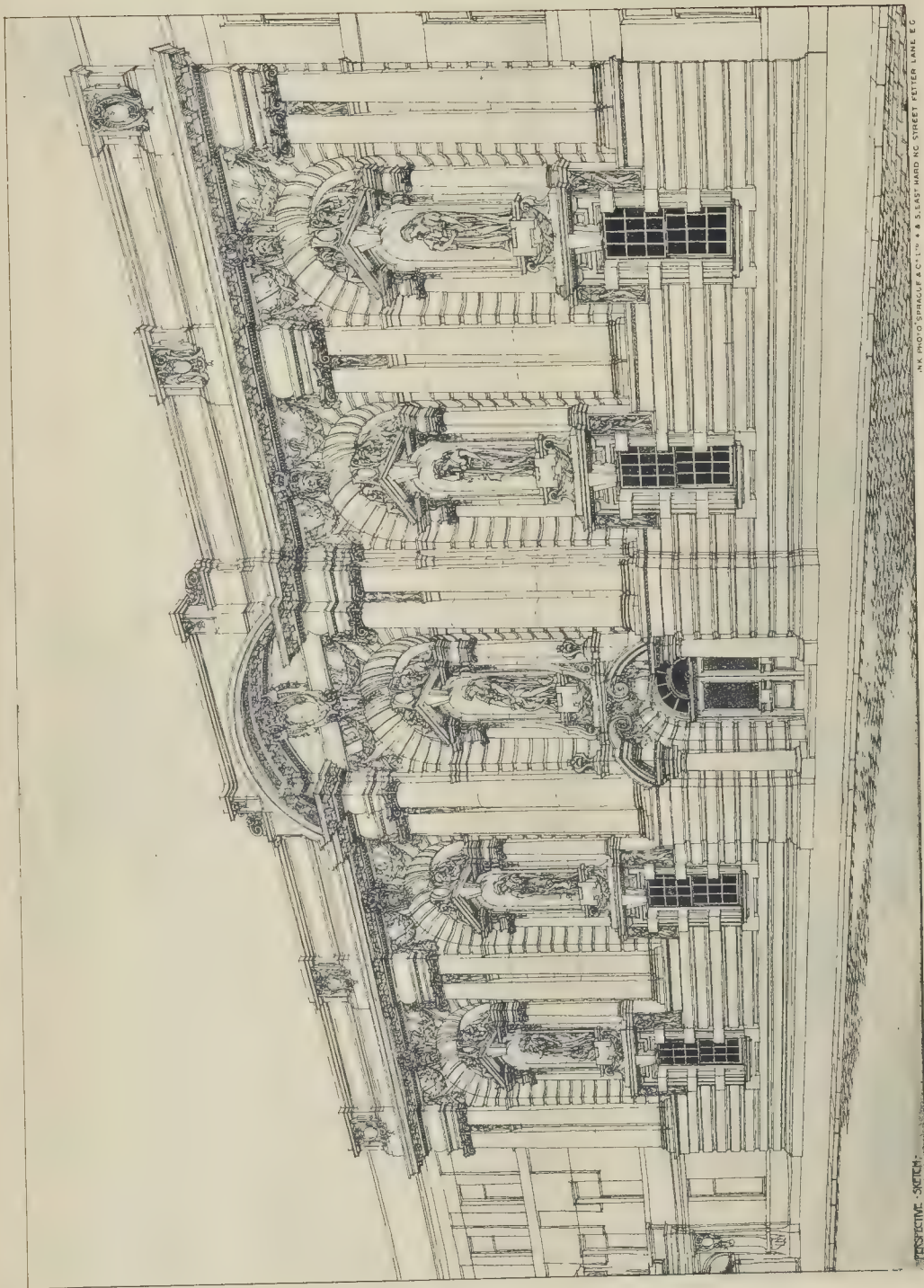








THE BUILDER, JANUARY 3, 1903.



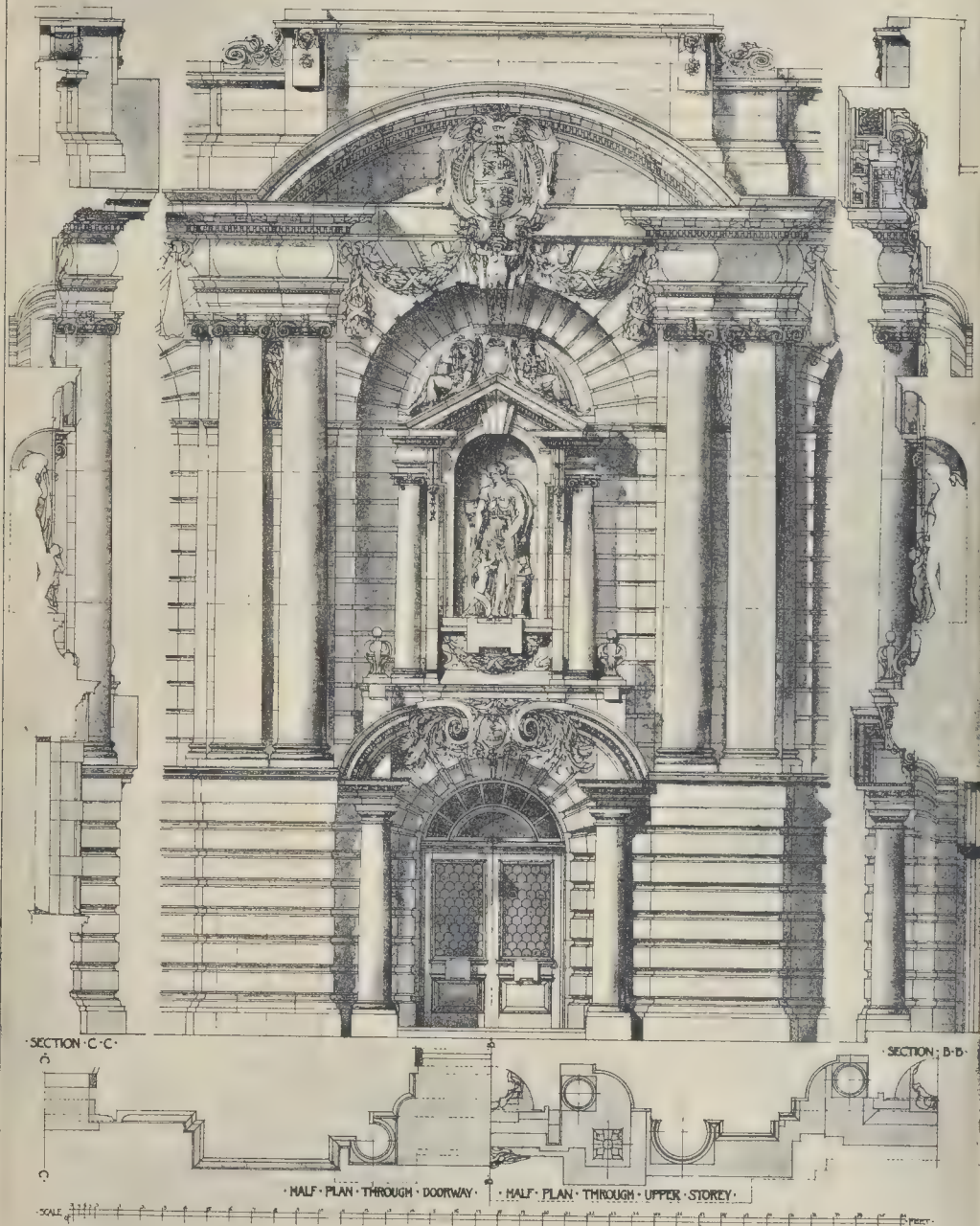
PERSPECTIVE SKETCH.

PERSPECTIVE VIEW.

AK. MOO'SHALL & CO. LONDON. 4 & 5, LAST HARD HC STREET PETER LANE E.C.



· DESIGN · FOR · A · PICTURE · GALLERY ·  
· FOR · A · COUNTRY · TOWN ·



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DESIGN FOR A PICTURE GALLERY FOR A COUNTRY TOWN.—By MR. J. B. FULTON.









Abbey Dore Church, Hereford. View from South.

which would not in an ordinary view be prominently seen, or seen at all; but architects will be able to allow for this, and to appreciate from the drawing what would have been the effect of the building as seen from the usual spectator's standpoint.

#### ABBEY DORE, HEREFORD.

THE Cistercian Abbey Church of Dore stands about a couple of miles from the southern end of the Golden Valley, twelve miles west of Hereford. The Abbey is said to have been founded in the reign of King Stephen (circa 1147) by Robert de Ewyas, the site of whose castle at Ewyas Harold, about a mile and a half west, is still to be seen. Among its many benefactors were Roger de Clifford, Alan de Plokenet (Lord of Kilpeck), Robert second Earl Ferrers, and the Sitsyllt, ancestors of the great family of Cecil. In 1260 Bishop Aquablanca of Hereford issued a letter appealing for funds to complete the church, and in the time of Bishop Cantelupe (1275-1282) a consecration took place, which probably marks the completion of the building. John Radburn was the last abbot, and at the dissolution of the monastery in 1535, he was given a pension of 14*l.* a year, and the buildings and site were granted to John Scudamore. The buildings appeared to have been in ruins until 1633-4, when Lord Viscount Scudamore restored the transepts and presbytery as a parish church for Dore. It was reconsecrated on Palm Sunday, 1634, with much ceremony at 8 o'clock in the morning. He erected a screen under the eastern arch of the "crossing," and this, and other woodwork, still remains. A tower was also built in the angle of the presbytery and south transept.

The repairs, now partially completed, were commenced in October, 1901, and included the taking up and relaying of the floor of the transept and presbytery, the repair of the presbytery roof and ceiling, and the provision of a system of drainage, and removal of accumulated earth from round the exterior. The parapet of the tower having become dangerous has been reset in cement. During these repairs much of great interest has been found, including the original position of the high altar, some of the screen walls dividing the eastern chapels and the foundations of three of the altars, a great number of interesting heraldic paving tiles, old glass, and numerous carved stones. A leaden heart case was also

found in the centre of the presbytery, which may possibly have contained the heart of Bishop de Breton, which was buried here.

The view of the interior of the presbytery shows the fine late Transitional work of this part of the church, and the ambulatory and chapels beyond. The altar slab is the original one, discovered by Scudamore, set up by him on "three pillars of stone." The rails enclosing the Sacrament are of his date; also the glass in the three lancets above. On the extreme left is seen the north door, with its thirteenth-century ironwork (see measured drawing in *Builder*, April 8, 1893). One of the rings for the Lenten Veil still remains high up in the wall between the wall shaft and the lancet eastward of it, and another remains on the south side. The interesting diminutive effigy of a Bishop, formerly lying loose in an ambrey in the north aisle, has been fixed, where shown, just within the Sacrament, and in the floor, flanking the altar, many of the heraldic tiles have been relaid. The paving, raised by Scudamore, has been lowered to the original levels, exposing the moulded bases throughout the church.

The drawing has been recently made by the architect, Mr. Roland W. Paul, and other views, plans and details by him will be found in the *Builder*, April 8, 1893; April 4, 1896; July 8, 1899; and November 15, 1902. The exterior view shows well the general design of this part of the church, with the large bell-tower that Lord Scudamore erected. This tower, as became evident during the recent repairs, is largely, if not entirely, constructed of worked stone obtained from the ruins of the nave, and the large amount of stone required for this and for blocking up the large arches, and other openings, on the west and north sides, accounts for the almost entire disappearance of worked stone from the western portion of the nave. The aisles and eastern chapels were no doubt finished with a parapet when the gables over the windows were complete, and it seems pretty clear that the main roofs were finished with parapets also.

#### ILLUSTRATIONS OF CHRIST'S HOSPITAL SCHOOLS, HORSHAM.

We give in this number several illustrations of the new buildings of Christ's Hospital Schools at Horsham, as the most important work completed in England during the past year.

They include a view of the east end of the chapel, from the architects' drawing, and views of the exterior of the school hall, a detail of the entrance to the hall, and the exterior view of the dining-hall. These are from photographs by Mr. Fry, of Brighton.

The buildings as a whole have been already pretty fully described in our columns, but the architects send us the following particulars in regard to the illustration of the east end of the chapel:—

"The east end of the new chapel of Christ's Hospital has been beautified by contributions from old Blues, who have provided the altar, ornaments, and reredos shown in the view; the stained glass in the window over the organ being a special contribution from an old Blue.

The reredos represents Christ in glory, surrounded by the twelve Apostles, and in the panel below is Christ receiving the children. It has been executed in Bath stone, by Messrs. Daymond & Son; the Apostles being carved by Mr. W. S. Frith, and the remainder of the sculpture being by Messrs. Fagan & Bell.

The altar is in mahogany, inlaid with holly, executed by Messrs. Norman & Burt, of Burgess Hill.

The window is by Mr. T. R. Spence, and the organ by Mr. Alfred Kirkland."

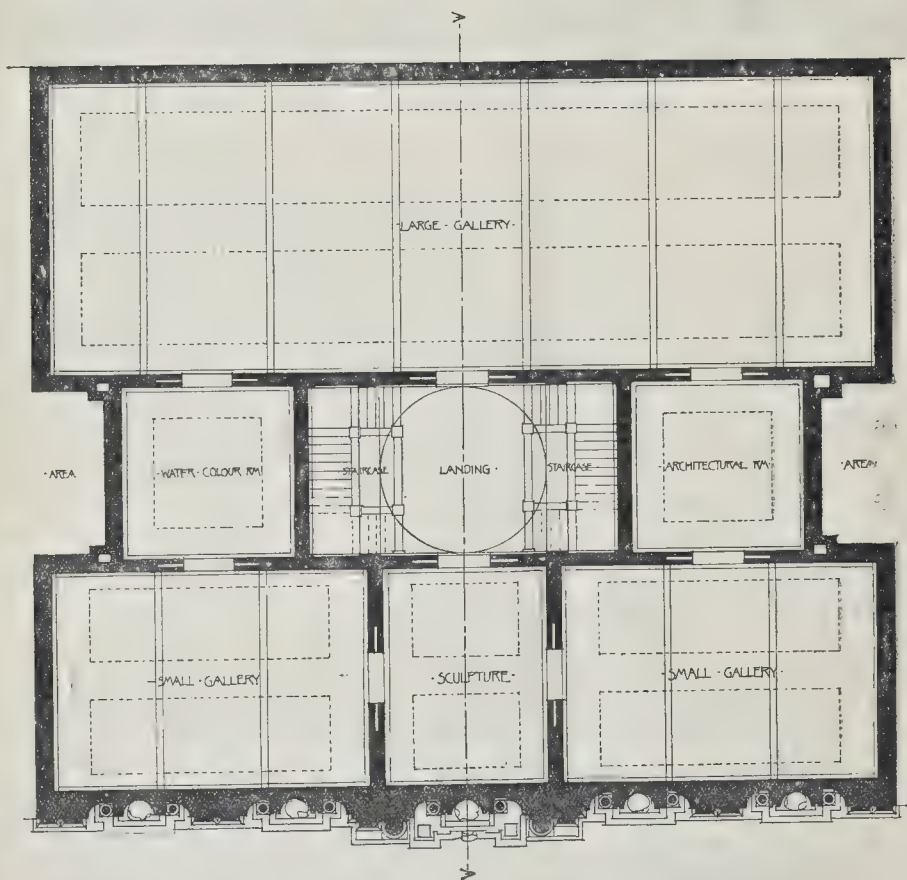
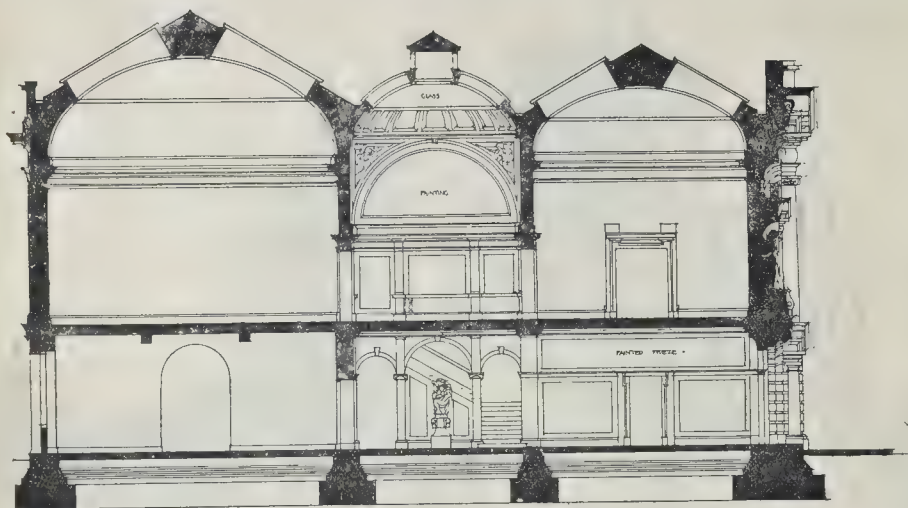
The architects, as most of our readers are aware, are Mr. Aston Webb, A.R.A., and Mr. E. Ingress Bell.

#### THE HÔTEL DE VILLE, TOURS.

THIS is an illustration of one of the most important public buildings completed in France during the past year. The architect is M. Laloux, who not many years ago made a brilliant success as a Prix de Rome man, and has since attained the professional success which in France always attends an architect who has shown distinction as a student.

The modern French Hôtel de Ville nearly always follows a certain recognised type, as in this instance; a symmetrical classic treatment with high roofs and a central lantern. The Tours building presents, as regards the treatment of the masonry design, a very favourable example of the best qualities of modern French classical design, dignified and symmetrical as a whole, and with grace and finish in the treatment of details. The effect of the roofs is not quite so pleasing; both they and the central lantern are somewhat heavy in effect, to our thinking; but as a





SCALE: 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 FEET.

Design for a Picture Gallery: Plan and Section.

[See opposite page.]



whole it is unquestionably a fine and appropriate example of municipal architecture.

We should have been glad to have given a plan and some further particulars of the construction; but unfortunately we have found, in this as in other cases, that it is nearly impossible to get any information from French architects as to their works.

The illustration is from a photograph taken specially for the *Builder* by M. Lévy, of Paris.

#### DESIGN FOR A PICTURE GALLERY.

WE have pleasure in publishing two illustrations of the fine design by Mr. J. B. Fulton for "A Picture Gallery for a Country Town," by which he gained the Royal Academy Travelling Studentship in Architecture for 1902.

In regard to his intentions in the design, Mr. Fulton writes:—

"The conditions were that the building was not to exceed 100 ft. by 90 ft. I chose a street frontage with buildings on either side, as I thought that a likely site for a small town.

There are two points regarding the façade that I would like to draw attention to. The first (which is not evident) is the row of niches, which was suggested simply through the study of Italian, English, French, and Spanish Classic Renaissance. The next point is the proportion of the façade, which was arrived at by not taking into consideration the floor of the gallery, as is usually done, and specially emphasising it by a strong, unbroken band; if I had done so the building would have been divided into two, which is undoubtedly bad. By doing away with what has been considered a rule in architectural design, I have got a proportion which I could not possibly have got any other way."

#### ILLUSTRATIONS OF JAPANESE ORNAMENT.

THESE two sheets are from drawings by Mr. F. T. Piggett, the author of the article on Japanese ornament which forms the second article in the present issue, and are referred to and described there.

#### ILLUSTRATIONS OF OLD LONDON.

THESE illustrations are given in connexion with the article on the Piccadilly neighbourhood, and its changes during the past century, published in this issue.

They are photographed from drawings in the Crace Collection at the British Museum.

#### THE ARCHITECTURAL DEVELOPMENT OF LONDON.\*

THE geographical distribution of the City, or the County as Greater London is now known, is a flat river basin in which the river takes a circuitous course from west to east. The existence of this river has not only determined the original site of London, but it has also operated to mark out the line of general growth and the direction of the main streets. On both north and south, some distance from the river on either side, are ranges of low hills, and it is chiefly between these two ranges that London has grown, though on the southern side the hills have long ago been built over and the City has passed far beyond them. In order to obtain a clear idea of how London has grown, it is, perhaps, desirable to classify its history into certain distinct stages. These stages seem to fall naturally under the following heads:—

1. The birth of Westminster.
2. The birth of London.
3. The junction of Westminster and London.
4. The Medieval City.
5. London's lost opportunity.
6. The Northern Boulevard.
7. The works of the Ducal Landlords and of Prince Regent.
8. The works of the Democratic Councils.
9. Future London.
1. *The Birth of Westminster.*—If the student of London's history will take a map, he will be struck by a long straight road running from the extreme north-west corner of the map to Hyde Park, and he will also be struck by another road, not perhaps quite as straight,

but forming evidently a main highway from the centre of South London to the eastern edge of the map. He will probably surmise that these roads, known by the name of Edgware-road and Peckham-road respectively, have some connexion, and his surmise will be accurate, for these two roads were originally one, and were known by the name of the Watling-street, connecting the south coast of England near Ramsgate with the northern districts of the county.

It was not possible to cross the River Thames near its mouth, owing to its depth, but about the spot where the Abbey of Westminster now stands the river spread its course over many miles of marshes, and when the tide went out it became comparatively easy to cross the river on foot. In the midst of these great marshes was a small hill, known as "Tot Hill," and it is probable that on this little hill were arranged some buildings to rest man and beast on their journey to the north. On this spot the Romans also erected some buildings, but later on the spot fell into disuse, owing probably to the construction of a bridge across the river lower down, and the diversion of the ancient Watling Street across the new bridge. For some centuries after this it is probable that Westminster was nothing more than a waste; but during Saxon times it seems to have been regarded as a suitable spot for the residence of the kings. The Saxon King Edgar is supposed to have displayed a great interest in this district, and to have founded the present Abbey, endowing it with a great manor. Whether the Danish King Canute and his sons lived here or not is uncertain, but it is clear that King Edward the Confessor was devoted to Westminster, that he lived there himself, and that he built a great church on the spot. Though this king died nearly a thousand years ago his tomb still remains in the central chapel of the present Abbey, and his shrine is still visited annually by devoted Roman Catholic pilgrims. From this date continual works were in progress, developing and extending the Abbey and its precincts. The kings also enlarged and beautified their palaces, and the present Westminster Hall—built in 1398 by Richard II.—occupied the site of a previous building by William Rufus in 1099. It would seem almost a natural development that the seat of the Sovereign power should become also the place of judgment, and this was the case. It is only within our own times that the Law Courts have been removed from Westminster.

2. *The Birth of London.*—The earliest written reference to the existence of London was made in the year of our Lord 61 when the Roman Historian Tacitus informs us that it was a place of comparatively large population. Although the note of Tacitus is the first written reference to London, legend says that the Trinobantes had a settlement on the present site of London years before the Roman invasion, and it is reasonable to suppose that this was so. Archaeologists incline to the view that the name London was originally spelt "Llynidin" which means the Lake Fort. It has already been explained that the greater part of the site of present London was so near the river level that at high tides the river spread out over these low-lying lands and took the form of a lake. About the site of the present London Bridge, however, the land was of a higher altitude, and beyond the reach of the highest tides. The effect of this change of configuration was at once to produce a navigable river and also to ensure dry land at the side eminently suited for the construction of wharves and houses. Such a position was almost ideal for the settlement of merchants in those days when the only law was the sword. This spot was bounded on the south by the River Thames, on the west by a smaller tidal tributary known as the Fleet, on the east by marshes difficult to cross, and on the north by dense forests. Here, then, was a site for a city from which merchants could reach through their ships the whole of the then known world, and yet upon which their goods could be stored in comparative safety and security. The river which washed its shores was too deep to ford, but a ferry probably existed from very early times. The exact date when the ferry was replaced by a permanent bridge is not known, but when the foundations of the present London Bridge were excavated in the early part of last century, numerous coins were found in good preservation bearing the effigies of the Roman Emperors Constantius and his

sons, Crispus and Constantine, and with the syllable "P. Lon" as mint mark.

This indicates not only that London was at that period (A.D. 309) important enough to be the seat of a mint, but also gives ground for the view that these coins in some form or other commemorated the construction of the bridge. This view is supported by the fact that evidences of Roman occupation have been traced along the line of the southern access to the bridge. During the early years of the Roman occupation London was known by the name of "Londinium," but towards the end of the Roman occupation the name was changed to "Augusta." It is clear that the construction of the bridge would have tended to divert the line of the old Westminster ford, and this is what actually seems to have happened. The old road passing down Edgware-road, and known as Watling-street, was diverted at the Tyburn or about the present site of the Marble Arch. From this spot a new Watling-street was made to London Bridge, and this new road seems to have been the origin of the present street called Holborn. It entered the City at Newgate, and thence sought the Bridge. The Romans had another road from the Bridge that went northwards. It occupied approximately the site of the present Bishopsgate-street. From this a branch road to the right went to Colchester, an ancient Roman camp in Essex. In the early years of the Roman occupation a wall round the City was not considered necessary, but later on, about the middle of the fourth century, a wall was built surrounding the whole city. This wall enclosed an area of about three square miles. There were two land gates, three water gates, and a gate to the bridge.

It is very difficult to say what happened after the Roman Legions were recalled to Rome. Deprived of their natural protectors, the merchants must have felt their energies snapped. At all events, it seems clear that there was an interval of many years during which London was gradually deserted. Walls became ruins, grass grew again in the streets, and it was not until late in the Saxon period that it once again regained its traditional importance, and henceforward was recognised as the capital city.

#### 3. The Junction of London and Westminster.

—It is clear that between the King's stronghold of Westminster, with its adjacent powerful Abbey, and the great commercial City of London frequent communication was necessary, and the line of this communication naturally followed the curve of the river. This road became known by the name of the Strand. On the borders of this street were grouped various communities who found the position convenient. The sites between the Strand and the River were used for the palaces of the great nobles. Essex-street marks the site of the town house of the famous Earl of Essex; the adjoining land was the property of the powerful Duke of Norfolk; Scumers House, the Savoy, the home of the Cecils, Northampton House (afterwards Northumberland House), and other great palaces linked London with Westminster on the river bank, while further north there were many settlements of monks and lawyers. The Knights Templars settled on a site south of that portion of the Strand nearest the City of London, and this portion was known by the name of Fleet-street. It crossed the River Fleet by a bridge, and entered London by the ancient Roman "Lud Gate." At its other end the Strand was connected with Westminster by what is now known as Whitehall, and this district was, even in Medieval times, an aristocratic place of residence.

4. *The Medieval City.*—Throughout the reigns of the Medieval kings London grew in wealth and importance. It did not spread very far, but the walls that the Romans had built were slightly enlarged. Within the walls, however, the city was continually becoming more picturesque. The great conventual buildings of St. Paul's, which legend affirms occupied the site of a Roman temple, were demolished in the early part of the fourteenth century, and in their place rose the magnificent Gothic cathedral, with a spire rising to the extraordinary height of 520 ft. In the reign of Henry II. an eager citizen, Fitz Stephen by name, gives us some idea of the beauties of the City. He tells us of the large number of churches in the City which in his day were already 126 in number, and described the houses, with their overhanging gables and

\* A paper by Mr. Owen Fleming, A.R.I.B.A., read at Washington before the American Institute of Architects on Friday, December 12.



the line of booths in the streets. At this date the Tower of London had been well advanced, and away from the main streets Fitz Stephen tells us that there were many houses well furnished with trees, spacious and beautiful.

The Londoners of those days seemed to have lived a merry life, and we hear later of such magnificent pageants as the triumphal entry of Henry V. after the Battle of Agincourt, welcomed by the wonderful chorus of the priests, which even now seems of impressive grandeur. London was also the scene of stirring political events. It was a Lord Mayor of London who struck down the sturdy Kentish peasant, Wat Tyler, and, later on, Sir Thomas Wyatt marched through London in insurrection against Queen Mary. This was the beginning of sad times for London, and the memory of the burnings of noble divines and others, culminating in the martyrdom of the Bishop of London in 1555 and a year later, of the Archbishop of Canterbury himself, made an impression that is even yet vivid in the minds of Londoners.

5. *London's Lost Opportunity*.—The era of the Renaissance brought sadness to London. The growth of the City was even in those days causing alarm, and it is interesting to read the proclamation on this question issued by Queen Elizabeth in the year 1580:—

"The Queen's Majesty, perceiving the state of the City of London and the suburbs and the confines thereof to increase daily by access of people to inhabit in the same, in such ample sort, as thereby many inconveniences are seen already, but many greater of necessity to follow. . . .

For remedy whereof, as time may now serve, until by some further good order be had in Parliament or otherwise, the same may be remedied; Her Majesty, by good and deliberate advice of her Council, and being also thereto moved by the considerate opinions of the Lord Mayor, Aldermen, and other the grave wise men in and about the City, doth charge and strictly command all manner of persons of what quality soever they be, to desist and forbear from any new buildings of any house or tenement within three miles of the gates of the said City of London, to serve for habitation or lodging for any person, where no former house hath been known to have been in the memory of such as are now living; and also to forbear from letting or setting out suffering any more families than one only to be placed, or to inhabit from henceforth in any one house that heretofore hath been inhabited. . . .

"Given at Nonesuch, the seventh day of July, 1580, in the two-and-twentieth year of Her Majesty's reign."

King James followed the example of Queen Elizabeth, and forbade the building of houses in the suburbs; but this artificial prevention of natural expansion had its inevitable result. The houses within the City walls crowded more and more closely together, and it is not surprising that such overcrowding, coupled with the absence of sanitary regulations, resulted in a considerable amount of sickness. The visitation increased in virulence, and ultimately took the form of the plague. There are probably few persons who have not shuddered at the thought of this great City at the time of the plague. All business ceased, the streets were deserted, and the grim smile was only broken by the rumbling wheels of the death-cart and the hoarse cry echoing through the empty streets, "Bring out your dead!" There was no time for ceremonious burying. Great pits were dug round the City, and the bodies were tipped into them from the carts pell mell without coffins or even grave-clothes.

The terrors of the plague were, however, from an architectural point of view, perhaps of less importance than the great disaster of the fire in 1666. There have been other fires more extensive in character, perhaps, than this, but probably the destruction of rare and precious objects has never been equalled. In five days London lost her magnificent Cathedral, the Exchange, the Custom House, the beautiful halls of City Companies, and numerous churches and chapels stored with rich vestments and priceless ornaments. In all 390 acres of houses, 400 streets, 13,200 dwellings, eighty-nine churches, besides chapels, and four of the City gates were destroyed.

But if London had lost what could never be replaced, there was an unique opportunity for the reconstruction of the City on a monu-

mental plan, and the great architect of the day, Sir Christopher Wren, rose to the occasion and produced such a plan. It was perhaps the first scheme on a large scale for the design of a city, and it is well worth the closest study. Wren was handicapped by the lines of the old streets that had not been burned, but he utilised these as the basis of his plan. The old Leadenhall-street was to be carried straight through to the "Lud Gate," passing the Royal Exchange, which was arranged to be the centre of a scheme of radial streets similar to those around the Capitol at Washington. St. Paul's was placed majestically fronting the wide place formed by the junction of Leadenhall-street, with a new street of equal width nearly parallel to the river. The river itself was embanked with a spacious quay the whole way from the Temple to the Tower, and in front of London Bridge was created a great circus from which again streets radiated in all directions. It is melancholy to have to record the fact that this great scheme was brushed on one side by the haste of the commercial interests to begin rebuilding, and by the unwillingness of the citizens to co-operate for the common good. London thus lost an opportunity that will never recur.

6. *The Great Northern Boulevard*.—As might have been expected, the edicts of Queen Elizabeth and King James against the extension of the City were set aside by the catastrophes of the days of King Charles II. The geographical situation which had first marked out the site of London as eminently suited for commerce continued to exist, and with the development of civilisation in Europe and Asia, London continued to form the centre of attraction for great numbers of people. The City spread far beyond the ancient walls. The space between the Strand and the ancient Watling-street or Holborn became filled with houses. Even this extension was insufficient, and the City spread still further northward. Traffic increased, and it became clear that some further means of communication was required in the north. This was carried out in the reign of George II by the construction of a series of roads beginning at the old "Moor Gate," passing to Islington, descending the Pentonville Hill and running past the church of St. Marylebone to the village of Paddington. This road was designed on a far more liberal scale than any of the medieval roads, and although its width has been allowed to be encroached upon here and there, speaking generally, the road maintains the characteristics of a boulevard, and it is likely that it will continue to do so.

7. *The Works of the Dual Landlords and the Prince Regent*.—Towards the end of the eighteenth century, the number of rich citizens of London had materially increased. Moreover, the rapid advancement of learning, the increased attention given to the fine arts, and the general desire for more healthful habitations caused a continually increasing demand for dwelling-houses of a more stately character than those which had previously been found sufficient. The result of this movement was to bring into the building market the large estates and manors of the Dukes and other nobles to the north and south of the Old Holborn and its westward continuation of Oxford-street. Whatever political view may be taken of the question of large leasehold estates, architects are bound to chronicle with gratitude the liberal way in which these estates were laid out. The usual plan was to form a large open square, to plant trees and shrubs therein, and to arrange the houses facing upon the road surrounding the square. Frequently the whole of these houses were designed with a view to their architectural symmetry, and there is something very attractive about these great London squares which still are favourite residential quarters. It is a matter of regret that this system of forming squares has not been followed in recent building estates.

At the beginning of the nineteenth century a combination of circumstances arose that materially altered the aspect of West London. The then Prince Regent (afterwards George IV) was in power, and exerted his influence to carry through a scheme of rebuilding that in those days might fairly lay claim to the title of majestic. The Prince Regent's palace was then known as Carlton House, occupying the "place" now existing between the Athenæum and the United Service Clubs in Pall Mall. In the north-west of London were some large open farms, which had previously formed part of the lands of one of the houses of Henry VIII. The leases of the farms were

falling in, and the Prince Regent conceived the idea of connecting a broad street from his Palace of Carlton House to these farm lands (now Regent's Park), which were to contain a country house for him. The architectural opportunity thus afforded was a great one, and the Prince Regent was fortunate in finding an architect, Mr. John Nash, who designed the whole scheme. Americans who visit London are familiar with Nash's fine achievement. The skillful way in which the lower part of Regent-street (as the new street was called) was placed at right angles to the Palace, and connected with the upper part of the street by a majestic quadrant; the circuses which cunningly disguise the crossings of the new street with Piccadilly and with Oxford-street; the way in which the spire of All Souls' Church was brought forward to mask the awkward sweep into Portland-place; the fine semicircular treatment where Portland-place enters the Park; the width of the new streets; and the dignified designs for the buildings fronting the streets, form a striking tribute to Nash's genius. He was also far-sighted enough to foresee the possibilities of forming the present Trafalgar-square, and he did this by driving Pall Mall through until it reached the top of the present square. The whole improvement was a great one, though perhaps its savour is rather too artificial and reminiscent of the dandyism of Beau Brummel to be altogether in accord with modern taste; yet it is right to give this work a foremost place in the architectural development of London. It is a curious instance of the irony of human life that the Prince Regent's proposed residence in the Park was never built, that financial considerations caused the demolition of his palace of Carlton House, and that the fine colonnade that Nash built along Regent-street to shelter the exquisites of the day has been swept away by an unsympathetic posterity.

8. *The Works of the Democratic Councils*.—If London in the eighteenth century were dominated by the aristocrats, the London of the nineteenth century passed from under their sway and gradually became more and more democratic in its government and in its ideals. One reason for this change was the development of free political institutions all over the country, another was the growth of the more purely commercial instinct, and perhaps a third reason is to be found in the extraordinarily rapid growth of the population. The ancient Cities of London and Westminster were no more than islands in a great sea. North, south, east, and west, the City was spreading in an all-devouring fashion. Railways and tramcars were introduced and helped in this development. Some form of common government became necessary for the whole agglomeration. Government commissioners who were first appointed in 1800 were succeeded by an indirectly elected council which governed London for many years, but which was in turn supplanted by a Council elected directly by the people. Even this government was held to be insufficient for the occasion, and its energies have recently been aided by the creation of numerous subordinate cities and boroughs who have each their own mayor, aldermen, and councillors, and who are entrusted with a considerable amount of local autonomy. The work of these nineteenth-century councils in the further development of the planning of London is set forth in a most lucid manner by Mr. Percy Edwards in his "History of London Street Improvements." Mr. Edwards tells us how, during the century, new lines of traffic have been opened and streets widened in all directions. The most notable of these improvements have been (a) the embankment of the Thames and (b) the junction of Holborn with the Strand. The Thames Embankment had long been a public ideal. It was unifying that a City of the magnitude of London should be intersected by acres of offensive mud banks, and between the years 1805 and 1875 three and a half miles of these mud banks were embanked by a road generally 100-ft. wide at a cost of nearly 12½ millions of dollars. Between this road and the City beautiful gardens were laid out, and the crowds that throng this thoroughfare on fine summer evenings and listen to the municipal bands, playing in the municipal gardens, form some evidence of the way in which this great work is appreciated by the people of London.

The junction of Holborn with the Strand is now in progress. It is an improvement of the



highest architectural importance, and will profoundly affect the future of the City. On referring to the map of London, the observer cannot but be struck with the insufficiency of through lines of communication from north to south. The ancient Edgware-road forms one such thoroughfare, Regent-street another; but between Regent-street and the Great North road of the Romans, now represented by the Kingsland-road, there is no really adequate north and south thoroughfare. It will be seen, however, that the means of making such a thoroughfare exist. On the north there is the line of streets beginning at Southampton-row and continuing to Hampstead, while, at the south, Waterloo-road forms a similar beginning of a series of streets running to the far south. The essential object was to connect these two detached lines of traffic, and this has been effected by the new avenue now in course of construction. Many plans for this avenue were laid before the London County Council, and it is pleasant to be able to record the fact that the scheme which met with universal approval and consequent adoption was based upon a scheme submitted by the Royal Institute of British Architects. The new street will be 100 ft. wide, or 10 ft. wider than Regent-street. At its southern end it bifurcates into the form of a crescent. The arms of the crescent are each 100 ft. wide, and the Strand, which forms its base, has been widened to an even greater width, thus preserving for all time the two fine Renaissance churches occupying the centre of the Strand. The motives of the Institute in making this plan were manifold. They perceived the architectural objections to making the side view of St. Mary's Church steeple the objective of the street vista as was at one time proposed, and they desired to afford the opportunity for the creation of a new architectural objective worthy of the unique occasion. This can be provided on the island site axial with the new street.

They also foresaw that the traffic from north to south crossing the vast traffic from east to west along the Strand would constitute a serious problem. The new street is therefore designed to enable the northern traffic to ascend by the western arm of the crescent, while the southern traffic descends by the eastern arm. They foresaw that if some such scheme as this were not carried through, a most serious attack would be likely to develop against Waterloo Bridge owing to its inadequate width. This bridge is not only the most beautiful of London bridges, but its position in the centre of the great arc of the river, with the background of Somerset house and the dome of St. Paul's in the far distance, constitutes perhaps one of the finest architectural views in the world. Unfortunately, Waterloo Bridge was designed for a bygone generation, and is much too narrow to carry the traffic of the mail line of communication between North and South London. The solution of this difficulty is thought by the Institute to lie in the construction of a new bridge across the Thames between the Waterloo and the Blackfriars Bridges, and the advantage of the accepted design for the Holborn to Strand street is that the construction of a new bridge to take the southern traffic becomes the almost inevitable corollary to the scheme.

9. *Future London.*—It would not seem that any very useful purpose would be served by indicating the lines upon which future London will develop. It must be largely a matter of conjecture, and though certain improvements are clearly only a matter of time, notably, perhaps, the continuation of the Mall into Trafalgar-square and the consequent widening of Whitehall, yet it is probable that the process in the future will be, as in the past, the outcome of immediate necessity. London still owns very many square miles of dreary squalor and misery, and the conversion of this great area into a beautiful city is, indeed, a Herculean task. Probably many centuries will have passed away before the poverty of London becomes only a matter of history. Still, it is remarkable what rapid strides in the obliteration of the slums are being made. During the last fifty years, whole districts of insanitary property have been swept out of existence and have been replaced by new and healthy dwellings designed with care and thought. There is a public school every few hundred yards, and public baths, gymnasia, libraries, museums, and art galleries are to be found in even the poorest districts. The younger generations are far better equipped than were their fathers to

take up the question of civic organisation and to carry forward the movement for better and brighter homes.

Whether London has reached the limit of her population? Whether this extraordinary city is destined still to enlarge her boundaries? Whether the growth in power and influence of the great Western world is destined to divert commercial energy into new channels? These are questions too great for us. It may be that London will be forced to yield her place as the foremost city of the world to her younger and perhaps more energetic competitor New York City. If this be the destiny of fate, I am sure that there is no city to whom London would more willingly yield the pre-eminence, and rejoice in so doing. At the same time it is necessary to state that London possesses vast stores of latent power, that her unrivalled geographical position still remains unchanged, and that, at the beginning of this twentieth century of her history, she is sufficiently confident of her commercial future to embark on schemes of commercial development which will involve an expenditure of hundreds of millions of dollars. Whatever may be the fate that the future has in store for London, however, the past will always remain her own, and I shall be content if this too brief and disconnected sketch succeed in awakening in the mind of the young American citizen some interest, if not some affection, for a city that is after all his *alma mater*.

#### COMPETITION FOR TECHNICAL SCHOOLS AND FREE LIBRARY, RAMSGATE.

SEVENTY-TWO designs were submitted in this competition. It is idle to bewail the immense amount of more or less wasted labour which has gone to the making of these three or four hundred drawings, but their number seems to show that architects are having "a slack time," or that the designing of technical schools and free libraries is a popular problem. Mr. Henry T. Hare, F.R.I.B.A., has acted as assessor, and has recommended the Council to award the first premium, of 50*l.*, to Mr. S. D. Adshead, 46, Great Russell-street, W.C.; the second, of 25*l.*, to Messrs. T. E. Cooper & H. Davis, 11, Gray's Inn-square, W.C.; and the third, of 15*l.*, to Mr. Richard Holt, Liverpool. The designs of Messrs. Woodhouse & Willoughby (Manchester) and Mr. H. V. Ashley (50, Berners-street, W.) have been "commended." All the designs are now on view at "Effingham," Effingham-street, Ramsgate, but the exhibition closes on the 3rd inst.

The first premiated design (No. 58) owes its position to the excellent arrangement of the plans. The eastern portion of the ground floor is devoted to the Free Library, which is very conveniently arranged without any waste space, and in such a manner that the Reference Library, Magazine Room, and Newspaper Room are overlooked from the Lending Library. The Newspaper and Magazine Rooms occupy the whole of the east front. The entrance to the library is in the north front, as required in the instructions, and a square entrance-hall, with one side adjoining part of the News Room, leads to the Lending Library, which also adjoins the News Room, and forms a continuation of the entrance-hall. The Reference Library is in the south front, and is approached through the borrowers' space of the Lending Library. The Assembly Hall of the school is placed near the middle of the block, with its east end against the side of the Lending Library, and both these rooms, being entirely surrounded by other rooms, are top-lighted. The main corridor of the school runs through the building from north to south, and adjoins the west end of the assembly-hall. There are thus two entrances on the north front, one to the library and the other to the school. Between these the porter's room, librarian's room, committee room, headmaster's room, and inquiry office are placed, with a narrow corridor behind forming a connecting link between the two entrance halls. These subsidiary rooms are seven steps above the remainder of the ground floor, and the basement rooms are placed under them. This is an economical arrangement. Along the west front the mechanical drawing room, joiner's shop, and two cloakrooms are placed, and the cookery-room is behind the assembly hall; all

these are entered from the main corridor, as also is the assembly hall. Two staircases adjoin this corridor, one on each side of the assembly hall, and the remainder of the space is occupied by staff conveniences, &c. On the first floor, which is level throughout, the rooms are arranged around the central space above the roofs of the lending library, assembly hall, &c., a corridor forming a complete circuit on the inner side. The three rooms of the Art department, the four classrooms, the physical and chemical laboratories and lecture-room, and the necessary subsidiary rooms, are all conveniently placed on this floor. The caretaker's rooms are in the roof of the central portion of the north front. The plans are certainly the best submitted, but we cannot say as much for the elevations. The style is Georgian of a heavy type, with some coarse detail, such as the heavy stone band in line with the heads of the ground-story windows, and the widely-stepped base of the ventilating turret. The walls are of brick, stone dressings being sparingly introduced. The cubical contents are stated by the author to be 666,100 cubic feet, and the cost, calculated at 55*d.* per foot, works out to about 15,250*l.* It may be said in passing that other designs appear to show larger buildings than this, although the contents are said to be less.

Messrs. Cooper & Davis's design is also well planned, although not as thoroughly satisfactory. The reading-room is in the middle of the block and is top lighted, and the assembly hall is along the west front. The joiner's shop and caretaker's house are in the basement. The first floor is of similar type to Mr. Adshead's plan, but the corridor does not make a complete circuit, being stopped by the art school along the east side. The elevations are prettily coloured and show mullioned windows, heavy semicircular pediments over the two entrance bays on the north front, and broken ogee pediments over the two entrances. The west elevation is of simpler character than the north. The cubical contents are said to be 595,022 ft., and the estimated cost at 63*d.* a foot, is 15,889*l.*

The third premiated design also shows a two-storied building with a basement under the back portion. The joiner's shop and caretaker's rooms are in the basement. The news room is in the central portion of the front, the top-lighted lending library being behind it, and the magazine-room and reference library to the east. The assembly hall is in the western portion, and the four classrooms and cloakrooms are on the south side. The headmaster's room and inquiry office are somewhat inconveniently placed between the lending library and assembly hall, and are top-lighted. The elevations are generally satisfactory, although not distinguished; the alternation of large and small windows on the upper story of the principal front is not a commendable feature. The author states in his report that the contents are 518,663 cubic ft., and allowing 7*d.* per foot works out the cost to 15,120*l.*

No. 5 by Messrs. Woodhouse & Willoughby is one of the commended designs, but seems at the first glance to be scarcely worthy of this position. The rooms are arranged on three floors, and there is also a basement under one half of the building. The free library and assembly hall, together with two rooms for librarian and committee and two cloakrooms and stairs, occupy the whole of the ground floor. The chemical and physical laboratories, lecture-room, four classrooms, two teachers' rooms, and inquiry office are on the first floor; and the art department, mechanical drawing-room, and caretaker's house on the second floor. The cookery-room and joiner's shop are in the basement. The elevations are decidedly commonplace. The contents, 597,227 cubic ft. at 63*d.*, give an estimated cost of 14,930*l.* 13*s.* 6*d.*

The other commended design (No. 61, by Mr. Ashley) is interesting, but the central court involves extra cost without compensating advantage. The Free Library is well planned, almost on the same lines as that in the first premiated design, and the school corridor runs through the building from north to south in the same manner. The principal difference on the ground floor is that the assembly hall, instead of being in the middle of the block, is in the centre of the west front. It is almost exactly square, and has a platform in a semi-octagonal apse. The other rooms on the ground floor are two classrooms, two cloakrooms, headmaster's room, and inquiry office. The physical laboratory and joiner's shop are in the basement. The remaining schoolrooms are arranged



on the first floor around a central space, a corridor forming a complete circuit on the inner side. The scullery and pantry of the cookery-room are not well planned, and the school department is too scattered for satisfactory working. The elevations are simple and rather weak, the principal entrances being particularly poor. The main cornice and blocking course are carried at one level around the building, and there are no pediments or other superstructures. The domed apse of the projecting assembly hall, which, by the way, is carried up two stories, makes this portion of the west front look like the east end of a Georgian church wedged between two other buildings. The contents are said to be 558,490 cubic feet and are calculated at prices ranging from 4d. to 7d. per ft., the total estimate being 15,100l. Of the remaining designs few are of outstanding merit. Nearly all are cursed with mediocrity. A few are a disgrace to the profession, and may charitably be regarded as the work of pupils in their first year. The worst is No. 62. Among the best are Nos. 6, 7, 13, 29, 32, 33, 47, 57, and 69. We place them in numerical order, not according to merit.

The planning of No. 6 is too diffuse—if the expression may be allowed—but not without merit; there are two areas or courts on the ground floor, one 44 ft. 6 in. by 27 ft. 6 in., and the other 21 ft. by 20 ft. The assembly hall is in the central portion of the ground floor, and is lighted. There are also four classrooms on this floor; the other teaching rooms are on the first floor, and the school would therefore be easily supervised. Only one staircase is provided, but this is conveniently placed. The first floor has a range of buildings and continuous corridor around the central space as in the first premiated design. The caretaker's house on the ground floor is unnecessarily large. The principal elevation, with large semi-circular arched windows on the lower story separated by coupled columns rising from the plinth, looks rather like a market, but is a pleasing composition. The contents are said to be 508,623 ft., and are calculated at 6d. to 13/75d.; heating and other extras bring the cost to 15,175l.

In No. 10 too much has been sacrificed to symmetry, but the plans and elevations are above the average; the library occupies exactly one half of the ground floor, the other half being given to the school. No. 13 is one of the designs in which the assembly-hall is utilised as a means of communication—not an ideal arrangement. In this plan it is 44 ft. 6 in. square, and forms the only means of communication between the front and back of the school on the ground floor, and the only means of approach to three classrooms. The inquiry office and headmaster's room are conveniently placed on either side of the principal entrance and staircase, but the entrance hall is much too small. There is a continuous corridor around the first floor, the central space being divided into two parts by two rooms for teachers. The library is well arranged, and the plans are adapted for future extension. The elevations are good, with high-pitched roofs, and the cost, at 6d. a foot, is given as 15,500l. No. 29 shows a long building, with central longitudinal corridor on the first floor, passing along one side of the assembly hall as a gallery or balcony. The departments are on the whole well disposed, and the elevations are above the average. The contents are said to be 607,623 ft., and the cost 14,758l. The ground floor of No. 32 is a straightforward and meritorious piece of work. The library is well arranged, with the three reading-rooms overlooked from the lending library. In the school a corridor runs straight from front to back, having the inquiry office, staircase, and assembly hall on the left, and the physics laboratory, two classrooms, and joiners' shop on the right. The location of the school-rooms leaves something to be desired, and the elevations might be improved. In No. 47 the elevations are better than the plans, being symmetrically designed in a free but refined type of Renaissance, and well drawn; the plans show some dark corridors and badly-lighted rooms, the rooms being arranged on three floors and in a basement under a portion of the block. No. 57 is an economical design with simple elevations marked by individuality; curb roofs of uncommon outlines are shown, and toplights below the curbs are freely used. Some of the rooms have smaller areas than those specified; for example, two

classrooms contain 425 sq. ft. each instead of 528, and are not well proportioned. The classroom in the basement is not in a convenient position. The mechanical drawing room is also in the basement. The first floor is simply planned, but it was a mistake to place a classroom between the painting room and the large art room. The elevations of No. 69 are among the best submitted. The ground-story windows are large and square-headed, set in semicircular recesses with brick and stone voussoirs and piers; above these is a mass of plain walling, the upper story being lighted chiefly by top-lights; at each extremity of the principal front there is a well-designed gabled projection, containing in the upper story a large semi-circular window divided by mullions into three lights. The cookery-room is without either scullery or pantry; the entrances to the schools are on the west side; and the chemical department is separated from the physical laboratory by the art-rooms. The contents are said to be 673,367 cubic feet, but the building certainly appears to be smaller than many others whose contents are said to be less.

Passing mention may be made of No. 43, which shows a long and narrow building with a longitudinal corridor along the middle of the first floor, and which has a dignified exterior. No. 45 is better in elevation than plan; it has three floors and a small basement. No. 31 has three floors and a basement, the latter containing *inter alia* the physics laboratory, cookery-room, and joiners' shop; as the ground floor is entirely devoted to the library and two staircases, the basement rooms are separated by a whole story from the assembly hall and other schoolrooms. No. 56 has a one-storied assembly hall to the west of the main block, which is nearly all three-storied; the plans are lacking in directness. No. 60 is a well-drawn set with good elevations, marred by defects in planning. No. 14 covers a large area; the physics laboratory, joiners' shop, and caretaker's house are in the basement; four classrooms and the mechanical drawing-room are entered from the assembly hall on the ground floor. No. 11 has a frontage of about 230 ft., but the news-room on the east side and the assembly hall on the west are one-storied rooms flanking the central two-storied block; the elevations are simple and not without merit, but the plans show long and badly-lighted corridors, which do not afford good means of communication. One of the classrooms on the first floor would certainly be used as a passage and would be very unsatisfactory as a classroom, having windows on two opposite sides opening into small areas, and doors on the other sides. No. 21 has a central longitudinal corridor on the lower ground floor with an entrance at each end at a higher level, and with the assembly hall, classrooms, &c., adjoining the corridor; the upper ground floor is occupied by the library, staircases, and subsidiary rooms, and the first floor is given to the school; the teaching-rooms are, therefore, inconveniently scattered. No. 26 has a frankly irregular plan, with two blocks forming an obtuse angle; the elevations are quaint and picturesque, the upper story rough-cast, and the planning shows considerable ingenuity, but there are serious defects, such as the location of the cookery-room and joiners' shop. No. 72 shows a free use of mezzanine floors, and the plans have some good points.

Other designs of perhaps equal merit to some of those which have been mentioned need not be particularised. Some competitors have failed to give the accommodation required. A few designs stand condemned by their elevations. Others betray an ignorance of the common rules of planning and of the requirements of buildings of this class. Mr. Hare acted wisely in asking for two elevations only, but even though the work of competitors was thus reduced to a reasonable limit, the amount of wasted labour is enough to make the competing architects sadder if not wiser men.

THE KING'S THEATRE, HAMMERSMITH.—On December 26 was opened the new theatre, which has been built in the main road through Hammersmith for Mr. J. B. Mulholland, after plans and designs made by Mr. W. G. R. Sprague. The auditorium is fitted with a sliding roof, and the house contains a reading-room and a ladies' tea-room. There are more than 3,000 seats, the amphitheatre and gallery on the second tier rest upon cantilevers, and the width of the proscenium can be adjusted as may be required.

## COMPETITIONS.

TECHNICAL SCHOOLS AND FREE LIBRARY, RAMSGATE.—Seventy-two sets of plans were sent in in this competition, and the assessor, Mr. H. T. Hare, selected the following as the premiated designs.—First, No. 58; second, No. 66; third, No. 70. At a meeting on the 22nd ult. of the Technical Committee, the envelopes containing names and addresses were opened, when it was found that No. 58 was by Mr. S. D. Adshead, 46, Great Russell-street, W.C.; No. 66, Messrs. T. Edwin Cooper and H. Davis, 11, Gray's Inn-square, W.C.; and No. 70, Mr. R. Holl, 45A, Dale-street, Liverpool. Nos. 5 and 61 were commended, and were the designs respectively of Messrs. Woodhouse & Willoughby, King-street, Manchester, and Mr. H. V. Ashley, 50, Berners-street, London.

TECHNICAL SCHOOL, CHORLEY.—The designs for the new Technical School, proposed to be erected by the Chorley Corporation, have been adjudicated upon. Five sets of plans were sent in in competition, and the premiums were awarded as follows.—First, 50l., Mr. Joseph Smith, 24, Richmond-terrace, Blackburn; second, 25l., Messrs. Woodhouse & Willoughby, Manchester; third, 10l., Messrs. Briggs & Wolstenholme, Blackburn.

GOLF CLUBHOUSE, ARBROATH.—The design placed first in this competition was sent in by Mr. Robert Scott, architect, Arbroath. Forty designs were submitted.

SOUTHERN DISTRICT COMPETITION.—We had prepared a review of this competition, which was posted by the writer of it, and never reached our office. Consequently we have been obliged, by no fault of our own, to pass it over.

## Books.

A Treatise on Surveying. Part II. By REGINALD E. MIDDLETON, M.Inst.C.E., OSBERT CHADWICK, C.M.G., M.Inst.C.E., and COLONEL J. DU T. BOGLE, late R.E. London: E. & F. N. Spon, Ltd. 1902.

THE present volume completes the work of which the first instalment was reviewed in our columns a year or two ago. Although the book is a compilation, it must be admitted that the collection and suitable presentation of facts and figures relating to the higher branches of surveying is a task requiring extended knowledge of the subjects involved, as well as the exercise of great discrimination, and a considerable amount of labour. Those departments of surveying which chiefly come within the province of the civil engineer form the subject matter of Part II. In the first chapter some further description is given of such drawing instruments as it is assumed may be unfamiliar to the student. Some of these are of a special character, as, for instance, Marquois's scales, supplying the place of the set-square, the straight-edge, and the parallel-ruler; the pantograph and the eidograph, for the reduction of plans; Amster's planimeter, a most useful instrument for the computation of small areas; the opisometer and the chartometer for measuring the length of winding roads on plans. In dealing with familiar drawing requisites, the authors present three useful hints to the young surveyor: (1) to avoid stretching the paper used for survey sheets, (2) to guard against unequal expansion and contraction by keeping supplies of paper flat in a drawer, and (3) to construct a scale for each survey on each sheet of paper used, so as to avoid errors caused by different expansion of the paper, or of ordinary draughtsman's scales. Chapter II. is practically a continuation of the third chapter of Part I., but it includes references to instruments specially applicable to the operations discussed in the second part. For instance, the adjustment and use of the sextant are described in detail, this appliance being of great value in making surveys of coasts, harbours, and estuaries. The employment of the transit theodolite in astronomical observations is fully discussed, and suitable notice is taken of telemetric instruments, including the tachometer, the subtense theodolite, and the onnimeter.

Tachometric surveying, which is the subject of the next chapter, is the science of surveying and levelling simultaneously by means of



angular measurements. Such surveys may be performed by means of any theodolite having a suitable telescope, if subse wires are provided in its diaphragm, but it is clearly advantageous to employ specially designed instruments in applying tacheometric methods. This chapter is concise and clear, but it is somewhat too brief for the adequate treatment of a subject which is of particular importance to surveyors and engineers practising in foreign countries. Similar comment is applicable to the succeeding chapter on base line measurements, which contains little more than an outline of the methods adopted, and brief mention of the instruments used for the purpose. One useful exception is to be found in the paragraph relating to the measurement of a "broken base," forming two sides of a triangle, from which the length of the third side may be readily calculated. Other exceptions refer to the prolongation of a base by triangulation, over obstacles such as rivers, ravines, or broken ground, and to the calculations necessary when using a supported band for lineal measurements. In a case such as the latter it is necessary to ascertain the change in length due to the tension applied, and to the manner in which the supports are applied. Railway curves form the subject of an interesting chapter, in which the curves in common use are first considered, and methods of "laying out," both on the surface and in tunnels, are described in some detail. Students desiring more complete information are referred by the authors to standard treatises on this special branch of civil engineering.

Up to this point in the work it is observable that the subjects involved are generally explained in short chapters, mainly consisting of brief, though practical, notes. The question of the earth's figure receives more ample treatment, although no attempt is made to give detailed information as to the methods to be followed in those extended and exceptional surveys which necessitate consideration of the spheroidal form of the earth. A useful introduction to the subject is afforded by the chapter on Spherical Trigonometry, a branch of mathematics dealing with the case of triangles situated in three or more planes inclined to each other and passing through one point. Thus a pyramidal space is enclosed, and for the purpose of calculation it is usually assumed that the three intersecting planes are bounded by a spherical surface of unit radius having its centre at the common point of intersection.

Amplifying the explanations given in Part I., the authors now say that the geodetic surface of the earth is one coincident with what would be the mean surface of the sea, if that surface were extended so as to percolate the continents and islands. This imaginary surface is that to which all geodetic measurements are referred, so levels or altitudes are the vertical distances between the geodetic surface and the actual surface of the ground, while the geodetic distances are those measured on the geodetic surface itself. Although the authors clearly indicate the geographical effects due to the ellipsoidal figure of the earth, they point out that the difference of length of its two axes is so small that for ordinary purposes the geodetic surface may be treated as if it were that of a perfect sphere. The opportunity is taken in the present volume of making a slight correction in the figures as to the dimensions of the earth, quoted in Part I., on the authority of Rankine. According to more recent calculation it appears that the mean radius is about 1,172 ft. longer than that formerly accepted. The difference of length in feet of the two axes is now stated to be 20,925,867 - 20,854,477 = 71,390. This difference is very small, speaking in a comparative sense, and the ratio is practically as 300 to 301. Hence, when considering the geodesy of areas not greater than two degrees square, it is unnecessary, as the authors reasonably say, to treat the surface as other than that of a true sphere. Numerical examples are next taken bearing upon the difference between plane and spherical computation, "spherical excess," and the law of convergence of "parallel" straight lines on the surface of the earth, all matters of importance to the surveyor. Chapter VIII. treats of problems in physical astronomy, and is an excellent introduction to practical astronomy, which forms the subject of the succeeding chapter, under the title "Determination of Latitude, Time, and Azimuth." Several extremely useful sections follow, the first, on "Route Surveys and Reconnaissance," by the late General Woodthorpe, C.B., formerly Surveyor-General of India, being

especially valuable. Those coming next, on "Plane-Table Topography" and "Sketching," will certainly be found very serviceable to surveyors who desire to qualify for work abroad. Methods of gauging streams and rivers and of preparing engineering plans of harbours, rivers, &c., and some notes on tidal phenomena, form the subjects of the three last chapters of the treatise, these being, of course, specially addressed to the civil engineer. A noticeable feature is the ample appendix, which may almost be described as an auxiliary treatise. The volume which we have briefly reviewed concludes the manual commenced in Part I., and the completed work certainly deserves a high place in technical literature of its kind. One great advantage is that the treatise throughout has been written by men thoroughly qualified by practical as well as by theoretical knowledge of the subjects discussed.

*Surveying as Practised by Civil Engineers and Surveyors.* By JOHN WHITEHEAD, Jun., A.M.Inst.C.E. London: Crosby Lockwood & Son, 1902.

THE thought may occur to some that enough works have already been written upon the subject of surveying. There certainly are a good many, but still it appears to us that room exists for the treatise to which we now direct attention. The aim of the author has evidently been to combine in one volume of reasonable dimensions a complete summary of the principles and methods with which engineers and surveyors ought to be familiar, as a guide to the simpler as well as the higher branches of surveying operations. The scope of the work is consequently very wide, and it is practically impossible for any man, and especially a young man, to speak with the authority acquired by personal experience upon every department of work involved. Nevertheless, the author has succeeded in presenting in an acceptable manner the fruits of his own experience, and much useful information derived from the writings of those who have made a study of special classes of surveying work. Commencing with chain surveys, Mr. Whitehead gives a brief, yet sufficient, description of the instruments required, and explains clearly the methods to be adopted in such work. There seems to be a sort of unwritten law that every writer of a book on surveying must reproduce illustrations of drawing and other instruments from the catalogues of mathematical instrument makers. This is not a good law, and we are sorry to see that it has been followed in the treatise before us. No objection could possibly be offered to a few notes upon the uses of such instruments, but it is quite unnecessary to publish matter that can easily be obtained by writing to one or two well-known makers. Similar criticism is applicable to other chapters of the work, in which perspective drawings of theodolites and various instruments are reproduced. If illustrations are given at all, they should only be such as make clear details of construction or points connected with the adjustment of surveying instruments and appliances. Chapter II., on "Surveying with the Aid of Angular Instruments," is a serviceable contribution, treating of ordinary surveys with the theodolite; traverse surveys, with the compass and with the theodolite; and of surveys with the box sextant, the prismatic compass, the plane table, and the photo-theodolite. Traverse surveys are found particularly useful in districts where the land is so obstructed as to prevent the direct measurement of lines, the compass is also of much use in tropical countries, and the plane table saves much time in the mapping out of topographical details. It will therefore be seen that the author has not forgotten the needs of those who may have to practice in places where work has to be carried out with rapidity, and sometimes without the help afforded by records of previous surveys. As for photographic surveys, the author points out that these may often be conducted in out-of-the-way, dangerous, and inaccessible stations where surveying by any other method would be impracticable. For military purposes the photographic method is especially valuable. Levelling forms the subject of a very interesting chapter, where, in addition to the operations familiar to surveyors in Great Britain, the methods followed in other countries are described in some detail. Railway surveys, tunnel alignment, and surveys for

water-supply works receive adequate attention, and tacheometric surveying, a method which on the Continent is supplanting every other system of making preliminary surveys for public works, is accorded a chapter wherein the views of Mr. R. E. Middleton, Mr. Neil Kennedy, and other experts are quoted. After dealing with hydrographical surveys and astronomical observations, the author very properly devotes a chapter to the special and important subject of "Surveys Abroad in Jungle, Dense Forest, and Unmapped Open Country," and here he quotes from Mr. Sheldford's well-known paper on "Railway Surveying in Tropical Forests," from a paper on "Surveying in Australia" by Mr. Vickery, and from the regulations of the Australian Survey Departments. A chapter on "Geodetic Surveys," and a series of tables, form the conclusion to this work, which is written with admirable lucidity, and will certainly be found of distinct value both to students and to those engaged in actual practice.

*The Design of Simple Roof Trusses in Wood and Steel.* By MALVERD A. HOWE, M.Am.Soc.C.E. New York: John Wiley & Sons, London: Chapman & Hall, 1902.

IN his preface the author remarks that very little, if anything, new will be found in this elementary treatise. The object appears to have been to present within a small compass the most salient points connected with the design of various primary forms of roof truss. We believe the want may exist in the United States for such a book, but in our own country this particular department of literature is tolerably well filled by sundry excellent works on the design of simple roof structures. After a brief introduction to the elements of graphic statics, and a short chapter on the strength of materials, the author discusses the design of roofs, both in timber and in steel; the former in some detail, the latter very briefly indeed. In fact, the consideration of steel roof trusses is so brief as to furnish a somewhat slender justification for the mention of this material in the title. All the illustrations are admirably clear, and are so fully lettered and dimensioned as to form a valuable addition to the letterpress. The same remark applies to three folding plates at the end of the book.

*Scientific Protection. A Guide to the Proper Application of Lightning Conductors.* By ALFRED HANDS, F.R.M.S. London: J. W. Gray & Son, 1902.

THE author's great experience in the erection of lightning conductors has enabled him to write a thoroughly practical guide. He is, perhaps, a little too dogmatic on debatable points. For example—"No advantage is gained by having the conductor fixed on supports or brackets so as to keep it away from the building. Besides affording a possible means of entry to burglars... it makes it unnecessarily conspicuous..." "A lightning conductor earth plate does not require moisture applied to it like the roots of a plant." We can, however, recommend this pamphlet to all interested in the subject.

## Correspondence.

### THE QUANTITY SURVEYOR.

SIR,—After an existence of much more than a quarter of a century as a separate profession, is it not desirable that quantity surveyors should be established in some more permanent manner by forming an association to look after their interests?

As it rarely happens that any provincial town contains more than one or two properly qualified practising quantity surveyors, we are compelled to look to London to initiate such an undertaking; but as the interests of provincial quantity surveyors are identical with those of their London confreres, their co-operation should be solicited, and I feel sure it would be cordially accorded to.

Leeds.

W. HOFFMAN & WOOD.

### COATING OF CAST-IRON PIPES.

SIR,—This was the subject of a paper by Mr. Humphreys, read at the annual winter meeting of the British Association of Waterworks Engineers, and fully reported in your issue of December 13. The subject, as Mr. Humphreys remarks, is an apparently minor one, and perhaps I may be able



to throw a ray of light on a rather obscure point, which has very often puzzled every one connected with waterworks and water-pipes. I refer to the tarry taste of the water which frequently occurs after a new main has been laid.

During my connexion with one of the largest pipe foundries in this neighbourhood, more than one complaint of the nature referred to had been received, and it was determined to get to the bottom of it, and, if possible, to find the cause and its remedy, if the same lay within the competency of the foundry. With this end in view, I had a number of short lengths of small pipes cut and coated. When tested, the results were as follows:—

Sample No. 1.—Pipe clean, skin whole, no oxidation. Removed immediately after coating from the neighbourhood of the dipping pots, but left exposed to the weather.

Sample No. 2.—Same as No. 1, but after being coated it was removed to a place under shelter.

Sample No. 3.—Same, but after being coated was allowed to remain close to the dipping pots, exposed to the fumes rising from the pots.

Sample No. 4.—Same, but after being coated it was allowed to remain for six days close to the dipping pots, and exposed to the fumes. It was thereafter removed, but left exposed to the weather.

Sample No. 5.—Same as No. 4, but after being left exposed to the fumes from the dipping-pots for a week, it was removed to a place under shelter.

At the expiry of three weeks from the time of coating the several samples were collected, their appearance was as follows:—

Sample No. 1.—Brilliant black.

Sample No. 2.—Ditto.

Sample No. 3.—Colour dull black. Coating soft, and adhered to the hands when touched, strongly odorous.

Sample No. 4.—Colour dull black. Coating did not adhere to the hands when touched, small barely perceptible.

Sample No. 5.—Same as No. 4, but with no perceptible smell.

All the samples were then immersed in separate vessels containing water for one hour, with the following results:—

Sample No. 1.—No taste whatever in the water.

Sample No. 2.—Do. do.

Sample No. 3.—Exceedingly strong tarry taste in the water after the pieces had been immersed for a few minutes. The surface of the water became covered with an oily film.

Sample No. 4.—At first no perceptible taste in the water, but when allowed to remain for half-an-hour strong taste developed and oily film rose to the surface.

Sample No. 5.—Behaved same as No. 4.

From these tests it may be deduced that the fumes arising from dipping-pots will attack any coated pipes in the vicinity, and by absorbing or softening the drying ingredient prevent the coating from becoming hard and dry. When pipes which have been attacked in this way are removed from the neighbourhood of the dipping-pots, the coating dries to a certain extent, but, owing probably to the removal of the drying ingredient, they require a lengthened exposure to the atmosphere before they become fit for use for conveying water, and in any case the coating of pipes attacked in the manner described is probably never so good as that on pipes not so attacked. The appearance of the water after having been exposed to the fumes, is usually of a dull black colour, instead of the bright black varnished appearance which they should possess.

C. C. MACMILLAN, M.M.E.

Glasgow, December 23, 1902.

#### BOOKS RECEIVED.

Augsburo: IN KUNSTGESCHICHTLICHER, BAULICHER, UND HYGIENISCHER BEZIEHUNG. (Reichel; Augsburo.)

Augsburo: EINE SAMMLUNG SEINER HERVORRAGENSTENDEN BAUDENKMÄLER. Herausgegeben vom Architekten- und Jugendvereine Augsburo. (Kutscher & Gehr; Augsburo.)

PUBLIC LIGHTING BY GAS AND ELECTRICITY. By W. J. Dibdin, F.I.C., F.C.S. (The Sanitary Publishing Co.)

STUDENT'S COLUMN.—The usual publication of the "Student's Column" will be commenced in our next issue.

CHOIR STALLS, BARNET CHURCH.—A set of choir stalls, fitted with screen work at the back, has been placed in this church. The stalls, erected on the north and south sides of the chancel, are of the fourteenth century decorative style. There are six stalls on either side for the adult members of the choir, and the ends are carved and surmounted by figures of angels holding musical instruments. There is a canopy over each set. The boys' stalls are treated in the same style. On each of the front panels is a carved figure of a boy chorister, and these figures are represented as joining in singing. The stalls are supplemented by two new prayer desks, which are carved and ornamented. The decorations include symbolical figures of the four Saints—Matthew, Mark, Luke, and John. Mr. J. C. Traylen, Stamford, was the architect, and the work was executed by Messrs. J. Thompson & Co., Peterborough.

#### GENERAL BUILDING NEWS.

EXETER CATHEDRAL.—The west front of Exeter Cathedral, which for centuries has been gradually forced outward by the weight of the roof, has been found insecure, and the Dean and Chapter have decided on its renovation. Every precaution against vandalism or unnecessary disturbance of fabric will be taken, it is stated.

RESTORATION OF BOURNE ABBEY CHURCH.—The reopening of the Abbey church at Bourne after the completion of a further portion of the restoration work took place recently. Within the last ten years the whole of the Abbey church has been practically restored, the work having been carried out in sections. The last section consists of a new roof on the south aisle, and the complete restoration of the south porch; the doorway to the old vestry-room has been replaced with a new window, as it was when the church was originally built. The work has been carried out by Messrs. Roberts Bros., of Stamford, at a cost of £500, under the direction of Mr. J. C. Traylen, architect, of Stamford.

DRILL HALL, PONTYPPOOL.—A new drill hall, which is to be the future headquarters of the 3rd Volunteer Battalion of the South Wales Borderers, was opened at Pontypool on the 22nd ult. The new drill hall is situated at the top of Osborne-road, and midway between Pontypool and Pontnewydd. It has a frontage facing the main road of about 100 ft. and a depth of 85 ft. It comprises a central hall, 75 ft. by 45 ft., with officers' rooms, lavatories for officers and men, and a basement room suitable for storage purposes. At the rear space is reserved for a Morris tube range. The outside walls are of red facing bricks, relieved by string courses and bands of buff facing bricks and dressing of Bath and Forest stone. The roofs are slated on the outside with blue slates. Inside the roofs are of wood, with match-boarding up to the apex of the hall. The hall floor is made of wood blocks, while the rooms are boarded, and the remaining parts laid in granolithic. Ventilation is provided on the Bovey system, and the lighting is to be done by gas. The structure is approached from the main street by a flight of nine steps. There is also a porch 8 ft. wide leading into the main hall, iron gates being provided on the outside. The contractors were Messrs. Morgan & Evans, of Pontnewydd; and the architect, Mr. D. J. Lougher, of Pontypool.

THEATRE ROYAL, BATH.—The Theatre Royal, Bath, has been altered and reopened. Messrs. Hayward & Wooster were the contractors, and the architect was Mr. F. T. Verity, London.

U.F. CHURCH, CLELAND, LANARKSHIRE.—The memorial stone has just been laid of the new United Free Church at Cleland. The building, the estimated cost of which is 2,000l., is situated in Church-street on the site of the old one. It is built of white sandstone, and has a steeple on the right side of the façade. It is provided with an east gallery, and gives accommodation for 400. It has five windows on each side, and a three-light window in the front gable. In the rear of the church there is a hall, seated for about 150. The building is from plans by Mr. James Shaw, Coatbridge.

THE REBUILDING OF THE LADY-CHAPEL AT HEXHAM.—The rebuilding of the lady-chapel at Hexham necessarily involved the taking down of the present east end of the Abbey, which was built in 1859 by Mr. W. B. Beaumont. Some dissatisfaction exists in Hexham at the proposed alteration at the east end of the church, and a strongly worded petition of protest is being signed, to be addressed to Mr. Beaumont, lay rector and patron of the living, asking for his interference in the matter. It is proposed to rebuild the lady-chapel (the cost, over 10,000l., being borne by Mr. James Hall, of Dilston and Tynemouth), from plans by Mr. Temple Moore, architect.—*Newcastle Journal*.

A NEW DOCK AT SWANSEA.—Mr. A. O. Schenck, Engineer to the Harbour Trustees, and Mr. P. W. Maik, of Messrs. P. W. & C. S. Mait, of Westminster, are appointed engineers for the construction of a new dock at Swansea, with a lock large enough to meet the latest requirements, at a computed outlay of nearly 2,000,000l.

SNOW HILL RAILWAY STATION, BIRMINGHAM.—It is stated that an estimate sum of upwards of 300,000l. will be expended upon the proposed enlargement and improvement of the station at Snow Hill, with an increased accommodation for local traffic, to comprise new bay lines and platforms on the Wolverhampton side. The scheme has been formulated by Mr. J. A. Webb, chief engineer to the Great Western Railway Company.

ISOLATION HOSPITAL FOR NORTH MIDDLESEX.—On December 23 was opened by the Hendon Rural Council a new permanent hospital for diphtheria and scarlet fever for patients from the area of Edgware, Stanmore, and Pinner. The buildings have been erected from designs by Mr. J. A. Webb, Engineer to the Council, at a cost of 19,500l., for fourteen beds, and comprise an administrative block, laundry, nurses' quarters, and other departments.

FISH MARKET, BARROW.—A new fish market was opened at Barrow on the 24th ult. The building stands between the Market Hall and the Town Hall, and is 46 ft. in length by 26 ft. wide. Askan bricks and Morley stone dressings have been used, and the

roof is covered with Tiberthwaite green slates. Internally the walls are lined with glazed bricks. The roof lining is of pitch pine, and it is supported by steel principals, and a large turret ventilator is fixed at the apex in the centre of the building. The floor is laid with black and white tiles on a concrete bed. The work has been carried out from the plans and under the supervision of the Borough Surveyor and Engineer, Mr. J. Walker Smith.

BUILDING IN NEWCASTLE.—After a period of comparative quietude, largely owing to disputes in the trade, the past twelve months have seen a general and remarkable outbreak of activity in all sections of building in Newcastle. Not only has the development of estates on the outskirts of the city—at Benwell, Heaton, and Jesmond more particularly—proceeded apace, but the heart of the city has been and is the scene of very numerous schemes of reconstruction, probably on a bigger scale than has been recorded in Newcastle for a great number of years. Whole blocks of business and other premises have been raised to the ground to allow of the more advantageous use of the sites which, being central, are increasingly valuable. The completion of a splendid piece of offices in Dean-street, at the rear of the cathedral, was scarcely effected before a start was made with a considerably greater enterprise, covering all the land on the south side of the new buildings, and extending back to the sea, this reconstruction scheme involving the destruction of more than one house of historic interest. Bewick's workshop was one of the first places to go in connexion with this project, whilst at the head of the Side the birth-place of Lord Cillingworth has also disappeared. The railway works at New Bridge-street in connexion with the through route between the old Blyth and Tyne line and the main route to the Central, at the Manor, are making substantial headway, and involve the construction of a new bridge of some length for the traffic now diverted to a temporary road. At the junction of Northumberland-street with New Bridge-street a fairly extensive scheme is in hand for the erection of a suite of offices for the Pearl Insurance Company. On the Castle Leazes, after a spell of little progress, work on the Royal Infirmary is proceeding apace, and should the open weather of the winter continue, excellent headway is likely to be made. The block of buildings in Collingwood-street, erected for the ex-Sheriff (Councillor W. J. Sanderson), is now practically completed, and the various shops and offices are being rapidly occupied. The Western portion has been purchased by Messrs. Barclay & Co., for use as banking premises. The eastern portion of the ground floor is divided into five shops, and the upper floors into suites of offices. Altogether, there are well on for 100 offices, some being subdivided to meet the requirements of certain tenants. The main entrance is situated in the middle of the Collingwood-street front, and gives access to a well-lighted large octagonal hall, the walls of which are lined with marble, and the floor is laid with ceramic mosaic. Immediately fronting the entrance is a marble staircase, but passenger lifts have been fitted up on either side. The architects for the buildings were Messrs. Oliver, Leeson, & Wood, of Newcastle, and the chief contractor, Mr. J. Pringle, of Gateshead. Immediately opposite this block of buildings, there has been demolished the establishment occupied by Mr. Pape, and foundations are being put in of new offices for the Sun Fire Insurance Co. This building will have a double front, the main facade being in Westgate-road, opposite the Lit and Phil. The lower part of the premises will be of grey granite, and the superstructure of stone. The building will comprise six floors. Messrs. Oliver, Leeson, & Wood are the architects, and Messrs. J. & W. Lowry the contractors. The old hostelry known as the Royal Exchange Hotel, with the shops lately occupied by Messrs. Kilgour & Liddell and Messrs. Bright & Co., in Grey-street, Newcastle, and extending from Grey-street to the Church Institute, with frontages to Grey-street, Hood-street, and High Friar-street, are being rapidly demolished, and on their site it is intended to erect business premises, comprising four shops or offices on the ground floor, with show or unpacking rooms and goods entrance at the rear, and on the upper floors several suites of offices, consisting of about eighty chambers, accessible from a spacious entrance-hall, opening on to a stone Carol-street, in the level of which is arranged a passenger lift. The basement extends over the whole area of the site. The architects are Mr. W. H. Knowles, Newcastle, and Messrs. W. & T. R. Milburn, of Sunderland, and the contractors Messrs. J. & W. Lowry, of the former city. Tenders have been obtained, and it is intended shortly to begin the erection of business premises in the area of the site. The accommodation includes a semi-basement, good shops, and offices or showrooms above, the uppermost story being arranged as a photographer's studio. The elevations will be of best red brick, and the roof covered with green Westmorland slates. The construction line of the angle door Carol-street to the roof and terminate in a turret, and the windows of the upper floor are arranged in the gables, which thus break the eaves and ridge



line. The buildings have been designed by Mr. W. H. Knowles. About two years ago the Academy of Arts, Blackfriars-street, was purchased by Mr. C. W. Mitchell, with the view of converting it into an art centre. This work has now been accomplished. The old Classic front elevation has been practically unaltered with, the only alteration being the insertion of a modern shop front in the western portion. Internally the place has been altered, the first floor converted into premises for the Pen and Palette Club, the upper floor into carter's rooms and studios, and on the ground floor the art gallery has been rearranged and redecorated. The architects were Messrs. Oliver, Leeson, & Wood. Considerable progress has been made with the development of the West Jesmond Estate, and in the course of another twelve months it is expected that the work will be completed. Some 800 houses have been erected during the last six or seven years. A site has been secured for a Roman Catholic church, and a temporary iron building is now in course of erection on the site. The portion of the Benwell Grove Estate adjoining the West Turnpike is now practically all built upon, and the lower portion will shortly be laid out into building sites for some 300 new houses. The architect for both these estates is Mr. C. S. Errington, of Newcastle and Benwell.—*Newcastle Journal.*

**LIBERAL CLUB, PERTH.**—A new club is to be erected by the Perth Liberals in Kinnaird-street at an estimated cost of 8,000. The architects are Messrs. McLaren & MacKay, Perth.

**BUILDING TRADE OF LEITH IN 1902.**—In the report on the building trade in Leith during 1902, the Surveyor of the Office, it is stated that the year has been marked by a great want of briskness, and that the outlook for the coming year is not encouraging. A total of seventy-six warrants to build was granted by the Dean of Guild Courts—the majority being for alterations on or small additions to existing property. Eleven of these warrants were for shops and tenements, and included shops and dwelling-houses, and five warrants were granted for villas and self-contained houses, the plans showing accommodation for 107 tenants. New tenement property, it is stated, is rapidly taken up, showing that there is still a great demand for this class of house, and from the way in which self-contained houses are occupied, there seems to be a field for further operations of this nature. Seven warrants for warehouses, stores, &c., were granted. The new church of St. Serfa in Ferry-road is rapidly being completed, as is also the new Masonic Lodge at Wardie-road, and plans have been passed for a large new school in the Kirkgate in connexion with the Roman Catholic Church there. Satisfactory progress is being made with the new Bonnington Bridge, the foundations and wing wall of which have been almost completed. It is expected that many months will elapse before the Caledonian and North British Railway Company's new stations are opened to the public, as the work is proceeding slowly. In regard to the Town Hall alterations, the new committee-rooms and offices are practically completed, and it is expected that these will be formally opened early in January.

**PROPOSED NEW SECONDARY SCHOOL FOR HAWICK.**—At a meeting of the Hawick Burgh School Board on the 23rd ult. Mr. J. P. Alison, architect, in compliance with a request from the Board, submitted a plan and estimate for utilising the vacant ground behind the Buccleuch Memorial for a new secondary school in conjunction with the accommodation already utilised in the Memorial. He estimated the cost of the new part, &c., at £60,000. Mr. Melrose said this would give accommodation for 278 pupils altogether, there being at present 140 in the present academy. He suggested that they should adopt Mr. Alison's report, and submit the plan for the Department's approval before proceeding further. On the motion of Mr. Hall, it was resolved to confer with Mr. King, H.M. Inspector, before bringing the matter before the Department.

**BUILDING IN BIRMINGHAM.**—Although the area embraced within the boundaries of Birmingham remains the same, the size of the city in population and in the number of its dwelling-houses and business premises increases every year. During the past twelve months far more progress has been made in this direction than in the year preceding. Probably 7,000 or 1,800 small houses have been erected and let at rents ranging from 6s. to 10s. a week. These houses are situated mainly at Small Heath, Bordesley Green, and Salfrey, the side of the city which contains the most vacant land, and where, consequently, sites are being extensively acquired and laid out for building purposes. Building is still going on in the neighbourhoods mentioned, and the builders, as a matter of fact, cannot put up the houses fast enough. Besides these artisans' dwellings more than a hundred large workshops, factories, and business premises have been erected since the commencement of the year—establishments at each of which at least a hundred workpeople will find employment—and, in addition, a much larger number of smaller buildings to existing buildings are being put up. One matter of interest to the inhabitants of Bordesley West is the erection of the bridge to connect Small Heath with Sparkbrook. Considerable progress is being

made with the University buildings in University-road, in the parish of Harborne, but not far from Bristol-road. The power station is nearly finished, and the foundations for two of the main blocks are partially completed. The building which has been erected in Balden-road, Harborne, by the Committee of the Gem-street Industrial School, is finished, and the inconvenient, uncomfortable, and old-fashioned school in Gem-street will now be made available for the purposes of a day and industrial school under the Birmingham School Board. The site of Baths in Green-lane was built and opened this year for the benefit of the inhabitants of Small Heath, and a new fire station has been erected and fitted up on modern principles at the corner of Salfrey-road and Lingard-street. One new church has been built during the year, namely, St. Peter's, in George-street West, to replace the church in Dale End, which was sold under the Birmingham Churches' Act, and the site of which has been acquired for the erection of a new home for the Young Men's Christian Association. The Bordesley Green Board schools have been finished and opened, and the Loxton-street Board schools have been materially enlarged. Considerable extensions have been made to the gas works at Salfrey, and in close proximity thereto, in Neshell's Park-road, the Corporation have erected houses for a superintendent and a foreman. In the centre of the city the operations of the builder have been less extensive than usual. Corporation-street was practically completed, and the only important feature of the work under the City's Improvement Scheme is the erection of the Wesleyan Methodist Central Hall, opposite the Victoria Courts. This building is rapidly approaching completion. Another building is in course of erection for the Wesleyan General Assurance Company at the top of Steelhouse-lane; in the Upper Friary a block of offices on modern principles has replaced a number of small tenements, and extensions have been made to the Homoeopathic Hospital in Easy-row. In Paradise-street, Queen's College is in process of reconstruction. The remaining leases of the shops in Christ Church-buildings, at the top of New-street, fell in at the early part of the year, and a block of new shops has been erected, which makes a considerable improvement in the neighbourhood of Victoria-square. The Midland Hotel in New-street is nearly finished. The old elevation in the main thoroughfare has been maintained, but there is a new one in Stephenson-street, and the internal portion of the structure will be wholly new. The new arcades which open into New-street have been finished, and the extension of the Vegetable Market in Jamaica-row, it is expected, will be completed in the spring. Of the private establishments there have been many new houses of considerable size erected in Edgbaston during the year, while the extensions and reconstructions of existing residences are far greater in number. Messrs. Southall Brothers & Barclay have largely increased the size of their manufacturing premises in Alum Rock-road, the Wolseley Tool and Motor Car Company have made extensive alterations to their works in Arden-road, and the Metropolitan Railway Carriage and Wagon Company have launched out in a similar manner. The Birmingham Small Arms Company have built additions to their already big establishment in Armoury-road, Small Heath alterations and extensions have been made at the Mint in Icicle-street, and new factories have been erected in Constitution Hill for Messrs. Barker Brothers, and in Caroline-street for Messrs. Barker & Allen. It will be evident, therefore, that during the year Birmingham's growth in "bricks and mortar" has been very considerable.—*Birmingham Post.*

**ABERDEEN UNIVERSITY EXTENSION SCHEME.**—The plans of the frontage of the University, as finally decided upon by the Sites and Plans Committee, have now been completed by Mr. A. Marshall Mackenzie, A.R.A. The new plan differs from that which was issued in November, 1901. That plan showed two entrances—one close to the north tower and in line with the north side of the quadrangle, and the other in line with the south side of the quadrangle. In the amended plan there is only one entrance, opposite to the entrance to the Mitchell Hall and tower. In the new plan there is less richness in the architectural features by the removal of central mullions from the windows, but the general character of the scheme has been retained, and it is very effective. Provision is made in the new building for the departments of Geology, Natural History, Law, Modern Languages, Education, Comparative Psychology, and Agriculture. There will also be accommodation for the library in the portion to the left of the entrance.—*Aberdeen Journal.*

**BANK, THIRSK.**—The York City and County Bank, Thirsk, has been enlarged. The exterior has been designed to conform as much as possible to the original building, and has now a continuous frontage of 50 ft. The bank entrance is emphasised by a carved shield containing the monogram of the company. At a lower level is placed a clock. A new entrance has been provided to the manager's private rooms. The interior of the ground floor is occupied principally with a banking room, 30 ft. by 25 ft., a manager's private room, and a fireproof safe. The whole of the woodwork on this floor is in polished mahogany. The floor in front of the

counter is executed in marble mosaic on concrete laid between rolled steel joists. The ceiling is panelled. Leaded lights have been used to the vestibule screen and in the lower portions of the large windows in the form of panels containing the name of the company. In the basement provision has been made for a steel-lined fireproof strong-room, 15 ft. long and 8 ft. wide. The upper floors provide additional accommodation for the bank manager. The following contractors were employed: Mr. J. W. Ruddy, joiner and cabinet-maker's work; Mr. T. Godfrey, masonry; Mr. T. Cartman, plumbing and leaded lights; Messrs. J. & W. Baynes, slating; Mr. Bickers, Thirsk, painting and polishing; Mr. Shaw, plastering and concreting; Mr. Falshaw, electrical and gas fittings. The work has been carried out from the plans of Mr. T. E. Marshall, architect, Harrogate.

**TOWN HALL, STANHOPE.**—The new town hall at Stanhope has just been opened. The architects were Messrs. Clarke & Moscrop, and the builders, Messrs. Hopper & Wharton. The ground story of the building contains council chamber, caretaker's house, and a cottage left off to a tenant. The total cost will be about 3,000.

#### MISCELLANEOUS.

**INSTITUTE OF BRITISH DECORATORS.**—Sir William E. Richmond, R.A., has promised that towards the end of February he will deliver to the Institute of British Decorators, at Painters' Hall, a lecture giving some account of his great decorative work in St. Paul's Cathedral.

**THE ROYAL SANATORIUM FOR TUBERCULOSIS.**—The Advisory Committee have selected Mr. H. Percy Adams as the architect to carry out the King Edward VII. Sanatorium.

**STABLES, WOBURN ABBEY.**—The fine range of stables at Woburn Abbey, well known to visitors, which were somewhat antiquated in their fittings and arrangements, have just been refitted and modernised. Many of the old stalls have been removed and in their place new loose-boxes of ample dimensions have been substituted, with massive iron and brass fittings. The walls have been lined with boarding and green tiles, and the old paving has been removed and Adamantine clinkers laid instead. The three stables have by slight structural alterations been thrown into one. The whole of the work has been carried out by the St. Pancras Ironwork Co., under the superintendence of Mr. G. E. Whitcombe, acting for the Duke of Bedford.

**CHAIR OF ARCHITECTURE, MANCHESTER TECHNICAL SCHOOL.**—At a meeting of the Technical Instruction Committee of the Manchester Corporation, on the 22nd ult., the arrangements were confirmed for the establishment of a Chair of Architecture at the School of Technology, under the joint auspices of the Owens College and the Corporation Committee, with the co-operation of the Manchester Society of Architects. It was reported that there were 2,900 acceptances to attend the first annual conference on January 2 and 3 (to be held at the Technical School) of persons in the North of England concerned in primary, secondary, and other forms of higher education.

**NEW NAVAL BARRACKS, CHATHAM.**—The new naval barracks are nearly completed. They have been built on the sites of the old convict prison and torpedo factory, and will cost, it is calculated, about 10,000. The quarters for officers and seamen are planned in blocks. The infirmary and the Commandant's house will be shortly proceeded with upon further contracts.

**BRISTOL, LONDON, AND SOUTHERN COUNTIES RAILWAY.**—A projected line, for which powers will be sought in the course of next Session, is planned to run from Bristol to Bath, thence through mid-Wiltshire to a junction with the Midland and South-Western Junction Railway at Collingbourne, near Ludgershall, and thence through north-West Hampshire to a junction with the London and South-Western Railway at Overton, between Whitechurch and Basingstoke, with branches to the Midland Railway at Kelston, in Somersetshire, to the Somerset and Dorset Railway at Midford, and to Avonmouth. The promoters will apply for running powers over the several railways we mention.

**PROPOSED CITY AND CRYSTAL PALACE RAILWAY.**—The new railway, for which a Bill has been prepared, provides for the construction of a line from the intersection of Queen and Cannon streets to Rye-lane, Peckham, and thence to the western side of Crystal Palace Park-road at a point near the Pease entrance into the Palace grounds. Two alternative sites for a generating station are named in the Bill—one by the side of the Peckham branch of the Surrey Canal in Hill-street, the other at Bankside, between Rose-alley and Bear-gardens, Southwark. The promoters of the undertaking seek to take the subsoil, or an easement of about 3 rods, of the northern portion of Peckham Rye Common.

**ORDNANCE SURVEY MAPS.**—The Comptroller of the Stationery Office has informed the Surveyors' Institution that he will not in future require special application to be made to him for sanction to print an extract from any Ordnance Survey map for the purpose of particulars of sale of land, if the following conditions are observed:—“1. That the source







splash ridge in the bottom, formed to deliver an inclined jet of water.

259 of 1902.—W. THOMSON: Valves for the Mixing and Regulating of the Supply of Hot and Cold Water to Baths, Wash-hand Basins, and the like.

This relates to valves for the mixing and regulating of the supply of hot and cold water to baths, wash-hand basins, and the like. This invention consists in the combination of a mixing-chamber, a central inlet chamber for the hot water, a beveled ring working in said annular inlet chamber and secured to a disc valve, and a tapered plug for closing the cold-water inlet fitted to disc valve.

814 of 1902.—C. M. HUGHES: Fastenings for Roofing Slates.

This relates to a fastener for roofing slates consisting of a plate, a lug or the like formed with or connected to the plate, a folding piece pivotted or jointed thereto, a stop piece on the plate or lug, and a projection or hook on the plate or lug.

830 of 1902.—J. L. FERRELL: Wood-preserving and Fireproofing.

This relates to a process of preserving wood, which consists in making an aqueous solution of aluminum sulphate, mixing with said solution a carbonate, impregnating the wood with the mixed solution, and subsequently evaporating the moisture from the wood. The invention further consists in injecting a preserving fluid through the wood from one end thereof to the other, in the direction of the grain of the wood, discharging the fluid from the opposite end of the wood until the specific gravity of the fluid being emitted is substantially equal to that of the fluid being injected; thereupon preventing the escape of the fluid from the wood at the discharge end thereof; and continuing the injection of the fluid until it is distributed radially from the centre through the substance of the wood and appears at the circumference thereof.

868 of 1902.—C. M. STEAD: A Fitting and Reflector for Carrying Electric and other Lamps and Lights.

This relates to a combined fitting and reflector for carrying electric or other lamps or lights consisting of a pendant piece having an upper cylindrical part and three or more wings diverging radially and symmetrically from a common centre, adjoining surfaces of adjoining wings running into each other in a curved manner, the wings being thicker towards the centre, and the outer edges of the wings tapering in a curved manner inwards and downwards, the radius of the said cylindrical part being very considerably less than the greatest radial length of the wings, and a semi-circular or cone-shaped plate resting on the upper horizontal or inclined edges of the wings, and having a central hole in and through which the cylindrical part of the pendant piece projects, and three holes placed or situated respectively in the mid-radial lines between the wings.

995 of 1902.—T. OSBORNE: Out-door Seats.

This relates to out-door seats, and consists essentially in providing a flexible cover, which is sheltered behind the back of the seat until required, and can be brought into use by downward pressure on a suitably placed pedal.

1,068 of 1902.—W. TAYLOR: Valves, Cocks and the like.

This relates to a plug-cock or valve comprising a body with inlet or outlet passages, a semi-circular seating, and an externally threaded plug provided with a ring of metal softer than the said seating, which is embedded in the ring by the turning of the plug.

14,493 of 1902.—F. W. COCKING: Method and Appliances for Forward Drying of Bricks and the like in Continuous Down Draught Kilns.

This relates to continuous down draught kilns for the forward drying of bricks and the like, and consists of removable fire receptacles provided with grates near the bottom of each receptacle, the receptacles being so constructed and arranged that the heat and products of combustion are drawn down the feed holes into the kiln chambers.

20,487 of 1902.—G. EHRH: Presses for the manufacture of stove-tiles and the like.

This relates to a tile-press in which a tile-mould is pivoted in front of the mouth of the press, and held fast in its working position by means of a suitable fastening device—for instance, a hook or the like.

20,243 of 1902.—A. FLOOD: Tiles and coverings for floors, walls, and the like.

This relates to a wall, floor, or other surface covering made up of a series of separate, uniform, and interchangeable tiles, having marginal dovetailed recesses and corresponding interlocking projections, one in the middle of each side of the recess, and projections alternating around the margin, and both extending through the entire thickness of the tile.

21,154 of 1902.—W. LEUSCHER and H. THOMANN: Presses for Tiles.

This relates to a tile press for manufacturing tiles, provided with a groove in the overlapping edge for taking up the border of the following tiles, in which press a guided bar is provided, which bar, for forming the groove, can be shifted over the mould plate before forming the overlapping edge, and can

be drawn back before lifting the tile out of the mould.

No. 21,503 of 1902.—G. C. SAVAGE: Hot Water Heating and Distributing Systems.

This relates to a water-heating and distributing system, and consists in the combination of a reservoir, a water-heater, two systems of pipes, forming a short circuit between the reservoir and heater, and the other a long circuit extending beyond the reservoir and heater, and a common return forming a part of both circuits, and valve mechanism whereby the water may be caused to flow through either circuit.

No. 21,646 of 1902.—F. RINGEL: Manufacture of embossed material applicable for decorating walls, ceilings, and similar purposes.

This relates to the manufacture of embossed material suitable for wall decorations or the like, which consists in introducing between two plain sheets of paper a layer of plastic filing material, and then subjecting the one paper surface to the pressure of an embossing roller.

# MEETINGS.

FRIDAY, JANUARY 2.

*Institution of Junior Engineers.*—Mr. H. M. Rountwaite on "Marine Boilers: A Consideration of the Relative Values of Different Types." 8 p.m.

SATURDAY, JANUARY 3.

*Royal Institution.*—Professor Hele-Shaw on "Locomotion: on the Earth, through the Water, and in the Air." IV. 3 p.m.

*British Institute of Certified Carpenters (Carpenters' Sanitary Inspectors Association).*—Sir James Crichton Browne will deliver his "New Year's Address" at Carpenters' Hall at 6 p.m., subject, "Food Dangers."

MONDAY, JANUARY 5.

*Royal Institute of British Architects.*—Business meeting to elect candidates for membership. 8 p.m.

*London Institution.* Rev. Canon Benham on "Old London: Old Houses."—I. 4 p.m.

*Liverpool Architectural Society (Incorporated).*—A. Special general meeting to consider and approve the revised schedule of charges, clauses 14 et seq. 8 p.m.

*Ordinary meeting.* Mr. C. Harrison Townsend on "Mosaic Work." 8 p.m.

TUESDAY, JANUARY 6.

*Royal Institution.*—Professor H. S. Hele-Shaw on "Locomotion: on the Earth, through the Water, in the Air." V. 3 p.m.

*Manchester Society of Architects (Students' Meeting).*—Mr. J. T. Wynyard Brooke on "Heating and Ventilating." 8 p.m.

*Glasgow Architectural Association.*—Mr. A. N. Malcolm on "Belgium and its Cities." 8 p.m.

WEDNESDAY, JANUARY 7.

*London Institution.*—Rev. Canon Benham on "Old London: Old Churches." II. 4 p.m.

*Architectural Association Discussion Section.*—Mr. J. H. Pearson on "Some Points in Ancient Lights Practice." 7.30 p.m.

*Builders' Foremen and Clerks of Works Institution.*—Ordinary meeting of the members. 8 p.m.

*The Drovers' Society of Architects.*—Mr. J. F. Duthoit on "Brasses." Illustrated. 8 p.m.

*Edinburgh Architectural Association.*—Mr. A. H. Crawford on "The Building of a House." Illustrated. I. 8 p.m.

THURSDAY, JANUARY 8.

*Royal Institution.*—Professor Hele-Shaw on "Locomotion: on the Earth, through the Water, in the Air." VI. 3 p.m.

*Institution of Electrical Engineers.*—I. Mr. W. B. Scott on "Recent Electrical Design." 2. Mr. E. K. Scott on "The Manufacture of Large Dynamos and Alternators." 8 p.m.

*Manchester Society of Architects.*—Mr. A. W. S. Croose on "Competitions." 8 p.m.

FRIDAY, JANUARY 9.

*Architectural Association.*—Mr. Andrew Oliver on "Old London: being Notes on Whitehall and the Strand," illustrated by old engravings and lantern slides. 7.30 p.m.

*London Institution.*—Rev. Canon Benham on "Old London: Old People."—III. 4 p.m.

*Birmingham Architectural Association.*—Mr. Bedford Lemere on "Architectural Photography." 8 p.m.

*Edinburgh Architectural Association.*—Mr. A. H. Crawford on "The Building of a House." Illustrated. I. 8 p.m.

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## PRICES CURRENT (Continued).

BRICKS, &c.		BRICKS, &c.	
£ s. d.		£ s. d.	
Best Stourbridge			
Fire Bricks	4 8 0	per 1,000 at railway depot.	
GLAZED BRICKS.			
Best White and			
Ivory Glazed			
Stretchers	13 0 0	"	"
Double Headers	12 0 0	"	"
Quoins, Bullnose,			
and Flats	17 0 0	"	"
Double Stretchers	19 0 0	"	"
Double Headers	16 0 0	"	"
One Side and two			
Ends	19 0 0	"	"
Two Sides and			
one End	20 0 0	"	"
Splays, Chamfered,			
Squints	20 0 0	"	"
Best Dipped Salt			
Glazed Stretch-			
ers and Headers	12 0 0	"	"
Quoins, Bullnose,			
and Flats	14 0 0	"	"
Double Stretchers	15 0 0	"	"
Double Headers	14 0 0	"	"
One Side and two			
Ends	15 0 0	"	"
Two Sides and			
one End	15 0 0	"	"
Splays, Chamfered,			
Squints	14 0 0	"	"
Second Quality			
White and Dipped			
Salt Glazed	2 0 0	less than best.	
Thames and Pit Sand	7 0	per yard, delivered.	
Thames Ballast	6 0	"	
Best Portland Cement	30 0	per ton, delivered.	
Best Ground Blue Lias Lime	21 0	"	
NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.			
Grey Stone Lime	10s. 6d.	per yard, delivered.	
Stourbridge Fire-clay in sacks	27s. 6d.	per ton at rly. dpt.	

## STONE.

STONE.		STONE.	
£ s. d.		£ s. d.	
Ancaster in blocks	11 11	per ft. cube, del. rly. depot.	
Bath	1 7	"	
Farleigh Down Bath	1 8	"	
Beer in blocks	1 6	"	
Brinsbill	1 10	"	
Brown Portland in blocks	2 2	"	
Darley Dale in blocks	2 4	"	
Red Corshill	2 5	"	
Closeburn Red Freestone	2 0	"	
Red Mansfield	2 4	"	
YORK STONE.—Robin Hood Quality.			
Scrapped random blocks	2 10	"	
6 in. sawn two sides land-			
ings to sizes (under			
40 ft. super.)	2 3	per foot super.	
6 in. Rubbed two sides			
ditto, ditto	2 6	"	
3 in. sawn two sides			
slabs (random sizes)	0 11 1/2	"	
2 in. to 2 1/2 in. sawn one			
side slabs (random			
sizes)	0 7 1/2	"	
1 1/2 in. to 2 in. ditto, ditto	0 6	"	
BEST HARD YORK.			
Scrapped random blocks	3 0	per ft. cube	
6 in. sawn two sides			
landings to sizes (under			
40 ft. sup.)	2 8	per ft. super.	
6 in. Rubbed two sides			
ditto	2 6	"	
3 in. sawn two sides			
slabs (random sizes)	1 2	"	
2 in. self-faced random			
lags	0 5	"	
Hopton Wood (Hard Bed) in blocks	2 3	per ft. cube.	
" " " 6 in. sawn both		del. rly. depot.	
sides landings	2 7	per ft. super.	
" " " 3 in. do.	1 2 1/2	del. rly. depot.	

## SLATES.

SLATES.		SLATES.	
£ s. d.		£ s. d.	
20 x 10 best blue Bangor	13 2 6	per 1,000 at rly. depot.	
20 x 12 " " "	13 17 6	"	
20 x 10 best seconds	12 15 0	"	
20 x 12 " " "	13 10 0	"	
16 x 8 best	7 0 0	"	
20 x 10 best blue Portma-			
doc	12 5 0	"	
16 x 8 best blue Portmadoc	6 0 0	"	
20 x 10 best Eureka un-			
fading green	15 0 0	"	
20 x 12 " " "	16 7 0 0	"	
16 x 10 " " "	11 10 0 0	"	
16 x 8 " " "	8 7 6	"	
20 x 10 permanent green	10 10 0	"	
16 x 10 " " "	9 0 0	"	
16 x 8 " " "	6 5 0	"	

## TILES.

TILES.		TILES.	
£ s. d.		£ s. d.	
Best plain red roofing tiles	42 0	per 1,000, at rly. depot.	
Hip and valley tiles	3 7	per doz.	
Best Broseley tiles	50 0	per 1,000	
Do. Ornamental Tiles	53 6	"	
Hip and valley tiles	4 0	per doz.	
Best Red, brown or			
brindled Do. (Edwards)	57 6	per 1,000	
Do. ornamental Do.	60 0	"	
Hip tiles	4 0	per doz.	
Valley tiles	3 0	"	
Best Red or Mottled Staf-			
fordshire Do. (Peakes)	51 0	per 1,000	
Do. Ornamental Do.	54 6	"	
Hip tiles	4 2	per doz.	
Valley tiles	3 8	"	
Best "Rosemary" brand			
plain tiles	48 0	per 1,000	
Do. Ornamental Do.	50 0	"	
Hip tiles	4 0	per doz.	
Valley tiles	3 8	"	

[See also page 27.]

## PRICES CURRENT OF MATERIALS.

\*.\* Our aim in this list is to give, as far as possible, the average prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.		BRICKS, &c.	
£ s. d.		£ s. d.	
Hard Stocks	1 13 0	per 1,000 alongside, in river.	
Rough Stocks and			
Gizels	1 7 0 0	"	
Facing Stocks	2 12 0	"	
Flattons	2 5 0	"	
Best Fareham Red	1 7 6	at railway dpt.	
Red Wire Cuts	1 12 0	"	
Best Red Pressed	3 12 0	"	
Ruabon Facing	5 0 0	"	
Best Blue Pressed			
Staffordshire	4 5 0	"	
Do. Bullnose	4 11 0	"	



## COMPETITIONS, CONTRACTS AND PUBLIC APPOINTMENTS.

(For some Contracts, &amp;c., still open, but not included in this List, see previous issues.)

## COMPETITIONS.

Nature of Work or Materials.	By whom Advertised.	Premiums.	Designs to be delivered
Public Library, Park-street	Workington Corporation	25l. 15s. 10d.	Jan. 20
Designs for University Buildings, Cape of Good Hope	Agent Gen. for Cape of Good Hope	100l. 20s. 10d.	Jan. 31
Laying out Piece of Land for Recreation Ground	Wimborer Corporation	75l. and 25s.	Feb. 10
Extension of Town Hall	Heli Corporation	100 guineas and 25 guineas	Mar. 4
New Free Library	U.D.C. of Castleford	150 and 10l	Mar. 31

## CONTRACTS.

Nature of Work.	By whom Advertised.	Forms of Tender, &c., supplied by	Tenders to be delivered
Boundary Walls, &c.	Bridgwater Town Council	Borough Surveyor, High-street, Bridgwater	Jan. 6
Four Houses, Littlebridge, Yorks		Brayshaw & Dixon, Architects, Halifax-road, Buttershaw	do.
Three Cottages, Lodge Lane, Honley, Yorks		H. Coldwell, Honley	do.
Coal mines, Acton	Great Western Railway Company	G. K. Mills, Paddington Station, London	do.
Additions to station, Mountain Ash, Glam.		J. F. Smille, Borough Surveyor, North Shields	do.
Road Works, Llangaleigh, Cardigan	Cork County Council	G. McCarthy, Court House, Cork	do.
Bridge Works, Bosconoor, Slatts	Cannock R.D.C.	H. M. Whithead, Surveyor, Mill-street, Penkridge	do.
Public Conveniences	Trowbridge U.D.C.	H. G. S. Lailey, Civil Engineer, Town Hall, Trowbridge	do.
Additions to Hospital	St. Albans Town Council	City Surveyor, Town Hall, St. Albans	do.
Road Works, Park-road, &c.	Croydon Corporation	Borough Road Surveyor, Town Hall, Croydon	do.
Gasworks Extension	Tegmouthe U.D.C.	T. & C. Hawkey, Civil Engineer, 30, Great George-street, S.W.	do.
Building for Bakery	Barnsley Corporation	H. Hubart, Architect, Dromore, Co. Down	do.
Houses, Trowbridge, N.B.	Basingstoke Town Council	W. Reid, Architect, Saloon-square, Fraserburgh	do.
Cast-iron Pipes, Upper Malpas	Messrs. J. & G. Wallace	T. Williams, Engineer, Pelican-street, Ystradgynlais	do.
Cast-iron Pipes, Upper Malpas	Weybridge U.D.C.	J. S. Crawshaw, Surveyor, Council Offices, Weybridge	do.
Club House		to Council, Architects, Yorks Bank Chambers, Halifax	do.
Works at Fire Brigade Station, Balfour-road		Borough Engineer, Market-street, Melcombe Regis, Dorset	Jan. 8
Shop, &c., North-road, Ystradgynlais, Wales	Weymouth U.D.C.	A. Creer, Engineer, Guildhall, York	do.
Three Houses and Shop, Watney-road, &c.	York Corporation	J. F. Stow, Surveyor, Corn Exchange, Usbridge	do.
Public Conveniences, &c.	Uxbridge R.D.C.	A. Brown, Civil Engineer, Guildhall, Nottingham	do.
Stores, &c., Building	Nottingham Corporation	W. Matthews, Engineer, 18, French-street, Southampton	Jan. 9
Bridge, Wilton-street	Southampton Corporation	A. J. Hope, Engineer, Gasworks, Nelson	do.
Cast-iron Pipes (100 tons)	Nelson (Lancs.) Corporation	J. H. Hux, City Architect, Town Hall, Hull	do.
Fire-alarm Goods for Gasworks	Hull Corporation	W. D. Lang, Civil Engineer, Kirkcaldy	Jan. 10
Market, North Church-side	Mr. R. C. Ferguson	E. H. Barber, Civil Engineer, Clown, Chesterfield	do.
Streets, Kirkcaldy	Clown R.D.C.	City Engineer, Municipal Buildings, Leeds	do.
Sewerage Works, Crosswell, near Chesterfield	Leeds Corporation	Town Clerk, Dollar, N.B.	do.
Paving Works, Pasture road, &c.	Dollar (N.B.) Town Council	J. Farley, Architect, Old Cross, Hertford	Jan. 12
Causeswaying Bridge-street	Messrs. McMullen & Sons, Ltd.		do.
Hotel, Hertford		J. Rees, Architect, Pentre	do.
Shop, Hertford	Yatmodydwg School Board	County Surveyor, The Castle, Winchester	do.
Schools, Tynon-street	Southampton County Council	H. J. Wright, Architect, Museum-street, Ipswich	Jan. 13
Reconstruction of Chandler's Road Bridge	Ipswich City Council	F. Reisman, Engineer, 24, Wood-street, Swindon	do.
Additions to St. John's Home	Swindon R.D.C.	G. C. Cook, Esq., Princess-square, Plymouth	do.
Waterworks, Walsborough	Plymouth School Board	Engineer to the Council, Public Offices, Dyne-road, Kilburn, N.W.	do.
Works at School, Salisbury-road	Willesden District Council		do.
Making, &c., Gosman-road, Willesden Green, &c.		Clerk to the Guardians, Clerk's Offices, Sydney-rd., Hornorton, N.E.	Jan. 11
Road-making and Paving Works	Hackney Union	P. J. S. Tiddeman, Borough Electrical Engineer, Stoke-upon-Trent	do.
Extension of Boiler House, &c.	Stoke-upon-Trent Corporation	J. H. Crowther, Great Flat, Birkenhead	Jan. 15
Electrical Plant	Wallasey U.D.C.	G. F. Cheadle, Engineer, 16, Great George-street, S.W.	do.
Electrical Plant, Egremont, Cumbria	Sittingbourne U.D.C.	L. Ricard, Town Offices, South Molton	Jan. 16
Water supply Works	South Molton (Devon) Town Council	W. J. Jennings, Architect, St. Margaret's-street, Canterbury	do.
Gasworks Extension	Canterbury Asylum Visitors	H. T. Wakelam, Guildhall, Westminster, S.W.	Jan. 17
Staining, &c., at Asylum, St. Martin's Hill	Finchley U.D.C.	G. W. Egglestone, Surveyor, Stanhope	Jan. 19
Sanitary Arrangements at Christ's College, Finchley	Wealdale (Durham) R.D.C.	Engineer to the Council, Council Offices, Henlon, N.W.	do.
Bridge over River Wear, Harelaw	Hendon U.D.C.	Borough Electrical Engineer, Town Hall, Spa-road, S.E.	do.
Drawing, Kerling, &c., First Avenue, Cowley-place, &c.	Borough of Bermondsey	Housing Section of Architect's Dept., 19, Charing Cross-road, S.W.	Jan. 20
Annual Contracts	Lon Ion County Council	R. Brown, Civil Engineer, Public Offices, Southall	do.
Block of Balcony Dwellings, London Fields, N.E.	Southall (Middlesex) U.D.C.	County surveyor, Trowbridge	do.
Car shed, Rye-lane Depot	Wilts County Pauper &c., Asylum	Engineer to the Council, 712, High-road, Tottenham	do.
Fencing and Gates	Tottenham U.D.C.	Stones & Stones, Architects, 10, Richmond-terrace, Blackburn	Jan. 22
New Ward at Asylum, Devizes	Middleton (Lancs.) Corporation		do.
Cables, Cart Sheds, &c.		Kennedy & Jenkin, Civil Engineers, 17, Victoria-street, S.W.	do.
Post Office, 1, High-street	Ipswich Corporation	S. Hill, Architect, Bedford	do.
Tenement Offices, Sadler-street	Ambourne (Cornwall) U.D.C.	W. Green, Surveyor, Council Offices, Castleford	do.
Water supply Works	Castleford U.D.C.	J. Barron, Civil Engineer, 1, Bon-Accord-street, Aberdeen	Jan. 21
Council Offices	Scarabster (N.B.) Harbour Trustees	Surveyor's Office, 215, Batham High-road, S.W.	Jan. 26
Improvement Works, Duke-street	Wandsworth Borough Council	P. H. Palmer, Civil Engineer, Town Hall, Hastings	Jan. 27
Sanitary Conveniences at Tooting Broadway	Municipal Board of Wandsworth	Alfred Williams & Son, 14, Victoria-street, S.W.	Jan. 29
Making, &c., Epsom-street	Hastings Corporation	G. Gardner, Architect, 5, Marine Parade, Clacton-on-Sea	No date
Cast-iron Pipes	R.D.C. of Godstone	E. A. Borg, Civil Engineer, Margate	do.
Water supply Works	Margate Corporation	W. J. Morley & Son, Architects, 265, Swan-arcade, Bradford	do.
Ornamental Iron Gates	W. Dorey, Esq.	G. L. Watkins, Architect, Station-terrace, Caerphilly	do.
Conversion of Villas into Shops, &c., Clacton-on-Sea	Margate Corporation		do.
Shops, &c., Mincing-lane-water, Bradford			do.
Hotel, Abertou			do.

## PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Required.	Salary.	Application to be in
Chief of Works	Newport Lunacy Visiting Com.	Not stated	Jan. 16

Those marked with an asterisk (\*) are advertised in this Number. Competitions, iv. Contracts, pp. iv, vi, viii, x, &amp; xxxi. Public Appointments, xxviii.



## PRICES CURRENT (Continued).

## WOOD.

## BUILDING WOOD.—YELLOW.

Deals: best 3 in. by 11 in. and 4 in.	At per standard.
by 9 in. and 11 in.	15 10 0 16 10 0
Battens: best 3 in. by 9 in.	14 10 0 15 10 0
Battens: best 2 1/2 in. by 7 in. and 8 in.	11 10 0 12 10 0
Battens: best 2 1/2 in. by 6 and 3 by 6	10 0 0 less than 7 in. and 8 in.
Deals: seconds	10 0 0 less than best
Battens: seconds	9 0 0 10 0 0
2 in. by 4 in. and 2 in. by 6 in.	9 0 0 10 0 0
and 3 in. by 4 in. and 3 in. by 6 in.	8 10 0 9 10 0
Foreign Sawm Boards—	
2 in. and 1 1/2 in. by 7 in.	10 0 0 more than battens.
3 in.	10 0 0
3 in. fir timber: Best middling Danzig	At per load of 50 ft.
Second (average specification)	4 10 0 5 0 0
Seconds	4 5 0 4 10 0
Small timber (8 in. to 10 in.)	3 10 0 3 15 0
Small timber (6 in. to 8 in.)	3 0 0 3 10 0
Swedish balks	2 15 0 3 0 0
Pitch-pine timber (20 ft. average)	3 5 0 3 15 0

## JOINERS' WOOD.

## At per standard.

White Sea: First yellow deals,	3 in. by 11 in.	23 0 0	24 0 0
3 in. by 9 in.		21 0 0	22 10 0
Battens, 2 1/2 in. and 3 in. by 7 in.		17 0 0	18 10 0
Second yellow deals, 3 in. by 11 in.		18 10 0	19 10 0
3 in. by 9 in.		17 10 0	18 0 0
Battens, 2 1/2 in. and 3 in. by 7 in.		13 10 0	14 10 0
Third yellow deals, 3 in. by 11 in.		15 10 0	16 10 0
3 in. by 9 in.		14 10 0	15 0 0
Petersburg: first yellow deals, 3 in.			
by 11 in.		21 0 0	22 10 0
3 in. by 9 in.		18 0 0	19 0 0
Battens		13 10 0	14 10 0
Second yellow deals, 3 in. by			
11 in.		16 0 0	17 0 0
3 in. by 9 in.		14 10 0	15 0 0
Battens		11 10 0	12 10 0
Third yellow deals, 3 in. by			
11 in.		13 10 0	14 0 0
3 in. by 9 in.		12 0 0	13 0 0
Battens		10 0 0	11 0 0
White Sea and Petersburg:			
First white deals, 3 in. by 11 in.		14 10 0	15 10 0
3 in. by 9 in.		13 10 0	14 10 0
Battens		11 0 0	12 0 0
Second white deals, 3 in. by 11 in.		13 10 0	14 10 0
3 in. by 9 in.		12 10 0	13 10 0
Battens		9 10 0	10 10 0
Pitch-pine: deals		16 0 0	17 0 0
Under 3 in. thick extra		10 10 0	11 0 0
Yellow Pine—First, regular sizes		33 0 0	upwards.
Oddments		29 0 0	24 0 0
Seconds, regular sizes		24 10 0	25 10 0
Yellow Pine Oddments		20 0 0	22 0 0
Kauri Pine—Planks, per ft. cube.		0 3 6	0 4 6
Danzig and Stettin Oak Logs—			
Large, per ft. cube		0 2 6	0 3 6
Small, per ft. cube		0 2 1	0 3 1
Wainscot Oak Logs, per ft. cube.		0 5 0	0 5 6
Dry Wainscot Oak, per ft. sup. as			
inch		0 0 7	0 0 8
3 in. do. do.		0 0 6 1/2	0 0 7 1/2
Dry Mahogany—			
Honduras, Tabasco, per ft. sup.			
as inch		0 0 9	0 0 11
Selected, Figury, per ft. sup. as			
inch		0 1 6	0 2 0
Dry Walnut, American, per ft. sup.			
as inch		0 0 10	0 1 0
Teak, per load		16 10 0	20 0 0
American Whitewood Planks—			
Per ft. cube		0 4 0	0 4 6
Prepared Flooring—			Per square.
1 in. by 7 in. yellow, planed and			
shot.		0 13 6	0 17 6
1 in. by 7 in. yellow, planed and			
matched.		0 14 0	0 18 0
1 1/2 in. by 7 in. yellow, planed and			
matched.		0 16 0	0 18 6
1 in. by 7 in. white, planed and			
shot.		0 11 6	0 13 6
1 in. by 7 in. white, planed and			
matched.		0 12 0	0 14 0
1 1/2 in. by 7 in. white, planed and			
matched.		0 14 6	0 16 6
3 in. by 7 in. yellow, planed and			
beaded or V-jointed boards		0 11 0	0 13 6
1 in. by 7 in. do. do.		0 14 0	0 16 0
2 in. by 7 in. white do. do.		0 10 0	0 11 6
3 in. by 7 in. do. do.		0 11 6	0 13 6
6 in. at 6 d. to 9 d. per square		less than 7 in.	

## JOISTS, GIRDERS, &amp;c.

## In London, or delivered.

## Railway Vans, per ton.

Roller Steel Joists, ordinary sections	6	5	0	7	5	0
Compound Girders	8	2	6	9	5	0
Angles, Tees and Channels, ordinary sections	7	17	6	8	17	6
Fitch Plates	8	5	0	8	15	0
Cast Iron Columns and Stanchions, including ordinary patterns	7	2	6	8	5	6

## METALS.

Iron—	Per ton, in London	£ s. d.	£ s. d.
Common Bars	7 15 0	8 5 0	
Staffordshire Crown Bars, good merchant quality	8 5 0	8 15 0	
Staffordshire "Marked Bars"	10 10 0	10 10 0	
Mild Steel Bars	9 0 0	9 10 0	
Hoop Iron, basis price	9 5 0	9 10 0	
" " galvanised	16 0 0		
" " And upwards, according to size and gauge.			
Sheet Iron, Black—			
Ordinary sizes to 20 g.	10 0 0		
" " to 24 g.	11 0 0		
" " to 26 g.	12 10 0		

## PRICES CURRENT (Continued).

## METALS.

Sheet Iron, Galvanised, flat, ordinary quality—	Per ton, in London	£ s. d.	£ s. d.
Ordinary sizes 5 ft. by 2 ft. to 3 ft. to 20 g.	12 15 0		
" " 22 g. and 24 g.	13 5 0		
" " 26 g.	14 5 0		
Sheet Iron, Galvanised, flat, best quality—			
Ordinary sizes to 20 g.	16 0 0		
" " 22 g. and 24 g.	17 0 0		
" " 26 g.	18 0 0		
Galvanised Corrugated Sheets—			
Ordinary sizes, 6 ft. to 8 ft. 20 g.	12 15 0		
" " 22 g. and 24 g.	13 5 0		
" " 26 g.	14 5 0		
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g.	12 0 0		
" " and thicker	13 0 0		
" " 22 g. and 24 g.	14 0 0		
" " 26 g.	15 0 0		
Cut nails, 3 in. to 6 in.	9 5 0	9 15 0	
(Under 3 in. usual trade extras.)			

## LEAD, &amp;c.

Per ton, in London.	£ s. d.	£ s. d.
LEAD—Sheet, English, 3 lbs. & up.	13 5 0	
Pipe in coils	13 15 0	
Soil pipe	16 5 0	
Compo Pipe	16 5 0	
Zinc—Sheet		
Vieille Montagne	25 0 0	
Silesian	24 10 0	
Copper—		
Strong Sheet	per lb.	0 0 10
Thin	"	0 0 11
Copper nails	"	0 0 11
BRASS—		
Strong Sheet	"	0 0 9
Thin	"	0 0 10
Tin—English Ingots	"	0 1 3
Solder—Plumbers'	"	0 0 4
Timmen's	"	0 0 8
Blowpipe	"	0 0 9

## ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	2d. per ft. delivered.
" fourths	1 1/2
21 oz. thirds	2 1/2
" fourths	3 1/2
26 oz. thirds	4 1/2
" fourths	5 1/2
31 oz. thirds	5 1/2
" fourths	6 1/2
Fluted sheet, 15 oz.	4 1/2
" 21 oz.	5 1/2
Hartley's Rolled Plate	1 1/2
" "	2 1/2
" "	2 1/2
" "	2 1/2

## OILS, &amp;c.

Raw Linseed Oil in pipes or barrels.	per gallon	£ s. d.
Boiled " in pipes or barrels.	"	0 2 4
" " in drums.	"	0 2 7
Turpentine, in barrels	"	0 2 9
" in drums	"	0 3 3
Genuine Ground English White Lead	per ton	0 3 5
Red Lead, Dry	"	20 0 0
Best Linseed Oil Putty	per cwt.	8 12 0
Stockholm Tar	per barrel	12 6 0

## VARNISHES, &amp;c.

Per gallon.	£ s. d.
Fine Pale Oak Varnish	10 0 0
Pale Copal Oak	10 0 0
Superfine Pale Elastic Oak	10 0 0
Fine Extra Hard Church Oak	10 0 0
Superfine Hard-drying Oak for Seats of Churches	10 0 0
Fine Elastic Carriage	10 0 0
Superfine Pale Elastic Carriage	10 0 0
Fine Pale Maple	10 0 0
Finest Pale Durable Copal	10 0 0
Extra Pale French Oil	10 0 0
Eggshell Flattening Varnish	10 0 0
White Copal Enamel	10 0 0
Extra Pale Paper	10 0 0
Best Japan Gold Size	10 0 0
Best Black Japan	10 0 0
Oak and Mahogany Stain	10 0 0
Brunswick Black	10 0 0
Berlin Black	10 0 0
Knottin	10 0 0
French and Brush Polish	10 0 0

## TO CORRESPONDENTS.

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

## TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us not later than 10 a.m. on Thursday, N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under 100l., unless in some exceptional cases and for special reasons.]

\* Denotes accepted. † Denotes provisionally accepted.

**ACTON.**—For the erection of the South Acton (Boys' Board School, for the School Board for Acton, W. Messrs. Edward Monson & Sons, Architects to the Board, Acton Vale, W., and 22, Buckingham-street, Adelphi, W.C. Quantities by Mr. F. T. Miller, 9, Queen Anne's-lane, S.W. —

W. G. Dickens ..... £16,670  
 Patman & Fotheringham ..... 14,900  
 Godson & Sons ..... 14,605  
 Geo. Gray ..... 14,639  
 Barker & Co., Ltd. .... 14,550  
 Dangerfield & Sons ..... 14,287  
 Foster Bros. .... 14,265  
 W. J. Renshaw ..... 13,997  
 Spencer Santo & Co. .... 13,985  
 F. & E. Davey ..... 13,984  
 Appleby & Sons ..... 13,920

[Architect's estimate, £17,643.]

† Accepted subject to the approval of the Board of Education.

**BOURNEMOUTH.**—For making St. Leonard's-road and Capstone-road for the Corporation. Mr. F. W. Lacey, Borough Engineer, Town Hall, Bournemouth:—

St. Leonard's-road. Capstone-road.

W. P. Saunders ..... £508 7 2 £688 0 0  
 M. Leander ..... 533 18 1 463 18 0  
 G. Froke ..... 387 3 7 497 13 1  
 Grounds & Newtown, Newport ..... 427 7 5  
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[See also next page.]



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# The Builder.

VOL. LXXXIV.—No. 3127.

JANUARY 10, 1905.

## ILLUSTRATIONS.

The Bishop's Throne, Truro Cathedral	.....	The late J. L. Pearson, R.A., Architect.
No. 60, Prince's-street, Edinburgh	.....	Mr. J. Hippolyte Blanc, R.S.A., Architect.
West Front of St. Agatha's Church, Sparkbrook, Birmingham	.....	Mr. W. H. Bidlake, M.A., Architect.
Central Electric Supply Company's Power Station, Grove-road, N.W.	.....	Mr. C. Stanley Peach, F.R.I.B.A., Architect.
Lincoln Cathedral, South Porch	.....	..... Drawn by Mr. H. W. Cotman.

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## School Planning.



THE history of school planning in England may be divided into three epochs. The first is that of the dark ages, which in our schools only terminated some

twenty years ago. The mediæval plan was of the simplest, and survives in many an old grammar school to this day; among others, in Shakespeare's school at Stratford-on-Avon. The school is simply one large room—the headmaster on a throne at one end; the second master, his *vis-à-vis*, at the other; ushers at intervals. This is in the main the plan of Doncaster Grammar School as rebuilt under the influence of the late Dr. Vaughan, when Vicar of Doncaster, and of Bristol Grammar School, where the plan was, we believe, laid down by the headmaster, Dr. Caldecott.

The second period is that of the school with classrooms planned unscientifically; designed to provide what was thought an artistic elevation—that, we need hardly say, was nearly always Gothic; inconvenient, dark, ill-ventilated, insanitary, and expensive. This period has not yet closed.

A third period, however, has commenced—that of scientific planning; an outward and visible sign of it is Mr. Clay's large book.\* It embraces schools of two definite types, with verterbate plans, conditioned by the different educational systems of England and the Continent; that of the Continent producing a school of the strict corridor type, its hall mainly an *objet de luxe*, quite small; making no show externally; rarely used. This is the normal type of the great day schools of France, Germany, and Scandinavia. The second is the central hall or hall-

passage type, as recently developed in our own country, where the hall is in constant use every day of the year.

There is besides a hybrid type of plan; an attempt to combine the central hall with the corridors, which the central hall was intended to supersede. It is the hall-passage type but half accepted, a weak and feeble compromise not destined to endure, and so we may dismiss it without further mention. Of the other two, the corridor type of school may also be dismissed. It is no doubt the most convenient and least expensive, where, as in Germany, each class is an entirely independent school for twelve whole months at a stretch. We fortunately have a much more elastic type of organisation than this in our secondary schools, and require a complex system of classrooms for which the entirely regular and symmetrical plan of the Continental school does not and cannot provide.

Our Central Hall plan comes without doubt from the elementary schools. It is even said to have been more or less of an accident originally. An elementary school happened to have been built in the form of a quadrangle. Later, it suggested itself that the inner court thus formed should be roofed over. There was the central hall plan at once. The next step is seen in a well-known school in Stepney, the Ben Jonson School, built in 1872, by Professor Roger Smith, for the London School Board. It was born before its time. Its plan was condemned by the School Board and the School Board's Architect; and the hands of the architectural clock were put back. The next—and a very important—step was taken by Mr. E. C. Robins, who built the great Grammar School at Bedford, with a vast central hall and classrooms, three stories high. Since then the future of the central hall type is assured. The London School Board and its Architect recanted; and the Educational Department threw all its influence into the scale to promote its adoption; even going so far as to bribe school authorities to provide a central hall by offering an additional allowance for the purpose of 15s. per square foot.

It is, indeed, only right to say that the influence of the Educational Department on school planning was from the first of the most progressive and enlightened character—it had the services of able experts, and adopted their recommendations. It is only necessary to compare the compact planning of the Dewsbury Grammar School (page 181 in Mr. Clay's book), or the Wimbledon High School for Girls (page 190) with the amorphous dispositions of such a plan as that which faces page 193, to see at a glance how greatly the advantage is on the side of the former. This is not a pious opinion merely, but is borne out by the experience of those whose judgment is final; those who have used the schools; headmasters and head-mistresses. Dr. Philpotts, of Bedford, "spoke warmly in favour of the general scheme and arrangement of the building. Standing on the platform at the end of the great hall, practically the entire school is under his eye; the building is extraordinarily compact, and any point in it can be reached in a few minutes." The High School for Girls at Sheffield "has been found extremely convenient and well adapted for its purpose." In the Wimbledon High School for Girls, "the ease of supervision and the compactness of the building are highly spoken of; and from an economical point of view the superiority is marked." Nor is the economy of money all. It was found recently at a very large school *not* built on the central hall principle, that prayers occupied five minutes; but that it took twenty minutes to get the pupils into and out of the hall. The school hours per week were twenty-four; it follows that every week one twelfth of the time available for lessons was lost in assembling for prayers; to say nothing of waste of time and confusion at every change of lessons in passing to and from distant classrooms. It has been objected to the plan that when the hall is used for examinations it is distracting to have pupils passing round it. But surely it should not pass the wit of architects to erect iron uprights and bars

\* "Modern School Buildings: Elementary and Secondary." Being a treatise on the planning, arrangement, and fitting of day and boarding schools. By Felix Clay, R.S.A., Architect. With nearly 400 illustrations, including plans of eighty-five schools. London: Batsford. 1902.



carrying curtains, which at ordinary times would be looped up, but which would be drawn together to screen off the central area of the hall when needed as a sanctuary for an examination. Indeed, in some of the halls the uprights are already provided in the form of colonnades running round three or four sides of the hall and carrying galleries—e.g. Bedford Grammar School (page 177).

The scope of Mr. Clay's book is wide. He deals with secondary day schools, training colleges, boarding houses, elementary schools, higher elementary schools, school hygiene, science laboratories, gymnasiums, infirmaries, and all the numerous appurtenances to that complex organism, the modern secondary school. To the planning of elementary and technical schools he rightly gives less space. They have been treated already by Mr. Robson and Mr. Robins. For the former, moreover, there are the admirable rules issued yearly by the Board of Education for the planning and fitting of public elementary schools. In secondary schools he has the luck, rare nowadays for an author, to have struck virgin soil. His book is the first, as it is likely to remain for some time the leading work, on the architectural requirements of secondary education. For the first time school architecture is brought into line with that of hospitals, infirmaries, and asylums. In Mr. Clay's hands, another highly specialised sub-genus of architecture is created; and in architecture, as in every branch of science, specialisation connotes progress.

Let us turn to his method of work. He begins by assuming that the object of a building is to enable those who use it to do their work with the greatest efficiency and with the least expenditure of time, temper, energy, and money. Then he goes on to consider what secondary education is; what are its aims and ideals; how far the architect can help or hinder them. In the days of old the plan of a building used to be adapted to its external appearance. But listen to Mr. Clay's doctrine: "What we have to consider is the adaptation of the plan to the organisation of the school, and how far it assists to make the working of it efficient, easy and economical; how much the wear and tear is reduced for the head master or mistress; how much time is saved or wasted by classes changing their room and by the principal in going his rounds. To what extent or with how little trouble he can know what is going on in any particular place, or supervise the school during general movements; whether elaborate sets of staircase, corridor, or cloakroom rules are necessary to prevent disturbance or crushing or petty larceny; fruitful opportunities for which are provided by ill-designed corners, awkwardly situated doors, or narrow and dark places. The ideal plan arranges matters in such a way that all parts are so well lit and so easily supervised that there is no excuse for disorder and no need for rules." Truly another Daniel come to judgment! And after discussing planning generally, he enters into "the question of the extent of the accommodation required; the uses and purposes of the different rooms; and the form, dimensions, and position that have been found best adapted to serve those purposes; since the plan of the whole school can scarcely be understood without

a clear idea of the purposes which the various parts of it are intended to serve." A more admirable statement there could not be of the subordination of plan to purpose; and recognition of that subordination characterises every page of the work, making it practical and valuable in the highest degree. It is, indeed, amusing to see how comparatively little the author troubles himself about the elevations of the building or those artistic considerations which used to be all important. Mr. Clay's highest flight is to remind us that the difference between a building devoid of all architectural features and built of nothing but stock brick with slate roofs, and one in which attention had been given to style and material, is less than 5 per cent.; an estimate which is confirmed by an American architect.

One has only to turn over the pages of the book at random to see how useful it will be, not only to architects, but to the governors and clerks of every Educational Board in the kingdom. And as these Boards will be indefinitely multiplied under the new Education Act, it is calculated to be of the very greatest service in the erection of the new secondary schools which will no doubt soon spring up throughout the length and breadth of the land, as they did in Wales on the passing of the Welsh Intermediate Education Act.

We may turn to examine some of Mr. Clay's recommendations in detail. As to sites, schools ought not to be located on "low-lying ground, or places ever liable to flood." That ought to have been written before Warwick Grammar School was built close to the Avon. Wellington, on the other hand, is built on sand in the pine woods; Roedean on the high chalk cliffs of Sussex, facing south to the Channel; the new Welsh schools are placed well out of the towns on high ridges, open to every wind that blows, and with glorious panoramic views; where also large playing fields are obtained cheap, e.g., Carnarvon, Bangor, Barry. "Schools should not be built level to a noisy street to make an imposing appearance," e.g., Coborn School for Girls on the Whitechapel-road; where, with a temperature of 80 deg. in the shade in July, it was necessary to keep every window closed in order that the answers of the pupils to the inspector's questions might be barely audible. "The best aspect for classrooms is from east to south-east"; and for the hall, therefore, when surrounded on three sides by classrooms, from west to north-west. Reading school consists of a long range of classrooms with a corridor on the east. These classrooms are intolerably hot in a summer afternoon; all that was needed was to reverse the position of corridor and classrooms. Again, nominal is not the same as real accommodation. "A building nominally capable of holding 300 can hardly be worked comfortably when there are many more than 200 pupils"; e.g., the well-planned Grammar School of Bedford has accommodation for 1,030; but 800 boys are quite as many as can conveniently be managed in the building. In St. Paul's, West Kensington, the difference rises to a maximum. "Winders, or elliptical staircases, should under no circumstances be allowed." But a new staircase has recently been built at Marlborough, in a block of new classrooms. The valuable point is made that "the size and shape of a classroom largely depends on

the size and form of the desk employed, whether single, double, or compound"; and that therefore the type of desk must be settled, not after the school is built, but before. The author does not give a well-known definition of a dual desk which, we believe, is attributed to Dr. Walker, of St. Paul's; we make him a present of it for his next edition. "It is a desk in which one boy cribs, and the other is cribbed from."

Mr. Clay suggests a classroom, 30 ft. by 20 ft., to accommodate thirty boys. It should be much more of an oblong. Moreover, not much more than half of the floor space should be occupied by desks. A much better type is seen in the Dewsbury plans (page 180). There is no sweeter music to a head-master's ear than the teacher's cry, "Come up to the blackboard." Mr. Clay assumes that the boys always remain at their desks. Blackboard work cannot be done in that fashion. It is an intense relief too, and one physically all-important, that the boys should sometimes stand. It is hard to have to sit through a half hour's sermon; how would Mr. Clay like to have to remain seated five hours a day and every day? It is good enough for German boys (see plan of a Real Schule, page 198). Another weak point is that he does not emphasise the importance of spacious gangways among the desks. Everything should be done to encourage the master to go among the boys; giving them individual attention. He is only too much tempted to stay on his throne, instead of exercising the unceasing individual supervision which is necessary to secure, for instance, in mathematics, good handwriting, neat working, the use of expeditious methods, precision, and accuracy. His classroom also is much too low. He considers 13 ft. ample. It may be so for lighting purposes; certainly it is not for ventilation. Mr. Clay assumes, of course, perfect ventilation. That is where he goes wrong. Later on, when he treats of those subjects specifically, he admits that all systems of ventilation and heating are imperfect. There should therefore be a large cubic space of air above the pupils' heads; and if there are open fanlights high up in the wall, opposite the windows, the air can be changed above without bringing down draughts on the heads of the pupils below. It is to be regretted that the author has used his influence to diminish the cube of the classroom. He is in direct contradiction with the two School Officers of Health whose opinions he quotes (page 88). All the rest of the building—the assembly-rooms, dining-hall, administrative block—everything exists for the sake of the classroom. The architect very properly wished to give us imposing halls, towers, and cupolas; but he must not get the bricks for them by cutting down the cube of the classrooms. Compare the tiny classrooms on page 223 with the gigantic hall between them; see also plan on page 232, where note the wasteful corridors. The remarks on windows are excellent. "No transoms or heavy mullions or broad window piers should be allowed"; but why not abolish piers altogether, and revive the continuous lights of a Norfolk fifteenth-century church, or of Hardwick Hall, or a Cheshire half-timbered mansion? A continuous blackboard all round the room



rightly recommended; but the master will require a movable one as well.

Cloakrooms should be dispensed with in boys' schools, and golf lockers placed round the hall, as at the Mercers' School in Holborn and Hull (page 154). A special section should be devoted to the methods necessary to minimise dust in boys' schools. It is dust, not talking, that gives the masters the succession of bad throats which prevails every winter. Lighting should be calculated for the darkest days in winter. "At Birmingham in dark buildings the number of girls who were obliged to wear glasses rose to 25 per cent. In a new school, well lighted, the percentage fell to twelve." The author points out clearly the defects of the "Plenum" system of ventilation. It is adopted in the new hospital at Birmingham, where the windows are made *not* to open; the Birmingham people say that when they want to breathe fresh air they go round the wards of their hospital. In summer, however, it seems ridiculous to keep the windows closed, and employ a man and a steam-ergine to pump in fresh air, when all that is necessary is to open the windows wide, top and bottom, and let the boys and girls live in it all day long.

The subject of laboratories is, at present, not susceptible of final treatment. The methods of science teaching have not yet been standardised, like those of classics and mathematics; every science master goes his own sweet way. But there is light and leading in important papers by Professor Armstrong and Mr. Garnett and Principal Wells. Gymnasiums are treated inadequately; the author should have seen the gymnasiums in actual use in the secondary schools of Christiana and Stockholm. One great blunder in this country has been to imagine that the gymnasium should be tall enough to hold a shipmast, as at Oxford and Harrow, the cost thereby being increased enormously. Really, what is wanted is a very long but low building, with not one long rope and long pole to climb, but ten short ropes and poles. Another valuable piece of apparatus is a long, horizontal ladder; also a long row of suspended rings. On all these the exercises are safe, and they can be used by several pupils at once. Apparatus that can be used only by one pupil at a time is ill adapted for class instruction. Every gymnasium should have two divisions; in one should be placed the dangerous apparatus, such as the parallel bars and vaulting-horse, only to be used under supervision. Mr. Clay recommends that the gymnasium should be heated; it would be a poor instructor who could not keep his class warm without artificial aid. A pent-house roof on two or three sides of the walls of the playground forms an admirable and cheap gymnasium. One side of the square may be glazed for use in bad weather. Children in elementary schools are to have a playshed. Excellent reasons for this are given on page 317; but on page 163 we read that it "can hardly be considered an absolute necessity in a (secondary) school." The author, like every architect, whether he is composing books or buildings, should bind on his brow that great Christian maxim, "Put yourself in his place." Let us imagine—that is where Mr. Clay sometimes fails, he does not imagine enough—that we are boys. We come to school early for play, but it is bleak and wet, and a nor-

easter is blowing. Should we consider a playshed hardly an absolute necessity? It would have been most beneficial to the author if, like the father in "Vice Versa," he could have been turned into a boy for the time being, and at another time into a master—in the latter case he would have designed better classrooms. As boy, in the midday interval, he would have rushed to the urinals; but for the school of 100, Mr. Clay has provided only 6. What are the 94 boys to do? Wait their turn in queue, or give it up? So with the closets. Mr. Clay provides 3; a good many applicants will fail to obtain seats. Or there has been football in the playground; 100 boys ought to wash their hands; 93 will find themselves without a basin. Had he been a boy, he would have known that all these necessary operations come on, for the most part, all at once. On another sanitary point Mr. Clay is not sound; he says that "there should be little risk in having the closets attached to the main building." Most certainly they should be completely detached; though they need not counterfeit the form of a Gothic chapter-house, as in one public school; a cynosure of wondering eyes, and the first object of inquiry on the part of the headmaster's visitors.

Space forbids to discuss the subject of boarding schools. Mr. Clay has been rightly advised in condemning cubicles and in recommending a return to the open dormitory. Boarding-school planning is really an entirely new art. It is astonishing to see the elaboration and carefulness of the arrangements at the new schools at Roedean; a building, moreover, which is as handsome within and without as it is convenient. Here, as in the case of the Ecole Monge at Paris, the course recommended by Mr. Clay has been followed; the school has been planned by the architect in consultation with the head mistress. As he rightly says, the head master or mistress should always be appointed before, not after, a new school is built.

It would have been well to illustrate the Ecole Monge; also the large Wesleyan boarding school lately erected near Belfast. Before designing the latter, the architect and the headmaster were sent by the governors on tour together round the English secondary schools, and reported, we remember, little but barrenness in the land. A more serious omission is that of the County Intermediate Schools of Wales. Since the passing of the Act some ten years ago the number of these Welsh grammar schools has increased enormously—from something like twenty to nearly one hundred, we believe. The latter schools are criticisms on, and improvements on, the earlier; they are well worthy of study. And the treatment of the dual school, which is the usual type, can only be studied in Wales.

Mr. Clay has produced a work of real and lasting value. It reflects great credit on his industry, ability, and judgment, and will be of very great value in the millennium of Secondary Education, which is beginning, not too early, to dawn on the horizon.

WILLING'S "PRESS GUIDE."—We have received from James Willing, jun., Ltd. (125, Strand), a copy of the thirteenth annual issue of their excellent "Press Guide." The work, which is published at 1s., is well arranged in alphabetical order, and shows at a glance the name, address, &c., wanted of any newspaper, journal, &c., published in the United Kingdom.

#### THE LOAN EXHIBITION AT BURLINGTON HOUSE.



THIS is a landscape year. The Academy have collected a number of fine landscapes, some of them well known but not on that account the less welcome, by the masters of the eighteenth and early nineteenth century, together with examples of the work of some eminent recent landscape painters now deceased; and the collection is of the greatest interest as an illustration of various methods of landscape painting. Following their recently-adopted principle of illustrating the works of one special artist, they have filled one room with pictures by Cuyp, in addition to two or three stray examples scattered about among the other works. Figure pictures of some importance are not wanting; but landscape is the prevailing element in the exhibition.

One result of the present exhibition will be to raise many people's estimate of the value of Richard Wilson. The "Lake Scene" which stands as No. 1 in the catalogue, is a noble work, broad in style and rich in colour, and at first sight almost suggests the idea of being an early Turner, save that the colouring is warmer than is usually the case in Turner's early work. Gainsborough's "Market Gardener" (2), if it be a Gainsborough (which has been questioned) would not add to the painter's reputation. On the other hand there are in the same room two De Wints, of unequal merit (3 and 5), of which the first, "Landscape with Rainbow," is difficult to see owing to the glass and the dark tone of the picture; but the second, called simply "Landscape," is a truly grand picture—what may be called the monumental style of landscape-painting. There is hardly anything, it is true, of the real tone of Nature in it; it is Nature translated into the De Wint scheme of colour; but that is the instructive part of it. For it illustrates splendidly the fact that half the interest of landscape painting lies not in Nature, but in the individuality of the artist and in his mode of interpreting Nature. The composition here is grand; the colouring and the light are not really those of Nature, speaking absolutely; but relatively everything is in its place and in keeping; it is a supreme work of art, not imitating nature, but based upon nature. Between these two hangs Constable's large and bold, but not altogether satisfactory painting, "The Opening of Waterloo Bridge" (4), very finely though perhaps rather theatrically composed, with a grand sky and a great look of spaciousness about it, but losing something of its effect from the conventional treatment of the water, which one recognises as water from its position in the picture rather than from its treatment in detail. Gainsborough again does not come out well in No. 8, "Going to Market"; the trees are really abominable, a kind of conventional drawing-master's trees; if this sort of meaningless scribble was actually accepted by Gainsborough's contemporaries as representing trees, it shows how much further we have got in modern times in regard to the observation and representation of nature. A painter of the present day hardly dare exhibit such tree-painting as this; he would certainly be condemned if he did. And Turner's "Boats carrying out Anchors and Cables to Dutch Men-of-War"



(12; exhibited in 1804) is another work which tends to flatter our convictions in regard to modern art; a bad sea, and bad shipping, not so much redeemed as in some other instances by a breadth and truth of atmospheric effect. Constable is further represented in this room by the Academy's well-known picture "The Lock" (8) and by a slightly different version (9) belonging to Sir C. Tennant; also by the Dedham picture with the leaping horse, (14) likewise the property of the Royal Academy. Cotman's coast picture (18) called "St. Malo" (on what authority we know not) is a fine work in a somewhat conventional way, but one cannot help thinking that the effect of the yellowish toned church tower and other buildings silhouetted against a mass of dark cloud is a rather cheap one, somewhat savouring of scene-painting effect.

Cotman comes out better in Gallery II., in his really fine picture "Heath Scene" (36), which at first sight suggests Crome, but is more powerful in its opposition of light and dark than Crome generally was. It may be questioned whether Crome has not been over-rated; his effects (or his effect, one might almost say) were limited and much repeated; and his "Mousehold Heath" (24) in this room, with waggon and horses, is a very crude affair. His small landscape (19), which one would not at first sight attribute to him, shows him in another and rare mood, and is a fine little work. It is a curious contrast to turn from the Cromes and Cotmans, with their severe style and limited range of colour, to such a thing as the late Turner, "Modern Italy" (23), belonging to the Corporation of Glasgow, unreal but beautiful in effect, and a glitter of light and colour. His "Harlech" (29) is equally beautiful in its way, and a comparison of the two shows in a striking manner the distance which Turner had traversed in his art during the nineteen years which separate the two works. Among the pictures in this room no one should overlook the small one by De Wint hung in a corner—"Old Houses, Lincoln" (39), a thing entirely different from what we usually associate with this artist's name, but an exceptionally powerful example of the picturesque treatment of old buildings in art. Bonington's two pictures in this room (20 and 40) are interesting as examples of a conventional mode of dressing up a scene with faint silvery distances and adroitly contrived lights on the foreground figures; it is a cooked effect, but so delicately and charmingly done that one is tempted to forget its artificial character.

In the large gallery is what is perhaps Constable's greatest work, the "Salisbury Cathedral" (72), now called "The Rainbow." As with the De Wint in Gallery I., so with this (though in a very different way), we cannot really say that Nature looks like this; the effect is somewhat forced; but it is Constable's method of treating Nature, and it is in his genius, not in the scene itself, that the powerful effect really lies. The same may be said of Muller's wonderful bravura sketch on a great scale—for that is what it really is—"El-bucks at Goring" (115); the one which he said was "Left as a sketch for some fool to finish and ruin." As such it is a wonderful performance, but it may be questioned whether both Muller and his friend Constable do not sometimes leave one with the impression that a little more definition of foreground objects is

desirable in anything which is to claim to be a picture. Such works as this, after all, are great not so much because of the sketchiness as in spite of it. Linnell's great and, in his own lifetime unrecognised genius, is seen at its best in Gallery V. in his extraordinarily powerful picture "Storm in Harvest" (109), a picture which always seems to remind one of the "storm" in Beethoven's "Pastoral Symphony"; both the colour-painting and the tone-painting are characterised by that effect of terror which accompanies a thunderstorm of the first order. But Linnell's art is shown as perfectly, though in a very different way, in his exquisite little picture of "Hampstead Heath" (112); what an instructive contrast, too, is this bit of genuine nature to de Louthembourg's piece of sheer scene-painting (111) next to it. A perfect little landscape, too, is David Cox's "The Thames at Purfleet" (106), so simple in composition, yet so artistically complete. De Louthembourg's scenic proclivities are seen again in "A Wreck" (124), with its cloth or pasteboard waves; though even these are better than the sea in Callcott's large painting called "Dutch Fishing Boats" (119). It seems almost inconceivable in the present day, that Academician painters of reputation should have thought, or pretended to think, and have been able to persuade their admirers, that the sea ever looked or behaved like that. But it is good to see this kind of thing sometimes, if only to realise how far superior are our modern English painters to their predecessors in truth of representation, in some classes of subject at all events.

The collection of works by Cuyp in Gallery IV. serves to show, what one knew already, that a little of Cuyp goes a long way. In his landscapes Cuyp had but one effect, and that an artificial one, which he repeats again and again till one is weary of it. His reputation was to a great extent an exaggerated and factitious one, accepted from habit in days when people thought less about the objects of painting than they do now; and this collection of a number of his works only brings out his inherent weakness as a landscape painter. The one exception is the river scene, "View on the Maas" (92), with the lazy-looking craft becalmed—

"Ships softly sinking in the sleepy sea—"

as Crabbe expresses it in one of his best lines. This work represents the best that Cuyp could do, and is far superior to the landscapes.

In the water-colour room (so distinguished in the Catalogue, though not at present devoted to water-colours) is a collection of works of deceased English landscape and sea painters of more recent date, which is one of the most interesting departments of the exhibition. Here we have some of the finest of Henry Moore's sea-pieces; some of Brett's—not however any one of his most important works, unless perhaps we count the "Norman Archipelago" (127) as such; the best bit of painting by him is perhaps the foreground in "The Rivals" (147) in the Black and White Room; and a considerable collection of the works of the late Mr. Corbet, which run rather into one line of effect, but indicate that he would have become an important figure among English landscape painters had he lived to develop his art further. The Black and White room contains a number of his smaller studies. And

along with the powerful works in the Water-colour room appear also some of the mannered and highly-finished landscapes of that former popular favourite Vicat Cole, whose works are here reduced to their proper level, and after the productions of Constable, Muller, and Linnell, and compared with some of the finest of the later landscapes in the water-colour room, give one almost the impression of chromo-lithographs, so tame and mechanical in effect are they. Perhaps one of the very finest things in this room is a broad and powerful landscape by Henry Moore, "Glen Orchy" (130), showing that a great sea painter can also be a great landscape-painter on occasion. This one picture is worth the whole roomful of Cuyps.

Figure pictures are not very important this year, the strength of the exhibition being, intentionally, in landscape. We have however Reynolds's well-known "Mrs. Pelham" (69), and a portrait of the Countess of Powis (30) of which the colour was once very fine but has probably much faded; some fine portraits by Antonio More, Rubens, and Frank Hals, and Tintoretto's large and very uninteresting picture, from Hampton Court, "The Nine Muses in Olympus" (57): (should it not be "on Olympus"?) a picture which suggests that Tintoretto's is another exaggerated reputation. It may be questioned whether any of the ancient figure pictures exhibited are so powerful and so interesting as Etty's "Sleeping Nymph and Satyr" (114), which was to be seen a good many years ago at a former loan exhibition. The picture is coarse in subject and in the idea suggested, but it is unquestionably the strongest thing Etty ever did; and it is noticeable that it was his diploma picture, the artist not having adopted what seems to be the modern practice with a "diploma picture," of putting off on the Academy some small and unimportant work not likely to be of saleable value! In view of its subject, indeed, the "Nymph and Satyr" was not likely to be very saleable to the English public; but at all events the painter put his best into it, as the testimony of his claim to academatic honours.

The collection of illustrations of the excavations at Knossos, which occupies one room, we will speak of separately, as it stands on entirely different ground from the rest of the exhibition.

#### NOTES.

WE would commend to the attention of our readers a very interesting paper by the Hon. Vicar Gibbs, M.P., read before the United Property Owners' and Ratepayers' Association of Great Britain, and published by the Industrial Freedom League, on the subject of municipal trading. Mr. Gibbs fears his views, which are opposed to the extension of commercial enterprise on the part of Corporations, are not in accordance with the trend of modern opinion, but we trust he is mistaken in this, and that the real fact is, as was stated by Sir Edward Clarke in his recent speech before the Municipal Society, that public interest has not at present been aroused in this all important question. Many of the principal objections to an extension of this system, which appear in the paper under discussion, were pointed out briefly by us in these pages in our "Notes"



on this subject on September 20 and December 13, and in a "Note" on the increase of local taxation; which appeared on August 23, and we need not here recapitulate them. Mr. Gibbs deals with the whole subject in a very liberal spirit, with which we are in entire accord; he admits certain forms of enterprise are proper subjects for municipal management, and that no hard-and-fast line can be drawn, but the particular requirements and circumstances of each case must be regarded. He, however, lays down certain general principles by which the proper sphere of municipal enterprise may be determined, which may be summarised thus:—The product dealt in should tend to the direct advantage of the whole body of the ratepayers; the undertaking should be simple of conduct and not speculative, or one subject to rapid development or frequent change, and should, moreover, be one not such as to be readily undertaken by individual enterprise; and he instances sewage works as a good example of legitimate municipal enterprise. When Mr. Gibbs, however, enumerates the advantages of municipal enterprise, we join issue with him on one head, for he asserts the consumer can more easily make his complaints known and obtain redress from the public authority than from the individual. We should submit this was opposed to all experience, and, moreover, we have in former papers pointed out that as the law at present stands Municipal Authorities enjoy certain advantages in litigation by virtue of the Public Authorities Protection Act, 1893, which the Legislature can never have intended to give them in their character of purely trading companies. Mr. Gibbs deals in an instructive manner with Municipal Finance, and in especial takes exception to the system of borrowing by short bills, which he points out may be the cause of national danger in a time of financial crisis. His remarks on Municipal Housebuilding are of very great interest. He points out that this is a field in which municipalities can neither work so effectively nor economically as private individuals. Not only are they compelled to write down the value of their land, thus throwing an increased burden on the rates, but even then they are unable to offer house accommodation to the class they wish to accommodate at rents within their means, and they have at the same time paralysed private enterprise and the work of such useful bodies as the Peabody Fund, both by their competition and by the restrictive by-laws they delight in. Whatever may be said, however, on this point, we think there cannot be two opinions on the anomaly which Mr. Gibbs most humorously points out of the controlling body, whose proper functions are to control and inspect, entering into competition with those subject to their powers. The paper requires to be read to be properly appreciated, and we think it cannot fail to direct public attention to a subject which has been allowed to remain too long in the background.

Registration of Title.  
THE Report of the Delegates from the Borough of South Kensington who attended the Conference convened by the Corporation of the City of London to consider the working of the Land Transfer Act (1897), which has just been circulated, read in conjunction

with the answer given by the Attorney-General in Parliament to a question put on the 10th ult. by the Member for Holborn, deserves some attention. The Conference seem practically unanimously to have passed a resolution to the effect that some independent inquiry was imperatively called for as to the working of the Act before the system was more generally adopted, as the working of the Act where it has been experimentally put in force has proved highly unsatisfactory, and has added seriously to the difficulty, expense, risk, and delay in transferring such property. The answer of the Attorney-General to the question as to whether such an inquiry would be granted by the Government hardly appears to us satisfactory, considering the importance of the subject. In saying the Government does not consider the proper time has arrived for any such inquiry, the Attorney-General does not deny that grounds for complaint exist, although he finds time to take such technical points as that the system of compulsory registration has not been in full force in London longer than since July last, and that the conference was not convened by the Corporation but by the Law and City Courts Committee. Two things seem abundantly clear, first that the conference, however summoned, was an extremely influential and representative one; and, secondly, that if the abuses it protests against have shown themselves where the Act has been adopted partially, and in small areas, they are hardly likely to diminish merely by an extended or continued application of the Act. The Attorney-General himself points out that first registrations must involve expense and trouble, whereas some time must elapse before the benefits can be realised, and this seems to us only a most powerful argument for taking every precaution that the present holders of real property should have no increased burden unnecessarily laid upon them. It also would appear that the very benefit of only adopting this measure experimentally in small areas will be lost if any revision in the early stages is to be refused. The Government are introducing facilities for registering absolute titles, and possibly are giving the whole matter more attention than the answer of the Attorney-General would lead the public to expect.

London Sewage Treatment.  
THE fourth report on the bacterial treatment of sewage has recently been submitted to the London County Council by Dr. Clowes. We have long contended that the direct filtration of crude sewage is impracticable, and the reports on the London experiments bear out our contention. The experiments are now concluded, and the report before us is the final record and summary. It bears emphatic testimony to the value of bacterial treatment, when this is carried out in two stages—namely, tank treatment followed by what is usually termed filtration. As a result of the experiments, Dr. Clowes has arrived at six conclusions, which may be thus briefly summarised:—(1) Tank-treatment removes much of the solid matter from sewage, and this solid matter or sludge is reduced in amount by bacterial action "to a very considerable extent"; (2) coke-beds after long use have a sewage capacity of about 30 per cent. of the whole space which has been filled with coke; (3) the coke-bed

fed with settled sewage, does not choke, and its purifying power improves for some time; (4) coke of suitable quality does not disintegrate during use; (5) the effluent from coke-beds fed with settled sewage "satisfactorily supports the respiration of fish," and "can never become offensive;" (6) the use of chemicals is quite unnecessary. Of course these conclusions are based on experiments with London sewage, but the Report contains information from various towns where bacterial treatment has been tried, and Dr. Clowes states that, after careful consideration of this information, he is convinced that the process has been uniformly successful when the necessary plant has been "reasonably and properly" constructed and worked. As the result of his investigations, Dr. Clowes recommends that the bacterial treatment of London sewage be commenced *without delay*.

The Passenger Traffic on the Thames.  
THE County Council has lodged a Bill by which it seeks to obtain powers to acquire the piers and landing-stages on the Thames from the Thames Conservancy, and to purchase the undertaking of the Greenwich Pier Co., and to maintain a service of steamers on the river, the estimated expenditure being 328,000*l*. Last year the river was closed to the public, the Thames Steamboat Co. alleging that the County Council, by their attitude, had made it impossible for the company to continue its service, and we then had occasion to deplore the loss of this valuable "highway" through the busiest portion of a city which was at that very time suffering from the congestion of traffic in its principal thoroughfares. Without entering in any way into the controversy between the Council and the company, or inquiring whether those charges made by the company were substantiated, it appears to us as matters now stand that the steamboat service on the Thames is one of the very few undertakings which it is to the public advantage a municipal body should conduct. There is only one river, and therefore in organising and conducting a steamboat service they are not competing with private enterprise in the same manner that they do in their tramway undertakings. Moreover, the tolls exacted by the Thames Conservancy have hitherto stood in the way of the traffic being successfully conducted by private enterprise, and it is only a public body such as the County Council which can obtain the necessary powers to do away with this monopoly. Last year, however, we believe it was asserted that the Council would require three years before a steamboat service could be established, and if this is the case, it is much to be regretted the Council could not see its way to assisting the private company to maintain some service during this period. Not only is the inconvenience to the public to be considered, but if the river is closed for traffic during so long a period, the traffic becomes diverted, and the institution of the service becomes more difficult and hazardous in itself, and is apt to cause more injury to private undertakings which have been called into existence to carry passengers by other means who have been prevented from using the river. We trust the Council will now obtain the necessary powers, and institute its steamboat service with as little delay as possible.



#### Electric Fatalities.

THE evidence given at the inquest on the two unfortunate men who were killed by electric shock at the Fulham Baths emphasises the dangers arising from electric supply in places where it is possible for people to make good electrical connexion with earth through water or damp floors. We have on several occasions pointed out the danger arising from this cause in damp cellars, where it is possible to touch a metal-cased meter which may accidentally have come in contact with one of the electric wires. The danger would not be so great if several of the London supply companies regulated the pressures of their mains to earth better. The Board of Trade insist that the pressure of supply for lighting purposes must not be greater than 250 volts. This, however, is very little so long as it is possible to get shocks of 300 or even 400 volts between an electric fitting and a water pipe, for example. In our opinion the Board of Trade ought not to have allowed certain companies to supply at the higher pressures without insisting on a very radical alteration of their mains and a proper regulation [of] their potentials to earth. Going on adding to their already overburdened networks, and letting the insulation resistance take care of itself, can only lead to disaster. Under these circumstances it is not easy to design a system of electric wiring that will be absolutely safe in places with damp floors. Perhaps the best system would be to enclose the whole of the electric wiring in a continuous metal covering which could be efficiently connected to earth. We should have, however, to make very sure about the earth connexion, and so make it absolutely impossible for these connexions ever to get accidentally broken. It would still be quite possible to get shocks with badly insulating switches, and when replacing glow lamps; but these, although unpleasant, need not be dangerous if the lamps and switches are placed in suitable positions.

#### Changes in Kensington.

THE Office of Woods and Forests are preparing a scheme for letting by tender some plots of ground at the southern, or Palace Green, end of Kensington Palace Gardens, for the erection of private residences similar to those already built there. The thoroughfare was laid out on the site of the Queen's private road for the Commissioners by Sir James Pennethorne, in 1844-5. The gates at the north end, near the old Gravel Pits, were designed by Wyatt & Brandon. Nearly all of the houses along either side of the road were planned and designed by eminent architects, including No. 3, by Owen Jones (1845); No. 13, for many years the residence of the Earl and Countess of Harrington, by C. J. Richardson, in the Domestic Gothic mode, in 1852; Nos. 10 and 11, by the elder Smirke, in 1852-4; and Nos. 18 and 19, forming one block, with square towers, after the Italian style, by Sir Charles Barry; another house was designed for Mr. Blasfield by J. Finden and J. Hayter Lewis (1845): No. 12a was built by the late Sir Morton Peto. Facing the Green, formerly the Moor, where stood Vanbrugh's water-tower and, until 1871, Henry VIII.'s conduit-house, is the house which Thackeray built, and mainly after his own plans, in 1861-2; the Crown

lease (forty-one years unexpired) and the freehold garden in the rear were sold for 15,500*l.* at auction in November of last year. Four or five weeks ago a freehold estate of 93,300 ft. superficial on the east side of Church-street, and with grounds abutting on Kensington Palace-gardens, was placed in the market; on that site, having an aggregate frontage of 290 ft., stand York House, once occupied by the Princess Sophia, daughter of George III.; and Maitland House, the last home in England of Sir David Wilkie, and also the home of James Mill, the historian of India. The houses on the north side of High-street, between the ends of the Palace-gardens and Church-street, have recently been pulled down for a widening of the main thoroughfare, so that, as the south side has been gradually rebuilt during the past few years, we have now lost what formed an effective and pleasing old-world approach into the town from the west. On the other hand, the once rural district around Earl's Court has been covered with houses within our time. The estate, of which Lord Kensington is the ground landlord, was sold to a syndicate some days ago at auction by Messrs. Trollope for 565,000*l.* The property, extending over 82 acres, comprises about 1,450 houses, blocks of flats and shops, yielding a total of annual ground-rents of 18,280*l.* (ranging from 10*l.* to 1,600*l.* apiece), and, in the future, rack-rents computed at about 178,000*l.* per annum. It is anticipated that at no distant date, when the current leases have expired, other portions of the Kensington estate—including Edwardes-square with its unrivalled garden, and the terraces opposite the grounds of Holliard House—will be cleared for rebuilding purposes. The story goes that Edwardes-square was built by M. Changier at the time of the threatened invasion from France, as a kind of Palais Royal for his compatriots the officers of Napoleon's army. We understand that the purchaser of the property at and around Earl's Court is Lord Iveagh, who thus becomes one of the principal ground landlords of London.

#### The Parish and Church of St. Peter, Regent-square, N.W.

AN Order in Council has ratified a scheme or representation made by the Ecclesiastical Commissioners for extending the boundaries on the south-west side of the parish of St. Peter, St. Pancras. In 1851, a certain portion of the original St. Pancras parish was separately assigned as a district chapelry to the consecrated church then known as Regent-square chapel. Under the provisions of the St. Pancras Ecclesiastical Regulation Act of 1868, and of a previous Act (19-20 Vic., c. 104), the chapel was named the Church of St. Peter, Regent-square; by a later enactment the district chapelry has since become the parish of St. Peter, Regent-square. The church was erected in pursuance of a local Act, 1 and 2 Geo. IV., c. 21, in 1825-6 for 1900 sittings at a cost of about 20,000*l.*, after plans and designs by W. & H. W. Inwood. The body of the fabric is constructed of white brick; it has a lofty hexastyle Ionic portico and angle-pediment of stone, and a stone circular tower in two stages with engaged Ionic and Composite columns, respectively. The site of the church had been a large pond which was purchased, with some adjoining land, with moneys raised upon the parochial rates. The hall,

mission-house, and clubrooms on the north side are by Sir Arthur Blomfield; the schools (1863) were designed by R. Lewis Roumieu. The area to be added to the parish of St. Peter forms an isolated portion of the parish of St. George, Bloomsbury, and is situated between Regent-square and the middle line of Hunter-street.

#### All Saints' Church, Eagle.

THE Vicar of Eagle, in the parts of Kesteven, Lincolnshire, asks for contributions towards the reparation of the parish church, which is falling into a ruined condition. A report upon the state of the fabric has been prepared by Mr. J. T. Lee, architect, who estimates that a sum of at least 1,800*l.* will be needed to rebuild the church, and at the same time to preserve all that remains of its ancient and interesting features. The church is remarkable as being one of the oldest of existing churches which formerly belonged to the Knights of St. John of Jerusalem. At Eagle Hall, an extra-parochial liberty adjoining the parish, is the site of a commandery of that Order, which afterwards served as their infirmary; its revenues were valued at 14*l.* 18*s.* 10*d.* per annum at the Dissolution. The manor gave the title of Bailiff of Eagle to the dignitary third in rank of the Order of St. John of Jerusalem, and that title is still retained in the lately revived Order, whose headquarters are at St. John's Gate, Clerkenwell. King Stephen granted the church and manor of Eagle to the Knights Templars, from whom, at their suppression in 1309, it passed to the Knights Hospitaller of St. John; the latter held both until their possessions were confiscated in 1540. In the course of some trial excavations made about twelve months ago were found caps and bases of the original stone piers of the church, buried several feet below the present surface. The church, a small structure of brick and stone, consists of a chancel, nave, north aisle, and tower, for the most part of the early fourteenth-century period, and contains portion of a Norman font.

#### Loan Exhibition, Dublin.

THE Royal Hibernian Academy has for the first time started a winter Loan Exhibition of pictures by old masters. We are not able to give any account of it at first hand; but judging from the catalogue which has been forwarded to us the collection must be of considerable interest, including as it does works by Reynolds, Romney, Hoppner, Lawrence, Gainsborough, Hogarth, &c.; besides pictures of the French school by Watteau, Lancret, Chardin, Largillière, and others. We gather that all the pictures are collected in Ireland, which, as observed in the prefatory note to the catalogue, is a sufficient answer to the statement that "there are no pictures in Ireland." It is to be hoped that this spirited attempt will meet with the success and appreciation which it deserves.

PROPOSED VILLAGE HOMES, FULWOOD, YORKSHIRE.—At a recent meeting of the Ecclesiastical Board of Guardians Mr. A. F. Watson, of Holmes & Watson, architects, Sheffield, attended and submitted plans for the proposed village homes at Bole Hill, Fulwood. Mr. Watson explained that alterations made since the plans were originally drawn had resulted in a considerable reduction in the cost, and now he estimated that the scheme could be carried out for 13,000*l.* The Board adopted the plans, which will be sent to the Local Government Board for approval.



## LETTER FROM PARIS.

THE Congress for Promoting Sunday Rest for all employed in the building industries, lately held at Paris, has passed resolutions to the following effect:—That Sunday rest is a natural right and a duty; that all working men deprived of the regular Sunday rest must suffer moral and physical prejudice; that work on Sunday causes a prejudice not only to the workers, but to the employers, by reason of the depreciation of the value and quality of the work done by men who have not enjoyed a sufficient weekly rest; to architects and engineers by reason of the responsibilities incurred through such poor or bad work; that all those who are engaged in building enterprise or are employers of labour should take the steps necessary to assure a weekly day of rest to all those employed in such building work; that house owners should stipulate in their contracts with builders that no work should be done on Sundays, and that fines should be imposed for each breach of this obligation; that architects, engineers, and others should do their best to help this new movement, and that the State and Municipalities should do likewise; and that the workmen themselves should understand that their own interest lies in obtaining the universal agreement to one full day of rest from work each week.

An agreement has been come to between the State and the City of Paris concerning the creation of an Ecole des Arts et Métiers at Paris. Four of these schools of arts and trades exist at present in France—at Angers, Aix, Chalons-sur-Marne, and Lille. The fifth will now be established at Paris. The new buildings will be erected in the Boulevard de l'Hôpital, on the ground left vacant by the demolishing of the slaughter house of Villejuif. The buildings are to cost 48,000*fr.*, and another 80,000*fr.* will be expended on the interior arrangements, the workshops, tools, and machines. The workshops will contain a very extensive and complete plant of tool machines and tools necessary for the production of every kind of industrial object, from instruments for doctors and surgeons to be utilised in the Parisian hospitals, to bicycles and motor-cars. It is expected that the new school will be opened in 1905. Owing to the great danger from fire which the surrounding industrial workshops offer to the Carnavalet Museum and the Bibliothèque de la Ville de Paris, it has been decided to expropriate and demolish the surrounding houses, and entirely isolate the Museum buildings, and form a new street in prolongation of the Rue Etienne Marcel.

In accordance with the wish of the "Vieux Paris" Committee the Municipal Council has decided on an annual exhibition of photographs of Paris. The first, which will take place in October, will have as its subject the banks of the Seine where it traverses Paris, the flower markets, and the houses of the seventeenth century. The photographs are to be subjected to a process to fix them unalterably, and to be preserved in the Carnavalet Museum, where they will form a valuable record for future historians.

Paris will soon possess a new museum near the Carnavalet, the Musée Victor Hugo, which is to be opened shortly in one of the fine old Louis XIII. houses, with brick fronts, in the Place des Vosges, where Hugo lived for some time in the years of his early fame. On February 26 this house will be opened. The whole has been arranged by M. Paul Meurice, the old and attached friend of Victor Hugo, who has devoted his fortune and the last years of his life to the task. The museum will be under the care of the Municipal Service des Beaux-Arts, and will contain furniture executed under the direction of Victor Hugo and decorated by him; numerous engravings and books; original drawings of extraordinary intensity of conception, where the genius of the poet shows itself in humorous scenes and in strange architectural fancies; innumerable pieces of bric-à-brac, along with some valuable pictures. Among these last is one of the first representation of "Hernani," by Besnard; "The crowd passing Victor Hugo's house," by Raffaelli, and pictures of the ceremony at the Panthéon, by Roybet and other artists.

The Grand Palais on the Champs is giving the Government a great deal of trouble. The building is only three years old, and already requires a great deal of repair, in consequence mainly of the hurried manner in

which it was erected to be in time for the 1900 exhibition. The Petit Palais is also requiring repairs, and the lighting has to be improved in the basement, which it is intended should be let for temporary exhibitions. It is in this basement that a group of artists propose to arrange an exhibition of works exhibited in former salons, and illustrating the history of Paris. This exhibition will be divided into three periods: the first, extending from 1673 to 1789, will include works shown at the exhibitions of the Académie Royale; the second, 1791 to 1880, will correspond with the Salons carried out under State management; the third will comprehend the Salons organised by the Société des Artistes Français.

The Commission for the Metropolitan railways at Paris is considering a scheme for the formation of underground electric railways from Boulogne to Paris and from Neuilly to Paris, and an interior circular metropolitan railway within the present fortifications.

The Prefet of the Seine has been requested by the Institut to form a committee to be composed of the various Ministers, members of the Institut, and the Municipal Council, and the Prefet, to study and decide the various questions relating to the interests of the Institut with regard to the passage of the proposed metropolitan railway beneath its Institut buildings, and the expropriation of a portion of the Palais Mazarin.

The Paris Municipal Council has accepted the offers made by the Société des Engrais for the treatment and disposal of the domestic refuse coming from the sixth, seventh, fourteenth, and fifteenth arrondissements of Paris.

An important exhibition of arts, building industries, and public works is being organised, to be held at Paris in 1903, by M. Adrien Duvand, Vice-President of the "Ligue d'Enseignement." One of the chief objects of this exhibition will be that of obtaining valuable solutions of the problem of constructing cheap dwellings, and will concern the financial, technical, practical, sanitary, and artistic questions relating to the habitation.

A series of lectures is being organised by the Syndicat Ouvrier de la Sculpture and the Société Populaire des Beaux-Arts, to be held in the Bourse de Travail. The first series of lectures will be given by M. Edmond Pottier, Curator of the Louvre Museum, on Popular Art in Egypt, to be followed by M. de Baudot, Diocesan Architect, and M. Salomon Reinach, Curator of the Museum of St. Germain, on Gothic Architecture and the Flemish and French Primitives.

It appears that the Government, after some hesitation, has decided on opening an establishment in rivalry with the private shops, for the sale of the products of the Sèvres factory of medals, and of engravings of the Louvre collection. The house is situated in the Boulevard des Italiens, at the angle of the Rue Favart, and will be arranged and decorated by M. Sandier. Whether the enterprise will be a success remains to be seen; its establishment has given great umbrage to the Parisian tradesmen.

The Société des Amis des Monuments Parisiens made a visit on the 22nd ult. to the church of the Panthéon, under the guidance of M. Nénot, architect of the New Sorbonne, to study the monument and compare its various portions with the original drawings by Soufflot & Rondelet, which form part of the interesting collection belonging to M. Charles Normand, the President of the Société des Monuments et des Arts. During the visit, M. Camille Flammarion, the astronomer, explained the working of the pendulum which has been installed in the Panthéon for the purpose of demonstrating the motion of the earth.

The jury in the competition for the decoration of the Mairie of Vanves have selected three painters, MM. Darien, Enders, and Pierre Vauthier to take part in the final competition to be sent in at the end of May. More than sixty artists competed. The subjects were limited to landscapes around the neighbourhood of Vanves. Having regard to the high quality of the works submitted, silver medals were awarded to three other competitors—MM. d'Argence, Pape, and Marret.

The new Mairie of the XVIIIth Arrondissement is at last to be completed, and the Municipal Council has voted a sum of 382,000*fr.* towards the work. The inhabitants of Montmartre have long had to be content with a shabby and inconvenient public building, the last work of the architect Varcollier. When the building is completed, it is expected that the task of decorating it will be assigned to

M. Willette, who received the first prize in the recent competition in Signs, and who, besides his popular reputation as a caricaturist, is also a designer and colourist of no mean order.

The success of M. Detaille's large decorative paintings, before referred to, for the Hôtel de Ville, has led to his being offered a commission by the Government for a decorative work for the Panthéon, to be placed between the piers of the choir. M. Detaille has made sketches of four compositions, from among which the Department of Fine Arts is to make its selection. One represents the Revolution of 1830, with the attack on the Caserne de Babylone; the second, the volunteers of 1792; the third, the funeral obsequies of General Damrémont; the fourth and most remarkable, the "Chant du Départ," a kind of apotheosis of the First Republic marching against the enemy, headed by an allegorical figure of "La Patrie," crowned, mounted on a horse and brandishing the tricolour standard.

M. Jean P. Laurens has just completed a triptych for the decoration of the new Hôtel de Ville of Tours (illustrated in our last issue). In this work, which will probably be seen at the next Salon, the painter has represented in the first panel Charles VII. saluting Joan of Arc who is departing at the head of her troops. In the second, the heroine is standing at the funeral pile; and the third represents, at night, the deserted square and the dying fires around the stake.

M. Rodin is executing the monument which is to be erected in Paris to the memory of Puvion de Chavannes. It is very simple in conception, and shows a bust of the artist on a stele, beside which is a figure representing "Le Génie du Repos dans l'éternelle Gloire." The Luxembourg already possesses an admirable bust of Puvion de Chavannes by the same sculptor.

The annual general meeting of the Société des Architectes Diplômés was held on the 15th ult. at the Ecole des Beaux-Arts. The laureate of the year, and winner of the medal awarded by the Société, was declared to be Mr. Arthur Brown, an American student, pupil of M. Laloux. This medal is awarded to the student who has obtained during the school year the largest number of awards in the various school competitions. M. Laloux was elected President of the Société for the coming year, M. Léon Davoust, Secretary, and M. Maurice Poupinel, Treasurer.

During the coming year M. Marqueste will succeed M. Jean Paul Laurens as President of the Académie des Beaux-Arts, with M. Pascal, the architect, as Vice-President. One of the first occupations of the Académie this year will be to decide the competition for the Achille Leclerc prize, of which the subject is the entrance gateway of a large library, opening on a Cour d'Honneur. The drawings are to be deposited at the Institut on the 8th inst., and the decision given on the 10th. In the Godebeuf competition, for which 229 designs have been submitted, the jury of the Ecole des Beaux-Arts have awarded the prize to M. Midy, pupil of MM. Guadet and Paulin. The subject was "The stone termination to a small turret staircase in a private mansion;" a rather small subject to arouse so large a competition.

The Société des Ingénieurs Civils de France has elected as its President M. Bodin; Vice-Presidents, MM. Coisseau, Couriot, Hillairet, and Moreau; treasurer, M. de Chasseloup-Laubat; and secretaries, MM. Laurain and Baudet. The new President, M. Bodin, professor at the Ecole Centrale, is the author of the magnificent Viaduct of Viar, on the line from Carmaux to Rodez, which was inaugurated a few weeks ago. The Union Centrale des Architectes Français has elected as President M. Saint-Anne Lorizier, with M. Farochon and M. Boesch (of Reims) as Vice-Presidents.

The price of gas to private consumers at Paris is reduced from January 1 from 30 centimes to 20 centimes the cubic metre—from 6*fr.* 9*d.* to 4*fr.* 6*d.* per 1,000 feet. The difference of 10 centimes per cubic metre will be paid to the Gas Company by the Paris Municipality until 1906, when the monopoly ceases and a new company will take over the Paris gas supply.

THE LONDON MANUAL.—The London Manual for 1903 (London: Edward Lloyd, Ltd., Salisbury Square) is the seventh year of publication of a very useful little work. It contains a great deal of well-arranged information concerning public bodies, and as a work of reference to the municipal government of London it can be relied on.



## MAGAZINES AND REVIEWS.

In the *Art Journal* Mr. W. A. S. Benson writes an article on "Back-window Prospects in London," giving illustrations of some bare prospects of the kind, backyards, and so on, and their beautified aspect; we do not quite gather whether they are actual transformations or only possible ones, but in any case the lesson is a very good and much-needed one. So much may be done with a back-court if people would only make the attempt. John Constable and his works is the subject of an article signed jointly by Mr. G. D. Leslie and Mr. F. A. Eaton. Mr. Claude Phillips commences a series of articles on the interesting subject of "Great Portrait-Sculpture through the Ages," commencing with the statue of Rameses II. Mr. Laking continues his articles on the armour and arms in the Wallace Collection, with some splendid illustrations.

The *Magazine of Art* commences with an article on that very poetic painter Mr. Wetherbee, whose pictures at last year's Academy reached the highest point he has attained, and give us leave to expect still finer developments from him. Under the heading "Modern Furniture," Mr. Konody discusses, with the help of illustrations, some furniture designed by Mr. Frank Brangwyn. Furniture designed by a good painter is generally interesting; in these examples there is rather too much of the severe vertical line, as in the buffet on page 109 and the inlaid settle at the end of the article. Too much naïveté, as a reaction against too much display, is apt to be the weak point of artists' furniture at present. The chairs in two of the illustrations, with their decorative panels contrasting with the upright rails, are however admirable. An article on "Our Best Municipal Buildings" written and illustrated by Mr. Raffles Davison, seems intended as the first of a set under the general title, "The Recent Advance in Architecture." There is such a tendency at present among writers on art to disparage modern architecture, that it is rather refreshing to come across an article of the opposite tendency; and the collected illustrations, numerous though on a small scale, certainly go to show that there is a considerable improvement in the minor Town Halls of the day as compared with the solemn be-columned commonplaces of a generation ago. Not that we expect or wish for the picturesque in a Town Hall (unless for a very small country place); and what Mr. Davison says is true enough, that the love (among Corporations) for heavy cornices and columns may really be taken to proceed from a kind of conviction that this sort of treatment is proper to a Town Hall, and is its correct architectural expression. "Is not this," he asks, "just one of those points in which architects and the public may very well see eye to eye? After all there is such a thing as a Town Hall looking like a Town Hall, and the public are surely right in demanding it." As we observed last week in respect of the Tours Hôtel de Ville, this idea of a proper type for a Municipal building is practically accepted and acted upon in France, where all Hôtels de Ville have a kind of family likeness in regard to general style and grouping. A short article in the same number draws attention to Mr. Alfred Fahey's employment of gold and silver point as a medium for architectural drawing—rather a new idea in this country. The reproduction of his drawing of the Victoria Tower shows a beautiful and delicate piece of work, quite true in balance and perspective and in the indication of architectural detail, in spite of the difficulty attendant on drawing elaborate architectural subjects in a medium which does not admit of correction.

The *Berliner Architekturwelt* is occupied almost entirely with illustrations of interiors and details in the new style, a good many belonging to a house "Unter den Linden" by Herr A. Grenander of Berlin, showing a great deal of cleverness and originality of a kind, but it is in a bad style; the whole number is redolent of "l'art nouveau." The same thing pursues us in the first article in the *Architektonische Rundschau*, on "Neue Formen" in German ornament; nightmare things for the most part. Among the larger illustrations in the *Rundschau* Herr Hartig's "Ruhmeshalle" at Barmen is a heavy Classic composition of some dignity, spoiled by that ugliest of possible forms of cupola, a domical roof on a square plan; the two interior views are more pleasing than the exterior, as is often the case with

German buildings of this class. Professor Stiller's Bank at Duisburg, shown in an effective pen drawing, is a building founded on Renaissance forms but with a rather novel treatment, and notable for the solidity of expression given by small and deep-set windows and massive piers.

The *Antiquary* devotes an article to the stones locally known as "The Devil's Arrows," near Boroughbridge (Yorkshire), with some illustrations. There are now only three, though there are records of four, five, and a somewhat doubtful one (seventeenth century) of seven. Two are 22 ft. 6 in. in height and the third 18 ft. They used to be spoken of as Roman, but we quite agree with Mr. Leadman, who writes the article, that whatever they are, they date from far before the Roman occupation. They belong, we would say, to the same family, so to speak, as the more celebrated monoliths of Stonehenge, and are relics of an ancient religious aspiration. Mr. A. C. Fryer contributes an article on "The Burgley Font," or otherwise "the stone vessel now used as the baptismal font in the parish church of Burgley, Yorkshire, a relic of considerable antiquity, dating from Anglo-Saxon times." Several photographs are given of the object, a kind of square stone trough, with a runic inscription, now so much worn as to be susceptible of two or three interpretations. The interesting point is whether this object was really constructed for a baptismal font or, as used to be supposed, as the base of a cross. The structural reasons given against the latter interpretation appear to us to be sound. The assigned date is about the middle of the eighth century.

In the *London Quarterly* Mr. Frank Henley writes a good and sensible article on "British Industry and the Labour Problem." It is to be hoped that some of the better read and wiser among the building artisans will give it their attention and will profit by it. In the course of the article Mr. Henley puts in a brief and trenchant manner the Trade Union argument and its fallacy:—

"A house is being built; there are 30,000 bricks to lay; if three men lay 4,000 bricks a day each the work will last them ten days. But if, while receiving the same wages per day per man, those men can get the employer to accept 500 bricks as one man's work for a day, then the job will last the three men twenty days, or afford employment for six men for ten days. That is obvious, and workmen see it easily when the Union leader puts it to them. What they do not see so easily is that, by doubling the cost of laying 30,000 bricks, they have very likely prevented some one else from giving orders for 100,000 bricks to be laid, orders that would have been given had the cost of labour not increased; the eventual result being a reduction in the amount of work to be done and the wages to be earned."

This argument has, we know, been often put before the working classes, or written where they could read it if they chose; but perhaps not always so clearly and simply as in the above words. The conclusion of the writer is that employers must do one of two things; either crush the trade-unions, which he thinks not practicable except at an enormous cost; or they must show the men in a practical way that their real interests lie in co-operation with and not in antagonism to capital. "Trade-unionism—the instrument devised by the working classes—stands condemned for its failure to understand and forward the true interests of labour; it is for the employers to give the workers a substitute, a system which shall succeed where trade-unionism has failed," that is, the system of co-operation. The worst of this remedy—and this drawback to it is again the fault of the working men—is that the co-operative artisans, though they like it very much when profits are going up, always want to back out of it when profits are going down.

In the *Fortnightly Review* "A British Workman" gives a spirited reply to Mr. Schooling's "Letter to the Working Classes" in a previous number, and makes some points. In answer to the charge that the modern workman shows a want of interest in his work, he says "this is largely accounted for by the fact that specialisation has reduced him from a skilled artisan to that of a mere human machine. How can you expect a machine to act as a man?" The charge seems to be admitted, as this is put forward as an excuse; an excuse furnished to the working man by William Morris and his party. As we were observing only a week or two back (see our leading article of December 20), the fact of this specialisation is to be lamented, but the escape from it, all circum-

stances considered, is a more difficult problem than some philanthropists (or philantists) quite realise. But this argument has been put into the hand of the working man by those who specially pose as his friends, and one is not surprised that he should seize upon it. In regard to the charge that so much less work is got through now than formerly, the writer does what is often done by other apologists—evades the question of the building trades, in regard to which this charge is chiefly made, and depends on showing that other industries, which have not been specially accused, are not guilty. That will hardly help the argument as far as the notorious increase in cost and decrease in output of work in the building industries are concerned.

In the *National Review* Sir Henry le Marchant, who is one of the Directors of the London and India Docks Company, writes a long article on "The Port of London," which is really a defence of that institution against its detractors. He makes a very good case in regard to the commercial importance of the Port, and its facilities for shipping in comparison with a good many other ports, and shows satisfactorily that there has been a good deal of misrepresentation on these points. For instance, in regard to the largest vessel afloat, the *Celtic*, he shows that she would have difficulty in berthing in a dock at any other port. "She could berth at Southampton, but would be on the mud at low water. She could possibly get up to Antwerp, but could not be received into any of the docks there. She could not get up to Hamburg, Rotterdam, Amsterdam, or Bremen at all. She could not get into Glasgow or Hull except at high spring tides. She could not get into Bristol at all, the widest lock being 70 ft." (the *Celtic* is 75 ft. beam). "At Liverpool, her usual port, she can only get into dock when the spring tides are favourable. . . . In London she could get into the Tilbury Dock at a time considerably before high water, and remain afloat and not rest on the mud. She would be able to get into the Albert Dock extension which the London and India Docks Company have got Parliamentary powers to make." All this certainly goes to show that London is not "an out-of-date port." But what we want to know, and what Sir Henry does not touch upon, is—first, whether the facilities for landing and moving goods are such as they ought to be in what claims to be the principal port of the Kingdom; and secondly, what is the state of the river which gives access to the London docks, and whether or not it is showing signs of sitting up. The latter is an engineering question, and the article deals only with the commercial question. In the same magazine "Antique Furniture in the Sale-room," by Mr. W. Roberts, is a historical article of considerable interest, dealing only with facts and statistics. We learn from it, among other things, that Sheraton's furniture is a long way behind Chippendale in auction-room prices; an instance of the influence of fashion, for it is as well made as Chippendale, and generally better designed. The author intimates that there has been much successful imitation of the work of both makers, but does not give any instances of the imitations being sold as genuine and at genuine prices. That is the test of such "success," after all.

To the *Monthly Review* Sir Edward Fry contributes the second part of an essay on "The Age of the Inhabited World," an argument based on the consideration of the time required to bring about biological changes. Perhaps it can hardly be called an argument, but it is a suggestion in favour of a shorter period than that usually accepted or imagined (for the whole scientific faith on this subject is in a very vague state), on the ground that biological changes may have proceeded more rapidly when the earth was young and the heat of the sun greater, and therefore that we should be as far wrong in arguing from the present slow rate of change as a man would be in supposing that the rate of change in his body was no faster when he was a child than when he was sixty. The analogy seems rather a doubtful one. There is at present a kind of reaction against the belief in the immense periods of time required by geologists and biologists for the development of the world up to its present stage; but it seems to be rather a swing of the pendulum than a conclusion based on scientific reasons, and our conviction is that the longer periods are likely to be the nearer to the truth. Mr.



Arthur Morrison concludes (at least we presume it is the concluding article) his essay on "The Painters of Japan." There is much information to be got from this essay in regard to Japanese painters, though the idea that they and their works are worth discussion in as serious a tone as might be used in regard to the great painters of the Renaissance, appears to us to be merely the extravagance of an enthusiast.

The *Cornhill Magazine* is giving a series of articles on the prospects of the present day in different professions, and deals this month with the engineering profession. The article gives a good synopsis of the objects to be kept in view in training for the profession, while conveying the impression that it is by no means easy to get at the exact course of instruction best calculated to prepare a youth to be a successful engineer. The Scottish engineering schools are said to be the only establishments of university rank where a practical and scientific training can be found in combination. The writer seems to think that after a general liberal education (on the necessity of which he is wisely emphatic), the student should first master applied mechanics, "and realise by practice how that powerful aid to the sense reaches every department of civil engineering."

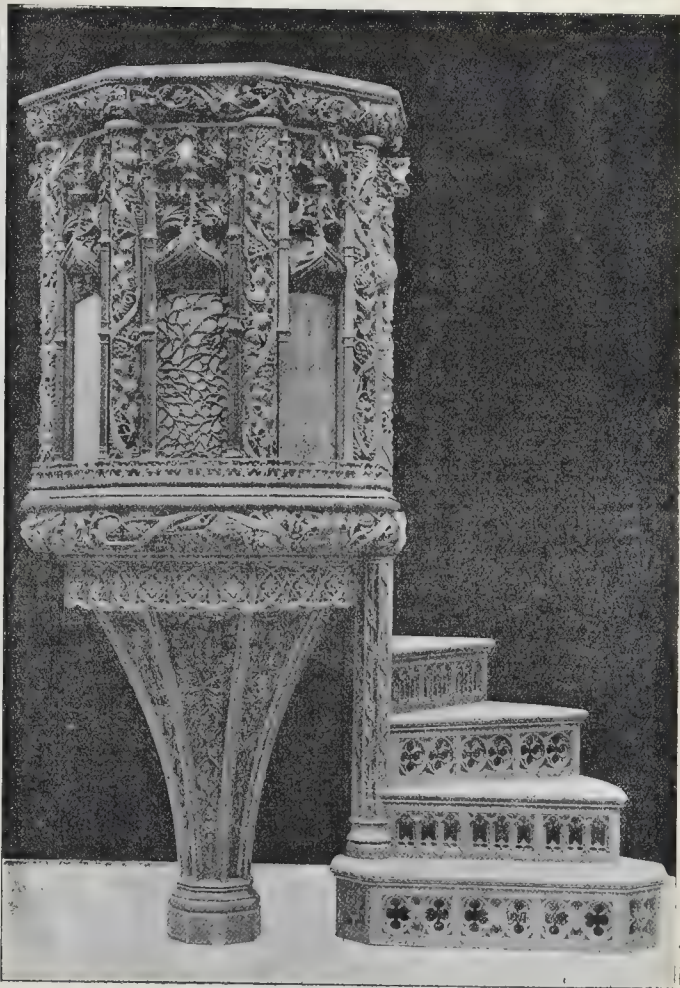
"If a youth has a special aptitude and liking for mechanical work, it is probable that he cannot begin too young to form a practical acquaintance with machinery and with the methods of its construction. But in engaging as a pupil or an apprentice in the workshops, he should understand that his object should be rather to learn the processes carried out there, and the organisation and management of the labour employed, than to become himself expert as an artisan in any particular department. Consequently, in selecting the works he is to enter, regard will be paid less to their size and the magnitude of the work carried on in them, than to the opportunities which appear likely to be afforded him of participating in, and of thus obtaining an insight into, a variety of operations. The same general principle may be said to hold good in regard to the practical part of the training, no matter what particular branch of the profession is adopted. But it may be reiterated that many engineers of experience hold strongly the view that the practical training in every department of engineering should embrace some period of workshop experience. If this was true formerly—and the record of many distinguished engineers bears witness in its favour—how much more pressing is the need of such knowledge and experience at the present day, when machinery occupies so conspicuous a place in every engineering operation?"

In *Scribner* Mr. Russell Sturgis, under "The Field of Art," gives a critical review of an exhibition of American wood engravings at the New York Public Library, which includes some very good remarks on the aesthetics of wood engraving, an art in the present day perhaps nowhere so well represented as in America, in spite of the immense use made of "processes" in American illustrated publications. Mr. Timothy Cole's engravings after Old Masters, to which we have often referred, represent almost the perfection of style in genuine wood engraving, and appear to have been largely illustrated at the exhibition in question. An article on "The Old Route to Orleans—the Mississippi," in the same issue, is most picturesquely written and beautifully illustrated.

In *Harper* Mr. Arthur Lawrence gives an account of "London's Oldest Art Club," the Langham; we confess that we were not aware that it had so long a history. The head illustration, "The Langham of Fifty Years Ago: in Clipstone-street," is an amusing record of the aspect of Bohemianism in that day, and reminds one of Clive's descriptions of the painters in "The Newcomes." Things have much changed, and even Bohemianism has put on a finish of its own.

The *Revue Générale* contains an eloquent article by M. Arnold Goffin on the work of Constantin Mennier, the bronze sculptor of subjects of labour. He makes a good remark on the difference, from the artist's point of view, between the labouring man away from his work and the labouring man engaged on his work:—

"Séparé de son outil, l'artisan prend de la gaucherie; il est embarrassé de ses grosses mains vides et ballantes, et de son inaction. Remplacez-le dans son atelier, devant son établi, au centre de sa forge, parmi les terres qu'il laboure ou ensemence; rendez-lui l'engin de son travail, il ressaisira en même temps l'aisance de ses gestes et la beauté plastique de ses attitudes. Car ses mouvements



Kenton Church Pulpit: as Restored.

incessamment répétés ont fini par atteindre une précision parfaite, par s'adapter, avec une exactitude rigoureuse, à l'effet à produire, et se sont ainsi équilibrés, inconsciemment, selon un rythme. . . . Les gestes des acteurs de la Moisson ou de la Mine ont presque la solennelle simplicité, la noblesse religieuse des rites consacrés. Et, en vérité, ils n'ont pas que la semblance de rites: ce sont les rites qui conjurent les puissances organiques de la terre, qui les soumettent aux forces élémentaires manifestées dans la volonté victorieuse à force de ténacité, de ces ouvriers."

This is finely said, and true; and its truth is illustrated also in such works as Millet's paintings.

*Knowledge* contains an interesting and learned article by Miss Agnes M. Clerke on "The Sun's Dusky Veil," the screen of attenuated matter overspreading the photosphere. For the reasons for believing in the existence of this "dusky veil," and the main conclusions at present prevailing on the question of the sun's surface, we must refer the reader to Miss Clerke's closely reasoned article, a kind of summary of present knowledge on a very puzzling subject, which should be of interest to every dweller on a planet which lives only by the sun's influence.

In the *Gentleman's Magazine* will be found a most practically useful article by Mr. F. Graham Ansell, F.C.S., on "How to Test Drinking Water," a subject which is treated at considerable length and with the authority of an expert.

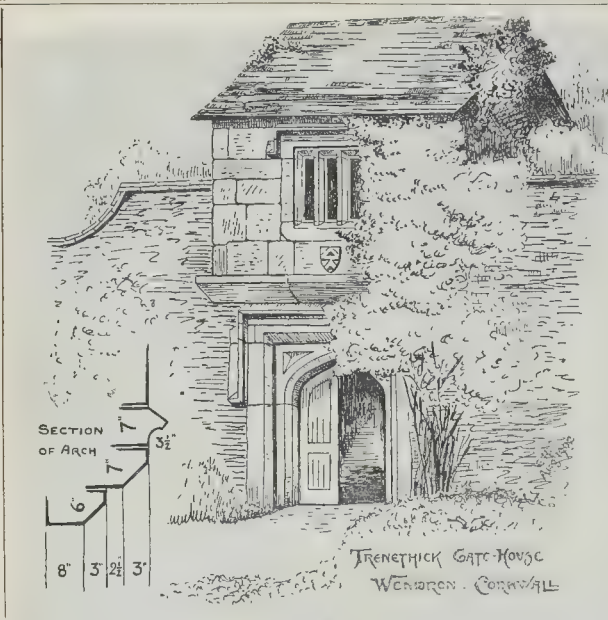
#### KENTON CHURCH PULPIT, SOUTH DEVON.

THIS pulpit, which dates from early in the sixteenth century, contains work of an exceptionally fine character; much of the detail is of uncommon type, exhibiting evidence of Flemish or Hispano-Flemish influence.

The pulpit was taken to pieces by the order of an incumbent of some thirty years ago, on account, it is said, of its inconvenient smallness, and its place supplied by a modern structure. Unfortunately, very little care was taken of the fragments of the old work, some of which remained in the church chest, but the greater part was distributed amongst the parishioners and others. After some trouble, much of this has been collected; but the work of restoration was no easy matter, as the mutilation and loss of parts was so great. However, the difficulties were happily overcome, and the work successfully completed in June, 1895. The architect was Mr. F. Bligh Bond, of Bristol, and the carver of the restored work Mr. Herbert Read, of Exeter.

LANCHESTER COTTAGE HOMES.—The Lancaster Board of Guardians have now begun to carry out their scheme for the erection of cottage homes. The work in connexion with the new buildings will be executed from the plans of Messrs. Newcombe & Newcombe, Newcastle, who were placed first in the open competition by the assessor, Mr. J. H. Morton of South Shields.





TRENETHICK GATEHOUSE, WENDRON, CORNWALL.

A LITTLE to the north of Helston, in the parish of Wendron, lies the Barton farm of Trenethick, one of the most ancient houses in Cornwall. The arrangement of the plan suggests that it was built at a time when a dwelling-house of that size needed some means of defence. All the principal windows and doors open on to a courtyard in front and a smaller one inside, and that in front is surrounded by walls of about 12 ft. in height, with a gatehouse at the main entrance. Owing to the hardness of the granite with which it is built the house does not possess much in the way of architectural detail, but there is enough to enable the date of erection to be fixed at the latter end of the fifteenth century.

The gatehouse shown in my sketch is one of the most interesting features of Trenethick, and has, I believe, never been illustrated before. The room over the entrance is about 9 ft. by 7 ft., and 7 ft. high to the ceiling, and is reached by a flight of stone steps inside the courtyard. The soffit of the entrance is formed by large granite lintels laid side by side with a span of 8 ft. 6 in. The arch is 6 ft. wide and 8 ft. to the apex. There is no arch on the inner side, but only a square chamfered opening. The roofing material is of stone, which, with the granite walling, has weathered to a beautiful colour.

The coat of arms visible under the window (or a fess between two chevrons sable) is that used by the Hill family, who built the house, and became extinct in 1763.

R. H. ERNEST HILL.

#### THE HIGH SCHOOL FOR GIRLS AT WIESBADEN.

THE subject of education is so much under discussion at the present time that we are glad to be able to give some particulars and an illustration of the new high school for girls at Wiesbaden, which was opened on April 16, 1901. This school is admitted to be the most complete in Germany, and therefore it may fairly be assumed to be probably the best equipped and best arranged girls' school in the world.

It occupies the site of an older school, and therefore Herr Conradi, of Lübbecke, the architect, was necessarily to some degree confined in his designs by the size of the site. The main front of the building faces the Schloss Platz, with a northern aspect. The principal design, as will be seen from the illustration of the ex-

terior, is two wings radiating from a semi-circular centre; the material used is a light red sandstone which we fear will not be very durable, but is extremely effective at the present moment. The architect evidently endeavoured to unite practical educational requirements with decorative designs. The representation of the old town of Wiesbaden, however, which occupies a portion of the face of the central part of the building, is scarcely visible from a distance, but, on closer view, it is an attractive detail. The interior of the building is admirable in its simplicity of treatment. The central staircase faces the main entrance, and is repeated between each of the succeeding floors. The space at the head of the staircase is occupied by a single pillar, from which vaulting-ribs spring, and on either hand vaulted corridors extend right and left, the classrooms opening from them. The ground-floor is an exception, to some extent, to this arrangement, since there are on it a library and several rooms of an official character. On the same floor is also a large gymnasium. The left, or north, corridor extends to some extent backwards—that is, to the south—and at the end of this are lavatories on each floor. The entire building contains forty-four rooms, and at present is occupied by 800 students. In addition to the classrooms, there is also a fine music-saloon, fitted with an organ and gallery, and raised platform, and capable of holding 550 persons.

These particulars quite fail, however, to give any impression of the admirable manner in which every detail necessary for an educational establishment of this kind has been carried out, and illustrated or symbolised in the decoration. Thus the ornamentation of the ground floor, both in carving and flat decoration, is illustrative of the more common plants, or any one may fairly call them weeds, though the bold thistle is as effective in decoration as a more prized flower. The first-floor decoration consists chiefly of flowers, and the third of fruit. This succession being intended to typify the gradual results of education. The carvings, which are coloured throughout the floors, are suggestive, though it must be confessed that they are sometimes so fanciful that they need a little explanation. Thus the squirrel clinging to the branch of oak is intended to represent quickness, and the owl wisdom, while the lark typifies the aspiration after knowledge and educational ideas. These and many other designs are well executed, and, though, as we have said, a trifle fanciful, it is really agreeable and surprising to find the union of imagination with a thoroughly practical building. How practical it may be instanced by a small fact. In

each room there is a thermometer fastened to the wall; an aperture behind this extends to the surface of the passage, and is closed by a magnifying glass; thus the attendant traversing the passage has only to look at the glass in the corridor, and he is able to see whether the room is at the normal standard of temperature. This instance in regard to detail might be multiplied over and over again, since there is hardly a matter of the most infinitesimal kind connected with the wants of the pupils which has not been carefully attended to. It is, in fact, only possible by a complete survey of the entire building to appreciate the educational advantages within reach of the pupils of the Wiesbaden High School; a school which was erected by the city, and where pupils can be educated for little more than 100 marks, or 5*l.* a year, and the governing idea of which is well represented by the motto engraved on the face of the building, "Soll die Stadt blühen muss sie die Jugend nehen," which may be translated: "If the town is to flourish it must educate its young." The cost of the building and the fittings amounted to something like 50,000*l.*, and the aim of the city of Wiesbaden to make this school a centre for the whole of the district, which may be called the Duchy of Nassau, including such important towns as Frankfurt and Mainz, has for the present been attained. But in Germany education is so highly valued, that this very successful effort of Wiesbaden to create a building which should be at once beautiful and useful, will unquestionably cause similar structures to be raised in other towns.

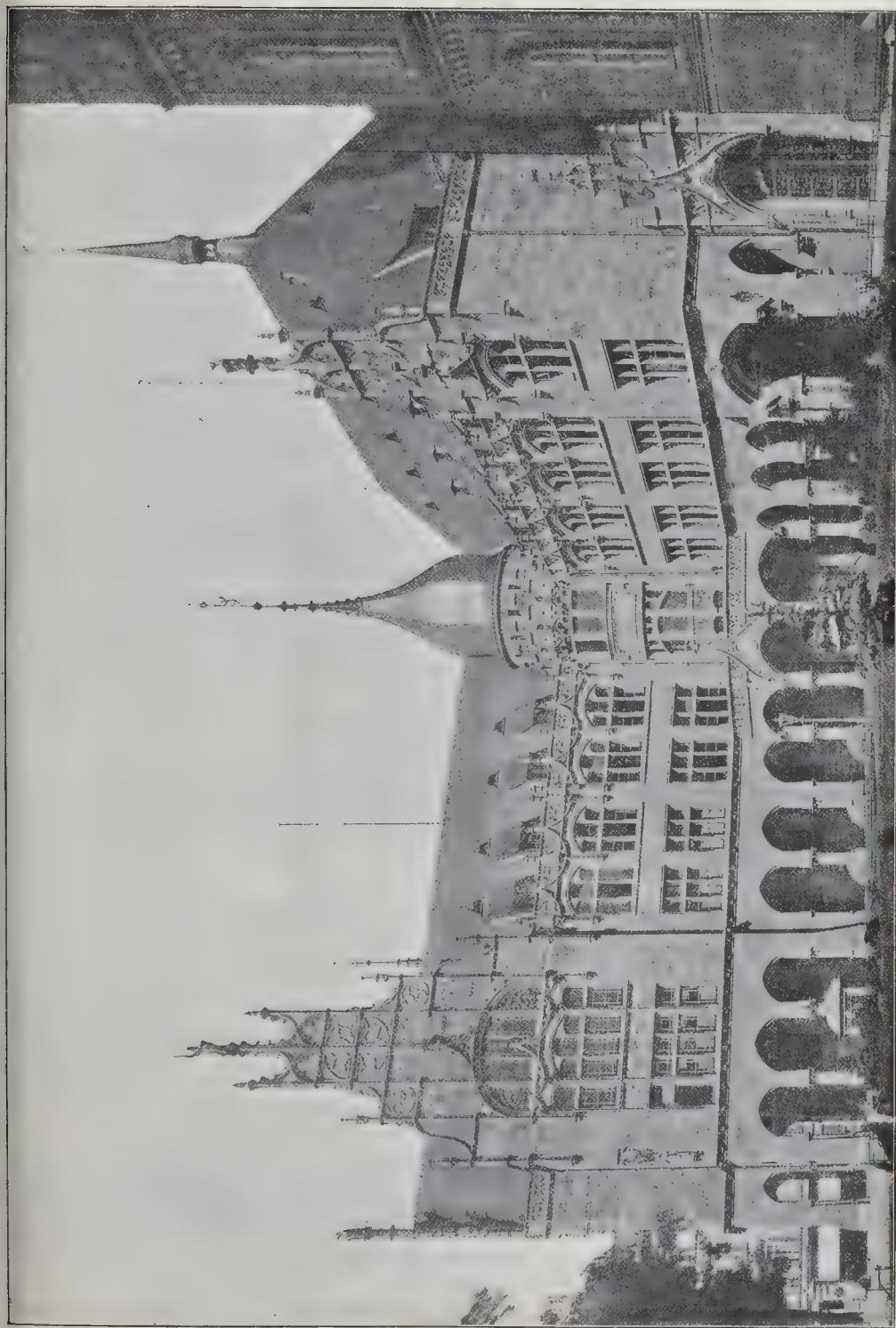
#### THE LAW SOCIETY'S INSTITUTE, AND THE SIX CLERKS IN CHANCERY.

THE houses at the corner of Chancery-lane and Carey-street have been pulled down for an enlargement of the Institute after Mr. H. P. Adams's plans and designs. The "Society of Gentlemen Practisers in the Courts of Law and Equity" founded, it seems, in or about 1720, established themselves in Chancery-lane in 1823. Nine years afterwards they were settled in the older portion, completed in 1832 of their present quarters, designed by Lewis Vulliamy, the second premium in the competition being awarded to Sir Charles Barry. That portion comprised the Classic portico, entrance halls in Chancery-lane and Bell-yard, library, &c. North and south wings were added on the sites of many houses in Bell-yard, Pope's Head-court, and the lane, by Vulliamy and his successor (in 1853), P. Hardwick. In 1868-70 Hardwick made a further addition, including the examination hall on the north side. The site is not without interest, for it is that of the town inn of the Prior of Nocton, a house of canons in Lincolnshire, since called Herleste's Inn, after its owner, and the home of the Six Clerks in Chancery. Two deeds, cited by W. Blott in his remarkable book "Blemundsbury," seem to show that the Six Clerks were tenants there, in 1538, under the Prior of the Hospital of St. John of Jerusalem. In an original "plot for all Thicketts field" (New Square and around) drawn by J. Long in 1592 is plotted "The Six Clerks Office" on the west side of Chancery-lane and abutting on the east side of "The waye now from Thicketts field" (Bell-yard) where was a gate known as the Field Gate, which is cited in conveyances of Lincoln's Inn made in 1535 and 1580. The position marked on Long's plan is confirmed by Ogilby and Morgan's map of 1677, and supports the account given by Sir George Buc in his "Third Universitie of England," a treatise printed at the end of Edmund Howes's "Annales" which form a continuation of Stow's Survey, printed in black letter, 1631, folio. Buc, obit 1623, writes:—

"These [six] clerks live and lodge and common together in one house in Chancery-lane purchased and accommodated for them by Master John Kederminster, Esquire, one of this Society. . . . Their house was in ancient times the Inn of the Abbot of Nocton, in Lincolnshire, and was since the house of one Herleste, and of him it was called, Herleste's Inn."

The inn was rebuilt after its destruction by fire in 1621. The Six Clerks remained there until they migrated in 1778 to No. 10, being the middle portion of the block in Stone Buildings at the northern end of Chancery-lane, that had been purposely erected for them in terms of two Acts (14 and 15 Geo. III., cc. 43 and 56) after Sir Robert Taylor's designs in 1775-7. Their





*High School for Girls, Wiesbaden.—Herr Conrad, architect.*



office was taken over by the Records and Writs Clerks in 1842, and twenty years ago No. 10 was converted by the Benchers of Lincoln's Inn as a school-of-arms for the Inns of Court Volunteers, when Nos. 8, 9, and 11, were raised by one floor and refitted as chambers, Mr. Stephen Salter being the architect for the alterations.

### Illustrations.

#### THE BISHOP'S THRONE, TRURO CATHEDRAL.

**H**IS effective piece of modern Gothic, the illustration of which is reproduced from a photograph, was designed by the late Mr. J. L. Pearson, R.A., the architect of the cathedral, and executed from his drawings by Messrs. Luscombe, of Exeter.

#### FRONT: 60, PRINCES-STREET, EDINBURGH.

This is a street front in Edinburgh designed by Mr. Hippolyte J. Blanc. The new building takes the place of a structure of three stories, which was one of the earliest of the narrow frontages given off, when Princes-street was constructed, about 140 years ago.

In the new structure advantage has been taken of the modern spirit to rear additional floors, in order to take the fullest advantage of the available space. The different floors will be appropriated for business enterprises of different kinds, two of them being specially constructed to meet the requirements of a photographic establishment. Behind the front shops there are very extensive saloons.

The whole building is of white freestone from Northumberland.

#### THE CHURCH OF ST. AGATHA, SPARK-BROOK, BIRMINGHAM.

This church was the first erected by the Trustees of the Birmingham Churches Fund, from the proceeds of the sale of the sites on which Christ Church and St. Peter's Church formerly stood.

The building, which is designed to seat 1,000, is faced externally with South Staffordshire bricks, and internally with buff bricks with Hollington stone arches and dressings. The roofs are covered with Whitelands Abbey slate. The tower is 120 ft. high to the coping of the parapet (not 240 ft. as indicated on the illustration by an incorrect scale), and 160 ft. to the vane, and is to be furnished eventually with a peal of bells.

The architect is Mr. W. H. Bidlake, and the builders are Messrs. John Bowen & Sons, both of Birmingham. The total cost of the building, including heating apparatus, gas fittings, and organ fronts, was 17,000l.

#### THE CENTRAL ELECTRIC SUPPLY COMPANY'S STATION, GROVE-ROAD.

The illustration of the new chimney shaft and part of the principal elevation of the new generating station for the Central Electric Supply Co., Ltd., now in course of erection on a site at Grove-road, Marylebone, is from a water-colour drawing by Mr. Charles Stanley Peach, architect, which was hung at the last Exhibition of the Royal Academy.

The building is a large electric power station intended to supply current in bulk to the St. James' and Pall Mall Electric Light Co. and the Westminster Electric Supply Corporation. It will consist of three principal blocks, connected together, each block being 228 ft. square and 78 ft. high to tops of gables. There are two subsidiary blocks, also connected to the main building, the larger being 545 ft. long and an average width of 28 ft., and the smaller being 300 ft. long and 35 ft. wide. One chimney shaft, 36 ft. square at the bottom and 24 ft. square at the top and 250 ft. high, has already been built. The foundations for the second have also been put in. There will eventually be six shafts, two to each of the principal blocks. The building, exclusive of chimney stacks, will have when completed a cubical content of over 17,000,000 ft. and will cover about 7½ acres. It will provide accommodation for machinery capable of developing over 100,000 horse-power.

The gables of the engine-room shown in the

illustration repeat along the Lodge-road frontage. The repetition of them, as well as the materials of which they are constructed—namely, stock brick and York stone, with blue brick piers—will, it is hoped, give in appearance the strength and severity suitable to a large engineering undertaking. The stacks, which from their size look more like towers than chimney shafts, especially as visible smoke is rarely, if ever, emitted from them, are constructed of the same materials and in harmony with the main building. It is well known that, sooner or later, all chimney shafts split near the top, and it is necessary to reinforce them with iron bands. In the present case, the horizontal courses are used as tie bands to strengthen the shaft, while the corner buttresses act as vertical stiffeners between the horizontal bands, thus encasing the whole of the upper part of the stack in a permanent and durable manner, instead of in the unsightly iron band construction which so frequently has to be used. The cornice also provides a permanent platform round the outside of the stack near the top, in the position required for access to the exterior faces to facilitate repairs or repointing. It is broken back in the centre on all four sides, to allow free passage for the ropes used by steeplejacks when this kind of work is in progress. Thus the actual necessities of construction have been taken advantage of to obtain what, it is hoped, is an architectural effect.

The general construction of the main buildings is fireproof throughout. The walls of the engine-rooms and boiler-houses are lined with white glazed bricks with blue brick dressings. The contractor for the building work is Sir J. T. Firbank, of London. The steel construction has been carried out from the architect's drawings by the Phoenix Foundry Co., of Derby. The fireproof floors are by the Columbian Fireproofing Co. (London); the roof glazing by Messrs. Mellows (Sheffield); the metal windows and iron doors by the Crittall Manufacturing Co. (Barnetree, Essex).

The carving is by Mr. H. C. Fehr. The joint engineers are Dr. A. B. W. Kennedy and Mr. Sidney T. Dobson, of the Central Electric Supply Co.

The architects are Messrs. C. Stanley Peach & C. H. Reilly, London.

#### SOUTH PORCH, LINCOLN CATHEDRAL.

THE view of the South Porch of Lincoln Cathedral is reproduced from a pencil drawing by Mr. H. W. Cotman.

It shows well that union of delicate and refined detail with bold projections and massive character, which is the special "note" of the exterior architecture of Lincoln.

#### CLIFFORD'S INN.

THE members, consisting of a "Principal" and fourteen or fifteen "Rules," of this, the oldest Inn of Chancery, have determined to dissolve their Society, to sell their property in the Inn, and to place funds at the present Attorney-General's disposal, to be applied by him as he may deem best to meet the modern necessities of legal education. The Court of Chancery have sanctioned arrangements for the transfer. The action of the members of the Inn follows upon a judgment given on June 19, 1900, by Mr. Justice Cozens-Hardy in the action *Smith v. Kerr*, which had been brought, practically, to determine whether a certain conveyance of 1618 established a charitable trust over the property, or whether it is held by the trustees of the legal estate as private property for the members of the Society for their own personal benefit, with power to realise the estate and divide the proceeds, as has been done in the cases of some other Inns of Chancery, and of the adjoining Serjeants' Inn. The Court adjudged that the instrument of 1618, under which alone the property is held, negatives the idea of private ownership, and proves a dedication to public or charitable purposes. By that indenture of feoffment, dated March 29, 1618, made between Francis, fourth Earl of Cumberland, and his son and heir, Lord Clifford, of the first part; Nicholas Sulyard, Principal of the Inn and Benchers of Lincoln's Inn, and the twelve Rules, of the second part; and Richard Prescott and Richard Antrobus, of the third part, the then thirteen members of the house

covenanted to pay a capital sum of 600l. and a yearly rent of 4l. to the Clifford. Thus the members became in effect co-founders with the Lords Clifford in trust of a charitable foundation which should, as all parties thereby agreed,

"for ever hereafter retyene and keep the same usual and ancient name of Clifford's Inn and shall for ever hereafter be continued and employed as an Inn of Chancery for the good of the gentlemen of that Society and for the benefit of the Commonwealth . . . and not otherwise nor to any other use interest or purpose."

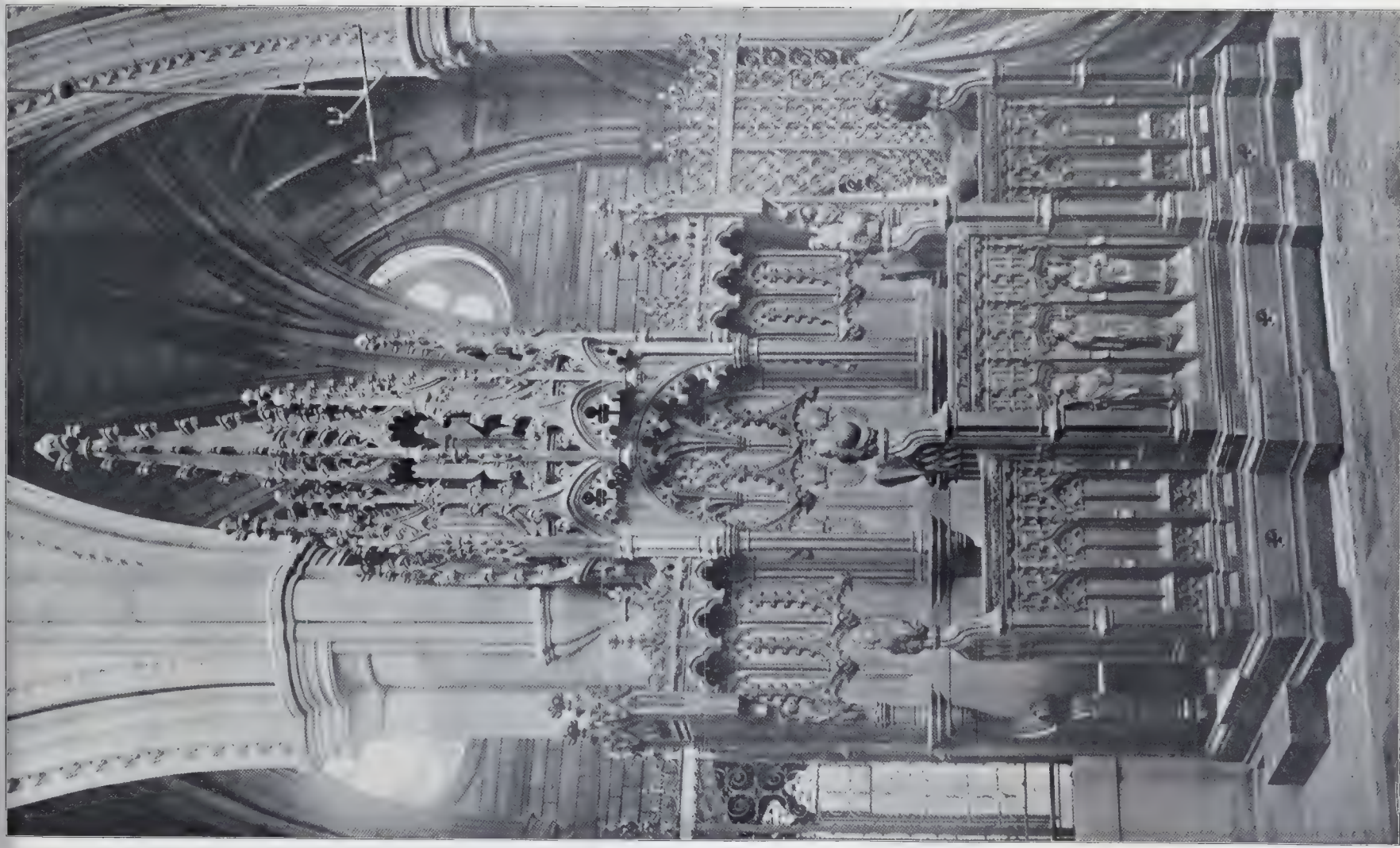
The Inn had been a residence of the Barons de Clifford, ancestors of the Earls of Cumberland and descendants of Walter Fitz Ponz, who, by his wife Margaret, daughter and heir of Ralph de Toeni, of Clifford Castle, Herefordshire, was father of Fair Rosamond. In a grant of February 24, 3 Edward II., we read:—

"The King granteth to Robert Clifford [son of the great Roger de Clifford] that message with the appurtenances next the church of St. Dunstan-in-the-West in the suburbs of London, which message was sometimes Malcolme de Herley and came to the hands of Edward I. by reason of certain debts which the said Malcolme was bound . . . to our said father . . . which house John Earl of Richmond did hold at our pleasure, and is now in our possession. . . ."

The grant was held by the service of 10d. payable at Michaelmas. Isabella, Robert's widow, demised the house in 18 Edward III. for 10l. per annum to some *apprentis de banco*, whom Dugdale considers to be lawyers belonging to the Common Pleas. The Inn became a dependency of the Inner Temple, forming, as it were, according to the accounts given by Sir John Fortescue (*temp.* Henry VI.) and Lord Coke, a college of a legal university, albeit until 1618 an unincorporated voluntary society, subject in some vague sense to the jurisdiction of the Judges. A patent roll of 8 Edward IV. rescinds the grant on June 9, 1468, to John Kendall, cofferer of the King's household, of a message and garden called Clifford's Inn, in the street called Fleet-street, late of John Clifford, knight, late Lord Clifford, &c. By some means the property reverted to the Crown, and then again to the Cliffords. Under the Act of 1829 for rebuilding St. Dunstan's Church a part of the Inn was taken for 5,000l. That sum was subsequently paid in to the Court of Exchequer, who ordered it to be paid out to defray the cost of some buildings and of improving certain houses and chambers in the Inn.

The ground property of the Inn abuts on the north upon the Rolls estate. The hall, rebuilt in 1618 after the Gothic style, has a gable roof, with louvre and clock. It is 40 ft. by 35 ft. on plan, and contains some good ornamental plaster-work; in the cellars is a thirteenth-century arch. Over the southern opening of the passage between the buttery and the screens are carved in stone the arms of Clifford—*chequy or and azure, a fesse gules*, with a crescent of the first, differenced for the Inn with a *bordure gules, besant sable*. On the walls of the older portions of the buildings may be seen various stone tablets, inscribed with dates and initials of the names of principals; for instance, at No. 14, in the block on the east side of the garden, is the date "1669"; two tablets on the north and south fronts of No. 9 commemorate the repair of that block in 1782, and two tablets on the north and south fronts of No. 1 in the south court bear the date "1682"; a tablet with date "1719" is over No. 10; the block No. 13, to the south-east, was rebuilt in 1831. The garden, 109 ft. 6 in. by 99 ft. 6 in., lies between the block Nos. 14-7 (the oldest residential part of the Inn) and what was formerly a slip of the Rolls garden; just beyond, northwards, stood until a few years ago a building, 130 ft. by 40 ft., known as Old Judges' Chambers. (The present time a good view may be obtained from the garden of the main front (by Sir James Pennethorne) of the Record Office, as lately extended westwards over the sites of the Rolls House and Chapel, and of some houses in Chancery-lane. The hall is chiefly notable as being the place where sat Sir Matthew Hale, Sir Orlando Bridgman, who was then Lord Chief Justice of the Common Pleas, and the other Judges to adjudicate upon the disputed claims between landlords and tenants after the Great Fire; and there has been preserved an illuminated MS. on vellum of the ordinances of the Society of *temp.* Henry VIII. Jay records that he often met Sir Walter Scott, Southey, Coleridge, Lamb,



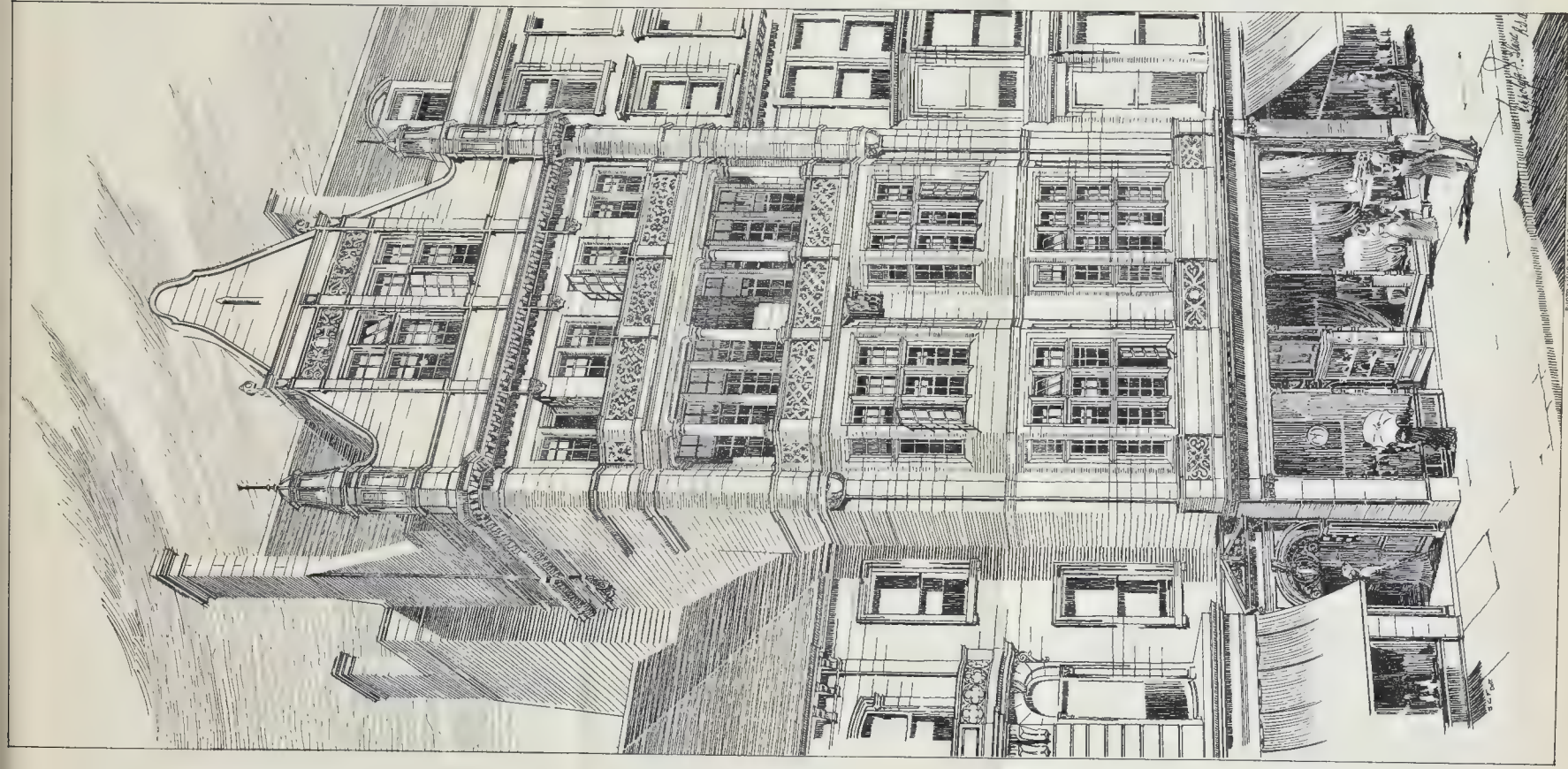


THE BISHOP'S THRONE, TRURO CATHEDRAL. THE LATE J. L. PEARSON, R.A., ARCHT. 1917







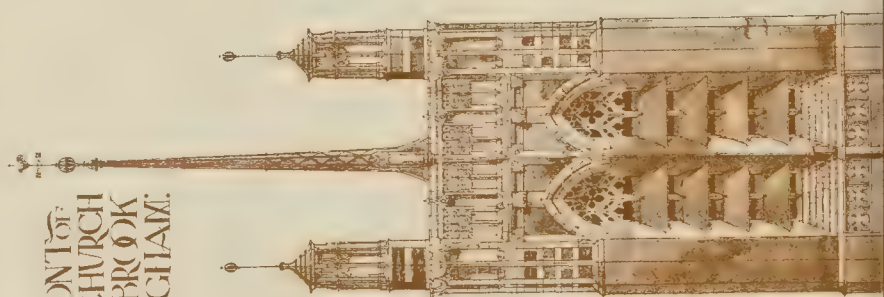


No. 66 PRINCE'S STREET, EDINBURGH — Mr J. HIPPOLYTE BLANC, R.S.A., ARCHITECT.

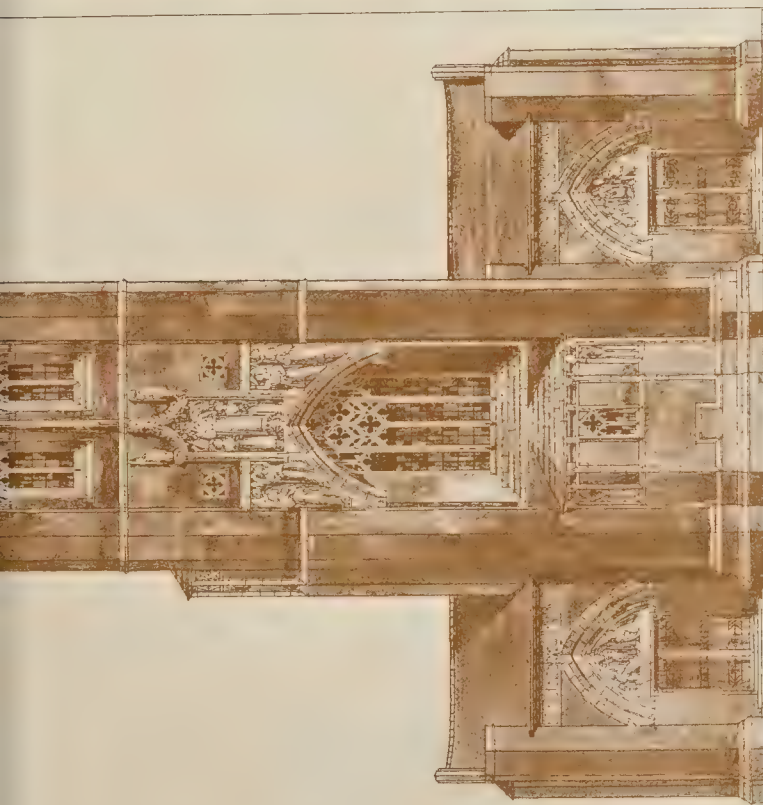


THE BUILDER, JANUARY 10, 1903

THE WEST FRONT OF  
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SPARKBROOK  
BIRMINGHAM.

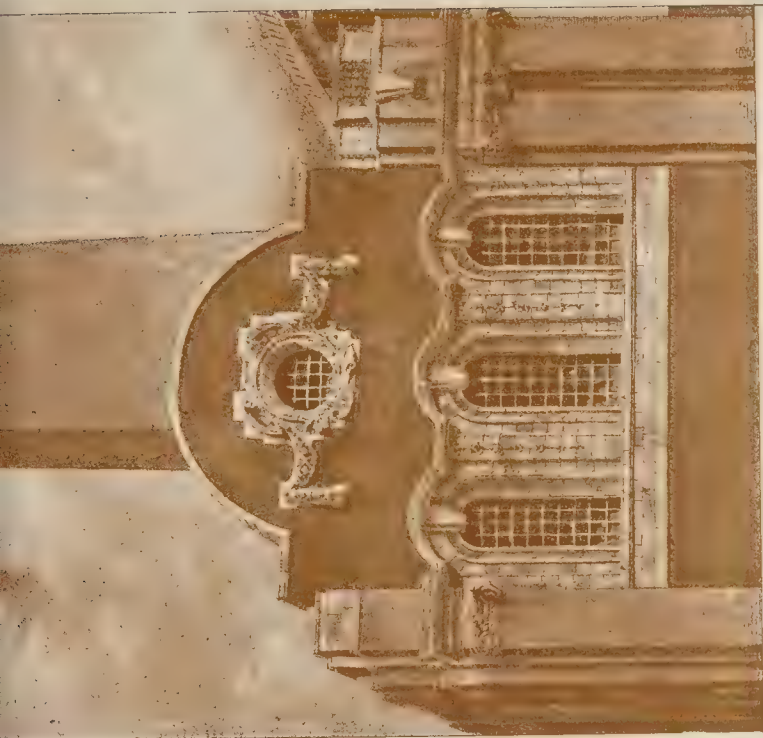






CONSECRATED  
JULY, 1901:

WILLIAM MA  
ARCHITECT:



CENTRAL ELECTRIC SUPPLY COMPANY'S POWER STATION,  
GROVE ROAD, N.W.

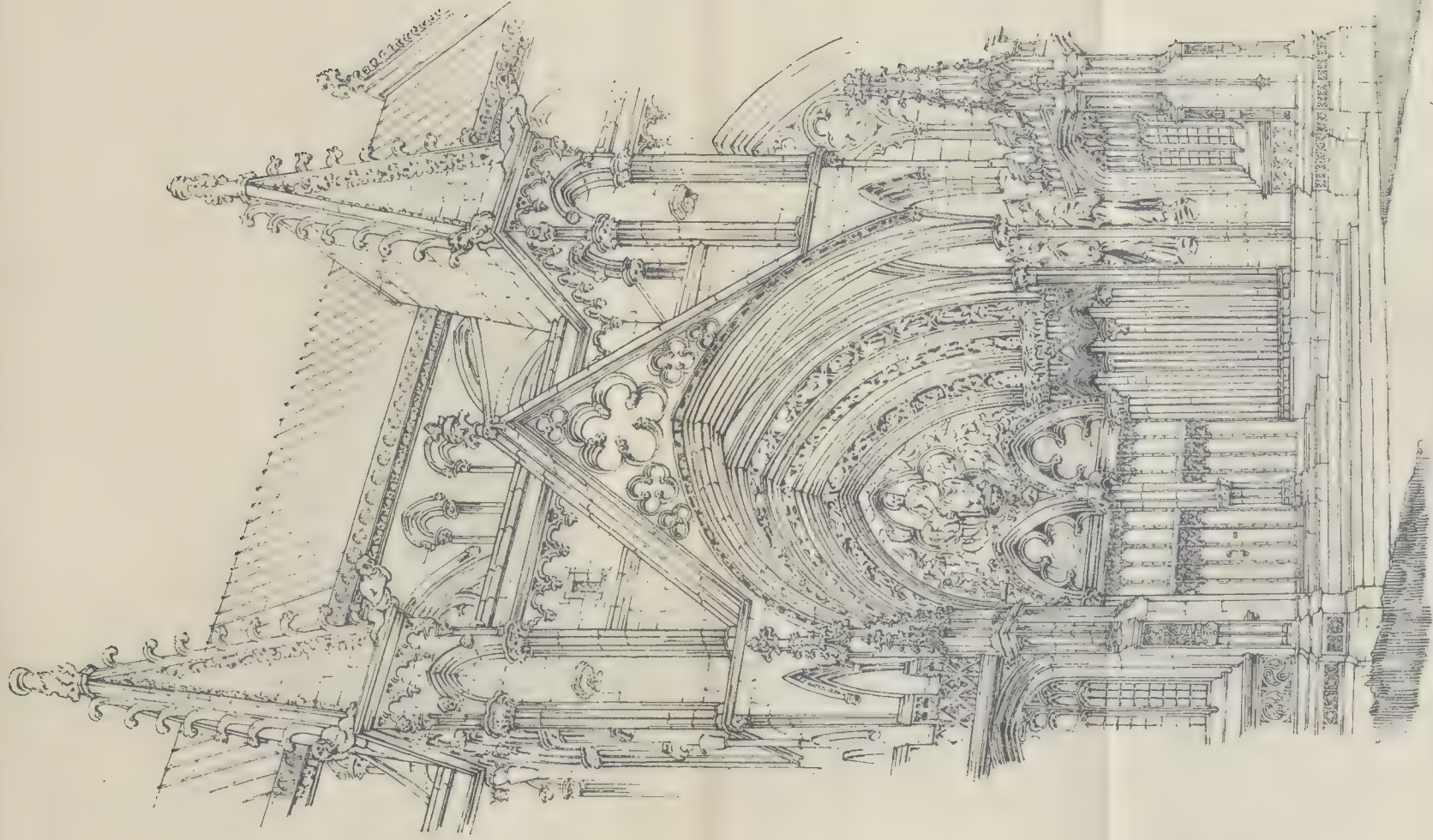
MR. CHARLES STANLEY PEACH, F R I B A., ARCHITECT

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LINCOLN CATHEDRAL.  
SOUTH PORCH.

*H. P. 1850*

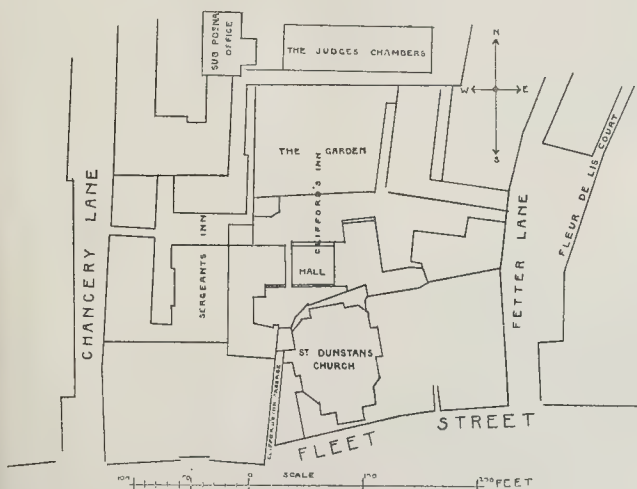








Commemorative Cross, Hurst Green



Plan of the Rolls Estates and of other properties in the neighbourhood, signed "James Pennethorne," and dated January 25, 1847.

early one morning in August, 1897, he heard the song of a nightingale.

#### COMMEMORATIVE CROSS, HURST GREEN.

THIS cross has been erected at Hurst Green, near Stonyhurst (Lancashire), in memory of the services of the British Army in South Africa. It bears on a bronze plate the inscription: "This cross commemorates the services of Frederick Sleight, first Earl Roberts, R.C.V.C., and his companions in arms, the soldiers and sailors of the Empire, who fought in South Africa, 1899-1902."

The monument is a replica of the ancient one in Iston churchyard, Cumberland, and has been erected from the drawings and under the superintendence of Mr. H. S. Fairhurst, architect, of Blackburn. The details were drawn out from rubbings from the ancient monument just referred to.

The material is selected Darley-Dale stone, and the work was done by Messrs. Earp, Hobbs, & Miller, of Manchester. The total height, with the base, is 13 ft.

#### REGISTERED TRADES-UNIONS.

THERE has just been published, as an appendix to the annual Report of the Chief Registrar of Friendly Societies, a list of trades-unions registered under the Acts of 1871 and 1876. The return is made up to December 31, 1901, and the delay in publication is probably due to the fact that the secretaries of unions are allowed five months after the end of the year in which to send in the required particulars of their respective organisations. Subjoined are the titles of the registered trades-unions directly or indirectly connected with the building trades, so far as England is concerned. In this list the date of registration is first indicated, then follows the name of the union, next the number of

and Talfourd in the chambers of George Dyer, who wrote a history of Cambridge and edited nearly all the volumes of the Delphin Classics for Valpy. The inn was also the home of Robert Pollock, who wrote "Peter Wilkins," the one successful imitation of Defoe's story. Sir Edward Coke in 1571 and Selden in 1602 were admitted of Clifford's Inn, and the regi-

cide Harrison served as clerk to one Thomas Houlker, whom Clarendon calls Hoselker, an attorney there. Until recent years the garden was exposed to the inroads of a mob who ran riot over the ground to share a dole in kind which used to be distributed there at the beating of the St. Dunstan parish bounds. A correspondent of the *Times* avers that there



members, and finally the state of the funds on December 31.

*Cheshire*.—1897, Birkenhead Operative House Painters' Society, 334, 9451. 1894, Birkenhead Bricklayers' Labourers' Society, 120, 2241.

*Derbyshire*.—1889, Derby and District Builders' Labourers' Protective, Accident, and Burial Society, 28, 211. 1897, Long Eaton Builders' Labourers' Protective, Accident, and Burial Society, 13, 101. 1892, Ilkeston and District Builders' Labourers' Trade Society, 40, 21. 1895, Derby and District Building Trades Federation, 411, 301.

*Durham*.—1892, Stockton and District Builders' Labourers' Union, 105, 2291. 1895, Hartlepool and District Builders' Labourers' Union, 224, 2691. 1898, Darlington Builders' Labourers' Union, 110, 901.

*Lancashire*.—1860, Amalgamated Society of Carpenters and Joiners, Manchester, 67,018, 188,0201. 1866, Amalgamated Society of Mill Sawyers, Woodcutting Machinists, and Wood Turners of Great Britain and Ireland, Manchester, 4,440, 8,0741. 1865, United Operative Plumbers' Association of Great Britain and Ireland, Manchester, 11,080, 29,3101. 1833, Amalgamated Union of Cabinet Makers, Liverpool, 2,518, 8,7951. 1853, Amalgamated Society of French Polishers of Great Britain and Ireland, Manchester, 945, 7141. 1880, National Amalgamated Society of Operative House and Ship Painters and Decorators, Manchester, 10,813, 34,0741. 1856, Rochdale Operative House Painters' Association, 131, 6881. 1876, Manchester and Salford House Painters' Association, 80, 2711. 1890, United Operative Street Masons, Paviors, and Stone Dressers' Society of Great Britain and Ireland, Manchester, 930, 1,2321. 1889, National Association of Plasterers' Labourers' Union, 40, 201. 1893, Liverpool Bricklayers' Labourers' Society, 50, 1751. 1894, Manchester and District Builders' Labourers' Society, 180, 451. 1893, Blackpool Bricklayers' Labourers' Trade, Accident, and Burial Society, 28, 511. 1894, National Society of Concrete and Asphalt Workers, Salford, 100, 1201. 1849, Manchester and Lancashire District Bricklayers' Labourers' Union, 114, 2911. 1897, Bolton Builders' Labourers' Trade Society, 30, 351. 1896, National Association of Tile, Mosaic, and Encaustic Fixers, Manchester, 120, 3441. 1892, Liverpool District Bricklayers' Labourers' Union, 100, 1041. 1898, Liverpool French Polishers' Association, 18, 541. 1894, Bootle and District Bricklayers' Labourers' Union, 40, 201. 1901, Leigh and Bedford District Bricklayers' Labourers' Union, 47, 361. 1872, Liverpool and Birkenhead Operative Ship and House Painters' Benefit Association, 356, 4811. 1784, Liverpool Operative House Painters' Old Society, 1,335, 1,2991. 1873, Liverpool United Mill Sawyers and Woodcutting Machinists' Society, 70, 2201.

*Leicestershire*.—1890, Leicester and District Builders' Labourers' Protection, Accident, and Burial Society, 900, 5011. 1891, Hinckley and District Builders' Labourers' Protection, Accident, and Burial Society, 53, 171 (deficiency).

*Lincolnshire*.—1899, Grimsby Builders' Labourers' Protective, Sick, Accident, and Burial Society, 30, 201.

*London*.—1848, Operative Bricklayers' Society, 38,743, 100,6501. 1873, Amalgamated Society of House Decorators and Painters, 5,380, 7,1641. 1860, National Association of Operative Plasterers, 10,074, 25,0701. 1872, Stone Carvers' Trade Association, 331, 9701. 1860, Perseverance Society of Carpenters and Joiners, 621, 1,2101. 1827, General Union of Operative Carpenters and Joiners, 7,301, 11,0601. 1853, London Operative Zinc Workers' Society, 104, 8581. 1865, Progressive Union of Cabinet Makers, 200, 9321. 1864, London Central Association of House Decorators and Painters, 185, 4041. 1882, Perseverance Cabinet Makers' Association, 147, 6801. 1890, Friendly Society of Ironfounders of England, Ireland, and Wales, 18,268, 104,7151. 1833, Friendly Society of Operative Stonemasons of England, Ireland, and Wales, 19,280, 26,7131. 1865, Grosvenor Society of House Painters and Decorators, 103, 2421. 1889, United Builders' Labourers' Union, 9,753, 8,0171. 1889, Glass Painters' Union, 59, 5011. 1890, Fret Lead Glaziers' and Cutters' Union, 116, 4051. 1890, Kent and Essex Brickmasters' and Flint Merchants' Protection Association, 21, 571. 1889, Islington Society and North London Union of House Painters and Decorators, 30, 281. 1890, West End House Painters' and Decorators' Union, 64, 1211. 1889, Navvies' Builders' Labourers', and General Labourers' Union, 3,520, 5821. 1890, Corrugated Iron Roofers', Door Makers', Sash Makers', and General Iron Workers' Union, 46, 401. 1892, London Amalgamated Plumbers' Mates' Society, 295, 4011. 1892, London Society of Woodcutting Machinists and Mill Sawyers, 63, 3841. 1892, London Operative Lath-renders' Trade Union, 56, 2421. 1892, Amalgamated Operative Marble and Slate Masons' Trade and Benefit Society, 104, 5151. 1892, London Slaters' and Tilers' Union, 62, 2721. 1895, Independent Cabinet Makers' Association, 328, 1731. 1895, Footway Masons' and Carriageway Paviors' Trade Protection Society, 115, 1461. 1891, Cabinet Trades Federation, 20, 1591. 1892, Amalgamated Society of Tesselated Tile, Faience, and Mosaic Workers and Fixers, 144, 4661. 1898, National Society of Asphalt Workers, 46, 1601. 1898, United Turners', Machinists', and Athletic Wood Workers'

Trade Union, 128, 1601. 1899, London French Polishers' Society, 97, 1711. 1899, United Society of Mechanical Wood Workers, 26, 01. 1900, Italian Mosaic Workers' Society in London, 211, 1381.

*Northamptonshire*.—1859, Local Operative Carpenters' and Joiners' Friendly and Trade Society, Northampton, 20, 1331.

*Northumberland*.—1885, Amalgamated Slaters' and Tilers' Protective, Accident, and Burial Society, 1111. 1893, United Operative Paviors of the City and County of Newcastle, 66, 3041. 1898, Newcastle and District Builders' Labourers' Union, 800, 3131.

*Nottinghamshire*.—1866, Operative Brickmakers' Society for Nottingham and District, 220, 1,2971. 1891, Nottingham Builders' Labourers' Trade Society, 1,198, 1,4081. 1895, Newark Builders' Labourers' Protective, Accident, and Burial Society, 113, 421.

*Oxfordshire*.—1894, Oxford and District Builders' Labourers' Society, 250, 1231.

*Somersetshire*.—1892, West of England and South Wales Operative Lathrenders' Trade Society, Bristol, 95, 4971. 1873, Bristol, West of England, and South Wales Operatives' Trade and Provident Society, 30, 320, 45,7511.

*Staffordshire*.—1880, Tamworth Builders' Labourers' Trade Society, 68, 1231. 1897, Burton and District Builders' Labourers' Protective, Accident, and Burial Society, 95, 7021. 1891, West Bromwich and District Builders' Labourers' Protective, Accident, and Burial Society, 80, 1691. 1890, Walsall Builders' Labourers' Society, 85, 1891. 1890, Wolverhampton and District Builders' Labourers' Protective, Accident, and Burial Society, 117, 3511.

*Warwickshire*.—1880, Birmingham and District Builders' Labourers' Association, 1,400, 4161. 1896, Coventry and District Builders' Labourers' Protective, Accident, and Burial Society, 130, 2641.

*Worcestershire*.—1892, Catshill Amalgamated Society of Builders and General Labourers, 68, 1431. 1889, Amalgamated Association of Builders' Labourers of Great Britain and Ireland, 1889, Kidderminster and District Builders' Labourers' Protective, Accident, and Burial Society, 50, 181. 1891, Malvern Branch of Builders' Labourers' Protective, Accident, and Burial Society, 318, 351.

*Yorkshire*.—1889, Leeds Order of the Amalgamated Builders' Labourers' Union of Great Britain and Ireland, 1,250, 4741. 1889, Hull Builders' Labourers' Trade Society, 700, 1,9131. 1889, Sheffield Lodge No. 1 of the Amalgamated Builders' Labourers' Union of Great Britain and Ireland, 457, 2301. 1893, Barnsley Builders' Labourers' Protective, Accident, and Burial Society, 69, 601. 1894, Halifax Builders' Labourers' Protective, Accident, and Burial Society, 20, 1281. 1895, Huddersfield Builders' Labourers' Protective, Accident, and Burial Society, 170, 2761. 1896, Bradford and District Builders' Labourers' Protective, Accident, and Burial Union, 27, 421. 1871, Middlesbrough Builders' Labourers' Union of Great Britain and Ireland, 134, 921. 1896, Batley Order of the Amalgamated Builders' Labourers' Union of Great Britain and Ireland, 12, 31. 1892, Scarborough Builders' and General Labourers' Union, 68, 1571. 1890, York and District Federated Builders' Labourers' Trade Society, 200, 651. 1890, Dewsbury Federated Builders' Labourers' Protective, Accident, and Burial Society, 54, 121.

## Books.

*The Modern Homestead: Its Arrangement and Construction.* By RICHARD HENDERSON, Member of the Royal Agricultural Society of England, &c. London: The County Gentlemen's Association, Ltd. 1902.

THIS volume forms one of the Estate Library Series published by the County Gentlemen's Association, and is on the whole an excellent and useful work. The author writes from long experience, and has evidently an intimate knowledge of farm buildings of different kinds. From the technical terms he employs, we judge that he hails from over the border, and if this be the case, it accounts for the divergence from English type of some of the methods of construction which he recommends. It may also account for what we regard as the erroneous application of the terms "red pine" and "white pine" to the woods which are more commonly known as "red (or yellow) deal (or fir)" and "white deal." Red pine is a distinct American variety, and is sold in this country under that name, and white pine is the American term for the wood sold in this country as yellow pine. The paragraphs dealing with stresses in roofs require revision; in comparing rafters of different pitch, the author forgets that with the same span the high-pitched roof has to bear

both a greater dead-load and a greater wind-pressure, and figs. 37 to 39 are therefore quite beside the mark. There are other details to which exception might be taken, but the author covers so much ground that the wonder is, not that there are mistakes in the book, but that they are so few and relatively so unimportant. Architects and landowners will find the book a mine of information on farm buildings of nearly every kind. Typical plans are given, and the author gives reasons for the positions assigned to the various parts. The details of design and construction are described and illustrated. Cows, horses, sheep, and pigs are all considered, and the "stercoraceous heap"—to quote Cowper's high-sounding term—is not forgotten. The author never fails to remember that economy is second only to utility, and he is therefore a reasonable guide. He is also somewhat verbose, but a good index makes amends. We have pleasure in recommending the book.

*Natural and Artificial Sewage Treatment.* By Lieut.-Colonel ALFRED S. JONES, V.C., A.M.Inst.C.E., &c., and H. ALFRED ROEHLING, M.Inst.C.E., &c. London: E. & F. N. Spon, Ltd. 1902.

THE authors claim that this work is not a mere repetition of old papers written by them and read at various times before different societies, "but an entirely fresh publication, right up to date." The work is divided into two parts—the first (by Lieut.-Colonel Jones) containing only twenty-seven pages, and the second (by Mr. Roebling) sixty-nine pages. The information is almost entirely of a general character, and appears to be intended chiefly for District Councilors. Whether the information is of such a nature as to help them in coming to a wise decision as to the most suitable method of sewage-disposal is another matter. To us the authors seem to have a strong bias in favour of land-treatment, and to have allowed this bias to influence their work in a manner which robs it of a good deal of its value. When the case against bacterial treatment is supported by a charge, unsupported by any testimony, that "surveys may have and certainly sometimes do have personal interests in pushing the sale of 'new sanitary appliances, including (as we gather from the context) automatic appliances for the control of bacterial tanks and beds, we may assume that the case is a weak one. No one denies that a sewage farm, properly managed on suitable soil, furnishes a satisfactory method of sewage disposal, particularly for small towns. But it is equally true that many sewage farms have proved rank failures. Very little is said about these, but the objections to the bacterial process of purification by artificial means are very much in evidence, and are not always fairly stated. Much is made of the choking of contact beds, but the authors do not make it clear that this is usually due to the beds being fed with crude sewage. A coke bed at the Northern Outfall has been dealing with London sewage for over eight years, and is "still giving admirable results," and Dr. Clowes's final conclusion is "that the sewage capacity of the coke bed, when the bed is fed with settled sewage, fluctuates slightly, but undergoes no permanent reduction; the bed does not choke."

*The Production and Use of Acetylene Gas.* By W. DOMAN. Westminster: P. S. King & Son. 1902.

THIS book extends to sixty pages only, but contains practically all the information concerning acetylene and calcium carbide likely to be sought for by the average consumer of acetylene. It is divided into eight short chapters, which describe the properties of calcium carbide and acetylene and the most suitable appliances for the generation and consumption of the gas for illuminating purposes.

The chapter on "The Fitting Up and Care of an Acetylene Installation" is for the most part excellent, but we differ from the author when he recommends the use of 1-in. brass piping for conveying acetylene to the gas brackets. The distributing-pipes should, in our opinion, always be of iron. The author also says that the lime sludge from the generators "may be run directly into the drains, if they are flushed immediately afterwards, so as to clear the lime out of the syphons and small

\* The italics are ours.



pipes." We believe that the officers of the London County Council very properly prohibit the direct discharge of lime sludge from acetylene generators into the drains under their control.

The book is well illustrated and admirably printed, but the absence of an index is a great defect. The author writes in a clear and simple style, and is accurate in his statements and impartial in his views. We have no hesitation in recommending the book even in its present condition to all who desire to acquire a good general knowledge of the properties of acetylene and the manner in which the gas may be generated and consumed, but when a call is made for a second edition we hope an index will be added.

*A Handbook of the Open-air Treatment and Life in an Open-air Sanatorium.* By DR. CHARLES REINHARDT and DR. DAVID THOMSON. Second edition, enlarged. London: John Bale, Sons, & Danielsson, Ltd. 1902.

By those who believe that the value of a book is measured by the number of copies printed or sold, Dr. Reinhardt's work will be accorded a high place. The first edition was published as recently as September, 1900, and the new edition, published exactly two years later, brings the total number of copies up to 9,000. The book is essentially "popular" in character, and is issued at the popular price of one shilling. It is illustrated with a large number of reproductions from photographs of British sanatoria for consumptives, and contains a list of nearly all the sanatoria now in use, together with a short description of each. Interesting information of an elementary character, respecting the cause and cure of the disease, is given, and the consumptive patient will find much of it both cheering and useful. Architects, however, have little to learn from the book. No plans are given, and very few hints on construction. We do not mention these omissions by way of adverse criticism: Dr. Reinhardt set out to write a popular non-technical treatise, and he has succeeded in his task.

*Journal of the Sanitary Institute.* Vol. XXIII., Part III.

This issue of the Journal is almost entirely devoted to addresses delivered in connexion with the Congress at Manchester in September last. It contains comparatively little of direct service to the architect and engineer. One of the longest papers is by Mr. W. N. Shaw, M.A., Sc.D., and is entitled "The Treatment of Smoke: A Sanitary Parallel." Mr. Shaw seeks to establish a parallel between smoke and sewage, but does not pursue the parallel to the logical conclusion that smoke, like sewage, should be removed by the Local Authority. This would be too great a task even for the London County Council. Like so many other writers on the subject, he considers the domestic fireplace the greatest sinner, but the suggestions he offers do not appear to be very practicable. If he could compel the Government to recognise the parallel between smoke and sewage, a Royal Commission on Smoke might be appointed as soon as that on sewage has finished its labours. Perhaps the most interesting paper is that by Sir William J. Collins on "Man versus the Microbe." The author maintains that the condition of the man is of more importance than the microbe. The latter is always with us, but whether it will have injurious effects depends upon the health or otherwise of the body to which it gains access. But Sir William goes further than this: "Bacteriology," he says, "has doubtless done much for pathology, but it has done much less than scientific persons both in and out of the profession are apt to imagine. It has not yet helped us to understand the nature of any one of the ordinary acute specific diseases of man, in the sense that it has unquestionably identified a specific microbe as the cause of any one of them." This is a matter which the doctors must fight out among themselves, but the sooner they settle the point the better.

*Christmas: Its Origin and Associations.* By W. F. DAWSON. London: Elliot Stock. 1902. 8vo.

WITHOUT other apparent object than that of producing some 300 pages of print, Mr. W. F.

Dawson has diluted what might have been a useful work on the history and observance of the Christmas festival till it has expanded into an exasperating and inconsequent medley. The book lacks that unity of purpose which alone can produce the order and coherence of a treatise. The author has interlarded matter proper to his subject with a number of historical incidents threaded upon the slender string of mere coincidence of date. It is of no interest in connexion with Christmas that Lord Cobham was executed on December 25, 1418, or that Anne of Cleves landed in England on December 27, 1539. A catalogue of events that have occurred, for instance, in or about April 1 might or might not be an interesting compilation; it could hardly be a coherent one.

The illustrations (e.g., pp. 14, 32, 202, 111) are very much of the parish magazine order, and often have but the slightest connexion with the text. There is a good index.

*Book-keeping for Builders, specially adapted for Small Businesses.* By ARTHUR E. DAVIS. London: 1902.

It has been recently remarked that the average British manufacturer is too much inclined to believe in a vague power which he calls "luck," and that he conducts his business simply by rule of thumb. He sometimes succeeds, but frequently fails—generally speaking, without knowing how or why. Sir William Preece has just been attacking this pernicious system—or want of system—from a scientific standpoint, and Mr. Davis here proffers a little friendly advice and assistance of a practical nature.

His experience as an accountant has convinced him that small builders are, as a class, bad book-keepers, and he sets himself to indicate a remedy for this unsatisfactory state of things. Specimen pages are given of the various books required in a small business, with instructions as to filling them up. The work may be described as quite an elementary treatise—the author will hardly claim more for it—and it is written in a simple and intelligible form. Mr. Davis writes like a physician imparting a few useful hints as to the treatment of a disease, accompanying his advice with a warning not to attempt too much doctoring yourself. If the symptoms are at all serious, call in an accountant.

*The Private Street Works Act, 1892: Being a Practical Guide to the Working of the Act.* By JOSHUA SCHOLEFIELD, Barrister, and GERARD R. HILL, M.A., Barrister. London: Butterworth & Co. 1902.

This is an extremely useful and well-arranged work—we may add well printed and bound also—on a subject which every day grows in importance, for between 1893 and 1902 437 Urban District Councils adopted the Act of 1892. Briefly, we have a short historical résumé of the legislation in regard to the drainage and repair of what may be called private streets; then a dissertation on the Act; and finally an appendix containing the Act itself, and portions of the Public Health Act, 1895, for the Act of 1892 is to be construed with the Public Health Act. The gist of the Act is contained in Section 6 (1), which, in a word, enables an Urban Authority "to sewer, level, pave, metal, flag, channel, or make good," or light a street, or part of a street, and to apportion the expenses on the adjoining premises. In other words, the object of the Act is to assist in the orderly transformation of Rural into Urban Districts at the cost of rural persons before the new streets can become a charge on the Urban purse.

*The Business Encyclopedia and Legal Adviser.* By W. S. M. KNIGHT, Barrister-at-Law. With numerous illustrations, &c., in six volumes. Vol. III. London: The Caxton Publishing Co.

We have already noticed the two previous volumes of this work. It is, therefore, here only necessary to say that in the present volume will be found articles on house tax, health, and safety of factories. Why not, we may ask, have the heading of "Factories" instead of several articles dealing with this subject? It has also two useful discussions on Leases and Libraries.

*Redress by Arbitration.* A Digest of the Law relating to Arbitrations and Awards. By H. FOULKS LYNCH SCHULER. Fourth edition, revised by D. F. RANKIN, M.A., LL.D. London: Eifingham Wilson. 1902.

THE fact that this Digest has reached a fourth edition is sufficient proof that it has been a useful work. In form it differs from the majority of law books, for the material is set out in sections and numbered paragraphs. Some day we may hope that this branch of the law will be codified on the basis of this work.

*The Englishwoman's Year-book.* London: Adam & Charles Black. 1903.

THIS is a large and comprehensive annual containing information about all work in which women are concerned. A great proportion of it is of course beyond our sphere of notice, but we may remark that it contains useful information in regard to technical schools and art-schools for women, in which they may obtain training in subjects on which a good many of them are now successfully taking their stand by the side of men. The book seems very well arranged and very complete.

#### TRADE CATALOGUES.

MESSRS. HAYWARD-TYLER & CO. send us their catalogue of electrically-driven and other treble-barrel pumps, each type being illustrated. Among the pumps described there are special varieties for fire extinguishing, boiler feeding, sewage, sinking, deep wells, high lifts, hydraulic pressure, and air compression. Some of the illustrations show the method of casing the gearing completely by removable covers.

We have received from Messrs. Ewart & Son, Ltd., of 346, Euston-road, a catalogue of their "Smoke-curing Appliances," and another containing illustrations and descriptions of their "Safety Geysers," baths, &c. In the first we notice their "Empress" and other revolving cowl, and a number of fixed cowls; many of these are made with the heads and bases in separate pieces, so that, if one cowl should prove unsatisfactory, the head can be removed and another of different type fixed on the same base. This firm's geysers are too well-known to call for detailed description; they are of various kinds, for working under pressure or otherwise. The safety taps are valuable fittings. The common objection to geysers is that they consume an enormous amount of gas, and this is no doubt true of many geysers. This is due in many cases to excessive pressure of gas, and we think that geyser manufacturers would be well advised in publishing actual tests by some independent person, stating the amount of gas consumed in raising the temperature of a certain quantity of water a certain number of degrees, the pressure of the gas being also recorded. In addition to bath-geysers, Messrs. Ewart & Son make gas-heated boilers for hot-water warming apparatus and other purposes, and also tinned or galvanised sheet-iron baths and bath fittings of various kinds.

The General Electric Co., of Queen Victoria-street, have sent us a catalogue of their "Robertson" electric lamps. It is very complete, and many novelties are shown. Their night-light lamp ought to become popular, as it would be very much more economical than the ordinary method of dimming a bedroom lamp. Tables are given of the average life of the "Robertson" lamps, and figures are given to show the false economy of using "cheap" lamps. We were pleased to note that every lamp is photometered separately, but we should like to see the certified copy of the Board of Trade standard volt which they say they use for reference. A lengthy experience of "Robertson" lamps has led us to regard them as quite satisfactory.

They have also sent us an illustrated circular dealing with portable accumulators, hand-lamps, and electrical accessories for motor-cars. The difficulty usually experienced with small accumulators is the question of charging. The ordinary methods are practically prohibitive owing to their cost. To get over this drawback the G. E. Co. make a small rectifier for alternating current supply and a complete small motor generator for direct current supply, so that small accumulators can be charged quite economically. Now that accumulators are used so largely for carriage



motor-car, and bicycle lights, these cheap methods of charging ought to be widely used. Complete lists of motor-car sparking-plugs, ignition-coils, small volt and ampere meters, &c., are shown, and the prices compare favourably with other catalogues.

#### BOOKS RECEIVED.

PROCEEDINGS OF THE INCORPORATED ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS. Vol. xxviii. Edited by Thomas Cole, Assoc. M. Inst. C.E. (E. & F. N. Spon.)

### Correspondence.

#### THE QUANTITY SURVEYOR.

SIR,—So soon as any professional association has acquired strength and reputation, some attempt is made to commence a rival one on similar lines.

Such a one is usually made easy of access by its acceptance of any and every applicant. Examination is usually dispensed with; when there is one it is commonly beneath contempt.

As the membership confers the right to use a set of letters impressive to a public which rarely understands them, the ambitious person, who has a judicious horror of examinations, is surely attracted.

The currency of a new set of distinguishing letters following the names of comparatively incompetent persons cannot fail to injure the reputation of quantity surveyors as a body.

Such an association as that proposed by Mr. H. Wood has been suggested a number of times within the last twenty years, but, fortunately, it has not been popular.

I strongly deprecate the proposal to establish an association exclusively composed of quantity surveyors. Their interests are thoroughly cared for by the Surveyors' Institution, and I submit that any action which tends to weaken that institution should be opposed by quantity surveyors with all their might.

Whether their influence will be of any avail in restraint of the efforts of persons avid of cheap distinctions is questionable.

JOHN LEANING.

SIR,—I have read with much interest Mr. W. Hoffman Wood's letter appearing in last week's issue of your paper.

The suggestion he makes has, to my knowledge, been frequently expressed by London quantity surveyors, but as yet with no success.

The reason, I venture to think, is not far to seek. So long as the honourable profession of quantity surveying is upon its present "cut" basis in London, an allied and distinctive association would be wellnigh impossible.

The recognised scale of charges for the preparation of bills of quantities is 2½ per cent. (two and a half per cent.) upon amount of accepted tender. How many surveyors obtain this fee?

I fear that there has long been a spirit of commercial competition creeping into the profession which must sooner or later degrade it.

I believe, at the present time, that the great majority of London quantity surveyors would be willing, if properly approached, to assist the formation of such an association as Mr. Wood suggests. The first work of such a body would have to be the suppression of "tendering" for the preparation of bills of quantities.

I, for one, should be glad to give help, either financially or otherwise, for the consummation of so worthy an object, but think that the idea would be more sure of success if the initial steps were taken by one of the large firms of repute.

F. B. HOLLS.

#### ARUNDEL BUILDING ESTATE COMPETITION.

SIR,—Will you kindly spare us a little of your valuable space in which to protest against the unfair methods adopted by the Arundel Town Council in their recent competition for laying out a building estate of 44 acres.

Before obtaining the requisite particulars competitors had to deposit 11, which was sacrificed if they did not send in a design. They were then furnished with a litho. plan of the ground, and a printed document which contained absolutely nothing to guide one as to the limit of cost of the scheme, or the class of property required to be erected on it. That was left entirely to the competitor. No levels were shown on the litho. plan, so that every competitor had to take his own levels over an extremely difficult and hilly piece of ground. Would not much valuable time have been saved if the ground had been previously contoured and the levels marked on the litho. plan?

We have been officially informed that our scheme was not successful, but the names of the successful competitors and the assessor were not given us. We see by a report of the meeting of the Town Council in a local paper that thirty-three designs were sent in, and that an "expert" was appointed to report on them at the munificent fee of 10s. 10s. Now, could any professional gentleman possibly devote the time requisite to go carefully through thirty-three sets of plans, estimates, and reports for such a paltry sum, especially as we understand he made a special journey from London to go through them at Arundel?

Is it usual for the local surveyor to be allowed to compete in competitions held by his Council, as in this case? We consider it a great breach of professional etiquette.

Above all, the first premium has been awarded to a firm who sent in no levels or sections of their proposed new roads and sewers, without which, how does the "expert" or the town council know if their scheme is practicable, or if it can be carried out for the estimated amount? Personally, we feel sure that it cannot be done for half as much money again.

Regardless of the fact that one of the great difficulties of the whole scheme was to lay out the ground to suit the requirements of the district, the paper finishes its Report with the following: "It will be clearly understood that no one qualified to judge has yet asserted that any of the plans is the best plan for Arundel to adopt. That question has not been raised yet. All that has been decided is that of thirty-three plans, produced without reference many of them to the town's needs, these are better than the rest."

After this, need anything further be said?

EQUITY.

#### HYDE PARK CORNER AND PICCADILLY.

SIR,—In your very valuable and detailed account of *Hyde Park Corner, &c.* (the *Builder*, p. 10, January 3, 1903) I missed an allusion to *Winstanley's Waterworks*, which would add to the historical interest. *Winstanley* was swept away in 1703, in the Eddystone Lighthouse of his own design; but advertisements in the original *Spectator* show that his *Waterworks* at Hyde Park Corner were carried on by his widow up till 1711. The *Waterworks* or *Water-Theatre* appears to have been a precursor of the Polytechnic of the days of Professor Pepper; and visitors are directed, in the *Spectator* advertisements, to look for it in Piccadilly at Hyde Park Corner, and to recognise the house by a windmill on the top. The windmill would serve to pump the water to a cistern at the top of the house, and a plentiful supply of water (as at Sadlers Well) was obtainable from the Serpentine reservoirs in Hyde Park close by.

Henry Winstanley is a name familiar in other respects to the architectural world for his interesting collection of measured drawings of Audley End and other places.

A. G. GREENHILL.

\* \* We print Mr. Greenhill's letter, as it draws attention to an interesting subject; but there was no omission on our part. If he looks again at the heading of our article he will see that its limits are defined by the dates "1801—1900." The Chelsea *Waterworks* did not come into the century treated of.—ED.

### The Student's Column.

#### BUILDERS' TOOLS AND THEIR USES.

##### INTRODUCTORY.

IT is strange that while so much has been written concerning building construction and the trades embodied, no author has ventured on more than a passing allusion to the tools used by the various workmen, and where such references have occurred the information has been of the scantiest and the illustrations exceedingly few. A little consideration, however, will show that there is more in them than meets the eye, that good workmanship and finish depend upon the proper handling of good tools, and that it is desirable every student of architecture should fully understand these technical uses, and not be content with merely noticing a few implements on the works, of which he knows little about the employment. There are many tools, also, which belong to the workshop but are never seen in immediate building operations, of which he should be equally cognisant. It is with the object, therefore, of bringing the subject, treated as a whole, before the architectural student, that these articles have been compiled.

It is extremely difficult to know where to draw the line between builders' tools and builders' plant, but nothing has been omitted which could reasonably be described under the former head, while in some instances it has

been thought desirable to include several appliances which strictly come under the latter title.

Similarly, it has not been easy to select and describe representative tools, but those not usually found in the ordinary builders' yard have been eliminated, especially the innumerable patent contrivances to which there is no finality. Of these it is impossible to treat. The descriptions have been arranged under the various trade heads, and it is hoped the system adopted will give facilities for ready reference.

#### CHAPTER I.

##### Excavator's Tools.

The following tools, &c., are employed by the excavator:—

- |                    |                        |
|--------------------|------------------------|
| 1. Pickaxe.        | 10. Square.            |
| 2. Mattock.        | 11. Boring Rods.       |
| 3. Spade.          | 12. Level.             |
| 4. Grafting Tool.  | 13. Rods.              |
| 5. Shovel.         | 14. Rammer.            |
| 6. Wheelbarrow.    | 15. Pipe Scraper.      |
| 7. Basket.         | 16. Maul.              |
| 8. Crowbar.        | 17. Carts, Waggon, &c. |
| 9. Lines and Pegs. | 18. Boring Tools.      |

These will now be described in the above order.

The *Pickaxe* is used for picking up and loosening hard ground. The interchangeable navvy pick shown in fig. 1 is, perhaps, the most usually shaped implement, one end being pointed and the other of chisel form. Sometimes both ends are pointed, and these should be of ground steel. They can be supplied separately, so that when an old one wears down a fresh point is welded in its place. The weight varies from 5 lbs. to 10 lbs., the heads being of solid cast steel, 2 ft. across, and the shafts of ash or hickory, 2 in. to 3 ft. long. Picks may be of iron with steeled points, but solid steel throughout is best.

The *Mattock* is a kind of pickaxe, with a shape indicating its particular use as represented in fig. 2. The edge of the blade is 2½ in. wide, and the shaft should be hooped and ferruled.

The plate-layer's beater is a tool something like a pickaxe and mattock combined, and is used by railway men in lifting sleepers and rails on the permanent way.

The *Spade* is too well known to need illustration. The blade is about 12 in. long by 8 in. wide, of solid steel, and should be treaded, i.e., bossed out at the top to receive the foot, and the handle is either crutch or D-shaped. The extreme length from end to end is about 3 ft. 6 in. An "old man" is the excavator's term for the piece of wood used for cleaning spades.

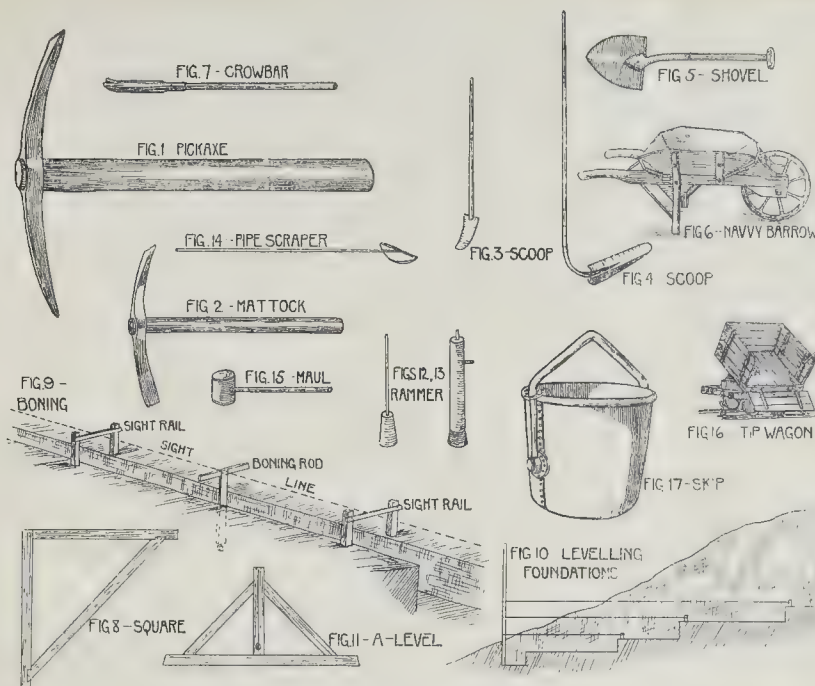
Draining tools are spades with long and narrow blades. In some drainage work where the trench is very narrow, it is not possible to get a shovel of the ordinary width into the trench to remove the loosened earth. For this purpose scoops are employed of the forms shown in figs. 3 and 4.

The *Grafting Tool* is a narrow spade for digging stiff clay. It has a contracted cast-steel blade about 18 in. long, slightly curved in section. When working in hard and stiff materials, continually pressing down on the blade of the grafting tool is both painful to the feet and damaging to the workman's boots, so steel boot plates are often provided for the labourers. These consist of a thin steel plate fitted underneath the instep of the boot, and secured by leather straps passing over the instep.

The *Shovel* is used for throwing out the soil. The ordinary pattern of universal or common shovel should have a solid cast-steel blade, 12 in. long by 9 in. wide, slightly rounded at the cutting edge, with a total length of about 3 ft. 6 in. from end to end. Shovels with pointed ends, however, are much favoured (fig. 5). The "London" pattern has a square instead of a pointed end. The helves should be bent so as to enable the person using the implement to bring the blade flat upon any surface without excessive stooping.

The *Wheelbarrow*, navvy, intrinching, is illustrated in fig. 6. The frame is of ash or elm, with iron stays and bolts to strengthen it, and the wheel is of cast iron, 17 in. diameter. Where there is a large amount of wheeling barrows made of steel plate may be used with advantage, on account of their superior strength, durability, and lightness. Barrows should not exceed 9 in. in depth, and their sides ought to be splayed with a slope of 2 to 1. It is desirable to have hooks placed on their sides to receive a shovel and a pick.





Illustrations to Student's Column.

Barrows hold about  $\frac{1}{4}$ th cubic yard of loose stuff, and  $\frac{1}{4}$ th cubic yard of soft clay, heaped up. Intimately connected with wheelbarrows are barrow-runs, which are formed of planks, supported at their upper ends by box-horses or trestles if necessary, to ensure a non-yielding and speedy track for the removal of the soil. The ordinary length of a barrow-run is 22 yards, and the steepest inclination should not exceed 1 in 12 where the men are unassisted. To be economical, removal by barrows ought not to exceed two runs, or 44 yards; for a greater distance—say, up to 100 yards—dobbins carts will be of service, while for greater lengths the use of waggons and tramways will be necessary. The number of pickmen, shovellers, and wheelers must be carefully apportioned so as to execute digging with speed and economy.

Barrows, when left on the works, may be secured at night by passing a chain through each wheel and fastening it with a padlock.

Handbarrows will be considered under "Freestone Mason."

Baskets are only wanted where barrows are inconvenient, such as in moving stuff from the inside to the outside of a building. They generally hold about a bushel, or  $\frac{1}{4}$  of a cubic yard, though other sizes contain from  $\frac{1}{2}$  to 2 bushels.

The Crowbar is required for moving heavy obstacles and breaking up concrete, &c. Fig. 7. It is of iron, with a claw at one end, and a length of about 5 ft. A pinching bar only differs from a crowbar in the absence of the claw, the two terms being frequently interchanged.

Lines and Pegs are used for setting out trenches and other excavations.

A Square is employed for setting out work at right angles. It merely consists of two lengths of wood at an angle of 90 degrees joined together by a tie piece, as in fig. 8. Tee-squares are used for a similar purpose. Where a wooden square is not available the following method may be adopted:—A tape is taken at 30 ft., 40 ft., and 50 ft. (or any multiple of 3, 4, and 5), and, being held at these distances, pegs are there put down. Lines can then be marked out on the ground along the 30 ft. and 40 ft. traces, giving the desired right angle.

Boning Rods are demanded for setting out the gradients of the bottoms of pipe trenches. They are T-shaped instruments, practically

T-squares, of 3 in. by  $\frac{3}{4}$  in. stuff, and of different lengths according to the levels, but all boning rods belonging to one set are exactly of the same height, usually 3 ft. The operation is called "boning," and consists in ranging a line of uniform inclination from two given points in it. These points are denoted by stakes, a boning rod being held upright on the head of each, and a third, placed vertically between the two, on a peg driven in the bottom of the trench, is ranged or boned in the same straight line with the other two stakes. If the bottom of the cutting is in a true gradient, the tops of the three rods will be in one straight line and parallel with it, with a uniform fall. Sight rails are also put up at each end of the line of pipes, and the central line distinctly marked on each, when the head of the boning staff should coincide with the line of sight between them, and the exact level of the invert of the drain will be indicated by the foot of the staff. Pegs are then driven in the bottom of the trench, each peg being plumbed and boned to the level of the invert, so that the row of pegs is in the exact line of the bottom of the pipes. A level and staff are required to plant each pair of stakes to arrange for the desired fall. The trench should be excavated in a perfectly straight line to the necessary depth, the bottom being well rammed and levelled to the required slope. Fig. 9 illustrates the operation of boning and the use of boning rods.

The Level is used for determining whether the bottoms of trenches for foundations are horizontal or not. A lath, or straight edge, several feet long, is rested on the bottom of the excavation, and the horizontality of the foundation is then tested by means of an ordinary spirit level placed on the top of the straight edge.

In the case of stepped foundations on a sloping site, where the heights of the ground floors must necessarily vary, the different levels are determined as shown in fig. 10, where a pole or rod is placed at the bottom of the trenches, and the separate heights marked off on it, which is managed by means of pegs and lines as indicated in the sketch.

The A-level, as it is called from its resemblance to the letter A, is merely an adaptation of the plumb level for determining the accuracy of stone paving, road surfaces, &c. See fig. 11.

Rods are used as guides in setting out the widths of the trenches, &c. They are merely slender pieces of wood, about 10 ft. long and  $\frac{1}{4}$  in. square, on which are scaled off full size with a pencil the dimensions of the digging, and are then laid out flat upon the ground to gauge the lines of excavation.

The Rammer, pounder, or punner, is employed for ramming and consolidating the earth, especially in trenches. It is invariably of wood, with a short handle at the top and side, and the bottom either having an iron shoe, or being hooped with iron, to prevent splitting or bulging out (fig. 12). Another shape is that shown in fig. 13, where the handle is 3 ft. long and the butt only 9 in. in length. A fair weight for the latter would be about 10 lbs.

The Pipe Scraper is wholly made of wood, and is very convenient for scraping off the surplus cement inside drain pipes when forming the joints (fig. 14).

The Maul is a heavy wooden mallet, hooped with iron, and gripped with both hands. It is indispensable for driving posts, heavy stakes, and pegs (fig. 15).

Carts, Waggon, &c., properly come under the head of builders' plant, but as they are necessary adjuncts to the excavator when extensive digging operations are in progress it has not been thought out of place to make brief allusions to them.

A dobbin cart is a three-wheeled cart containing about  $\frac{1}{2}$  cubic yard of earth. It is drawn by one horse, and guided and tipped by a man in attendance.

A tip waggon, or earth waggon, is for the purpose of removing spoil from the site to a considerable distance by running on temporarily fixed rails, and being drawn either by horses or by a small locomotive. These waggons tip their loads either at the side or end, the appearance and action of a side-tipping waggon being disclosed in fig. 16. The frame is of oak, and the bottom, sides, and doors are of  $\frac{1}{4}$  in. elm or deal. The wheels are of cast iron, with wrought-iron axles. A tip waggon may be used as an ordinary waggon when fixed in its horizontal position. The capacity varies according to the size of the waggon built for a certain gauge of line of rail, that for a 2-ft. gauge, holding  $10\frac{1}{2}$  cubic feet, being 4 ft. 6 in. long by 3 ft. wide by 1 ft. 2 in. deep; but the accommodation in-



creases up to 3 cubic yards, and the earth can be heaped up. Lowness of sides is of great advantage in filling. Tip waggoners are also made of iron.

Slips are large boxes of iron, but sometimes of wood, framed to hold from 4 to 1 cubic yard of spoil, and worked in connexion with steam cranes, so constructed that they can be made to discharge their contents over an earth wagon by turning over. Woodford's patent iron skips on this principle are the best, which release their contents by means of a readily disengaged catch, causing the box to tip and empty itself (fig. 17).

Steam excavating machines, or steam navvies, as they are often termed, are now largely in request for extensive undertakings, and by means of them the work can be performed so much more cheaply than by the employment of navvies alone that without such machines no contractor could hope to compete with others who contemplated their adoption.

Boring Tools are rarely called into service by the builder unless the foundations of his structures are very deep or for sinking wells, and therefore it will not be necessary to describe them here.

#### OBITUARY.

MR. TAGG-ARUNDELL.—We have to record the death, on December 7, at Calcutta, in his forty-fifth year, of Mr. William Tagg-Arundell, C.S.I. After having practised for a while in London, Mr. Tagg-Arundell quitted England fifteen years ago for India, where he soon achieved a prominent position as an architect, chiefly in connection with railway undertakings. During the interval 1854-6 he made the plans and designs for all the buildings of the Assam and Bengal Railway, including the head offices and station at Chittagong. He also designed the buildings and general engineering works for the East Coast, the East Indian, and the Delhi, Umballa, and Kalka Railways, and after the disastrous earthquake on June 12, 1897, at Shillong, he was employed for the reinstatement and rebuilding of many public offices and edifices there; he was the architect, besides, of several buildings in Delhi, Rawalpindi, Umballa, and Calcutta. Mr. Tagg-Arundell left the service of the Assam and Bengal Railway in November, 1899, and set up in independent practice in Calcutta, and very shortly afterwards was appointed consulting architect to the Government of Assam. Having already been elected a member of the Council of the Governor of Madras his public services were acknowledged by his admission as a Companion of the Star of India, and his subsequent appointment, in June, 1901, as a member of the Council of the Governor-General of India. Mr. Tagg-Arundell began his professional career as an articled pupil of the late Mr. J. Brown, of Norwich; he then became, we believe, an assistant in the offices of Mr. Basil Champneys.

#### GENERAL BUILDING NEWS.

CHURCH OF ST. HILDA, OLD TRAFORD.—A commencement has been made with the work of building the new Church of St. Hilda, Old Trafford. The church has been designed by Mr. F. P. Oakley, of Manchester. At first the chancel, vestry, and two-thirds of the nave will be built, and will provide accommodation for 450. Externally, the church will be of brick and terra-cotta. Internally, the walls will be Acorning brick, with pillars of Runcorn stone. The contractor is Mr. W. Thorpe, of Old Trafford, and the contract has been let for 3,871.

WESLEYAN CHURCH, DUNSTON, DURHAM.—On the 1st inst. the memorial-stones in connexion with a new Wesleyan Church to be erected at Dunston were laid. The building is estimated to cost 1,800l., and to seat something like 350 persons. It has been designed by Messrs. Joseph Potts & Sons, of Sunderland, the contractor being Mr. William Hall, of Gateshead.

BAPTIST CHURCH, CROMER.—A Baptist Church has been erected in Church-street, Cromer, from the designs of the architect, Mr. A. F. Scott. The builders were Messrs. Gilling & Smith.

THEATRE ROYAL, BRISTOL.—The Theatre Royal, King-street, was built in the year 1766, from a design by Mr. James Paty, and was opened on May 30 of that year by David Garrick. For the past six months the theatre has been in the hands of the builders who have been making alterations and additions. The alterations have been carried out by Messrs. H. A. Forre & Sons, from the design of the architect, Mr. W. Skinner.

CHURCH TOWER, LISKEARD.—The new church tower at Liskeard has just been dedicated. The architect was Mr. I. Sansom, Liskeard, and the builder was Mr. S. Trehane.

BUILDING IN MANCHESTER.—Within the year ended October 31 855 sets of plans for all kinds of

buildings in the city were submitted for approval to the Improvement and Buildings Committee of the Manchester City Council, and of these 754 were approved and 101 disapproved. In addition to these approvals, which related to permanent buildings, 78 licences were granted for temporary structures. New dwelling-houses to the number of 1,562 were in the same period certified as fit for habitation. During the past five years 11,124 new residences have been constructed, so that the yearly average has been maintained well above the level of 2,000. It has often been stated that at the time when the Ship Canal was opened Manchester had apparently arrived at her zenith, and was showing signs of coming decay in commerce and industry, and of a decrease in her population. Comparison with the figures of new houses in 1893, the year before the Ship Canal was brought into use, shows that side by side with the progress of the port has gone a steady increase in the number of inhabitants of our municipal area. The borough of Salford and other areas of local government within the radius of the Canal's influence can tell tales of proportionate advancement. The sum total of residences which have sprung up as the direct outcome of the making and working of the canal must be enormous. Three or four years ago it was publicly declared to be 20,000. Lately we have not heard any calculations or speculations as to the number which have since been erected. Coming back to city figures, it has to be added that whilst many buildings have sprung into existence, others have suffered from the ravages of time and wear. No fewer than 530 buildings in the city were reported to be dangerous in the past municipal year. In 445 cases out of this total it was found necessary to serve notices for the removal of the danger, which, perhaps, as a rule, meant the removal of the structure affected. It will be borne in mind that dwelling houses formed only a proportion of the condemned structures, and that old walls, factories, warehouses, chimney stacks, and nondescript buildings were included. An important change with regard to public improvements in Manchester is the establishment of a City Architect's department to meet the extraordinary demands which were made upon the administration of the City Surveyor's Department under the old system, whereby architecture was but a branch section of Mr. T. De Courcy Meade's sphere of action. Mr. Henry Price was appointed the first City Architect.—*Manchester Courier.*

BUILDING IN GLASGOW.—During the past year the several trades associated in the building industry throughout the city have been in a prosperous condition. The relations between employers and employees have been of such a nature that no dispute has occurred, and the outlook at present bids fair for another year. The valuation of the linings granted by the dean of Guild Court of Glasgow during the year tops the record of any previous year, the value for this year being 2,549,698l. Only once before in the history of that court has the valuation exceeded two millions, and that was in the year 1876, which is sometimes referred to as the year of the height of the building fever. The valuation for that year was 2,125,249l. It may be noted that the valuation of linings for dwelling-houses alone for this year amounts to 1,458,710l., being more than the value of the linings for all other purposes. Only in one other year since 1876 has the value of dwelling-house property alone exceeded one million, and that was in 1898, when it was 1,242,010l. There is no reason to suppose that the amount of this class of property is largely in excess of the demand. The rapidity of occupation as soon as the houses are fit for habitation is proof they are required, and with regard to houses of one and two apartments there are good reasons for stating that the supply convenient for those of necessity compelled to occupy them is not equal to requirements.—*Glasgow Herald.*

PROPOSED THEOLOGICAL COLLEGE, COTHAM, BRISTOL.—The "Initiatory Building Committee" of the Western College has approved of plans for new buildings at Cotham. The new college has been designed by Mr. Dare Bryan, of Bristol. The site is immediately opposite Highbury Chapel, and while the central entrance and tower will be at the corner of Hampton and Cotham Roads, the two wings of the college will front those thoroughfares, while at the rear will be a quadrangle surrounded by a colonnade. The central tower is to be carried to a height of nearly 90 ft. and forms a feature at the junction of the two main blocks. The exterior will be of red brick, with Doulton or Bath stone dressings. The entrance is in the form of an open loggia, giving access to both wings and also to the quadrangle. Going into this loggia to the right would be found an entrance hall and ante-room, a room for professors and forms a feature at the rear, occupying the centre of the block, a library, and beyond the Principal's residence. The full size of the library is 47 ft. by 37 ft. It has been suggested that the room should be panelled up to the window sills, a height of 6 ft. 6 in., and that this and the bookcases and other fittings should be in oak. The vaulting and central portions of the ceiling would be in plaster, the latter being panelled. The beams, it has been proposed, should have eight supporting figures illustrating such subjects as Love, Joy, Peace, Patience, Gentleness, Faith,

Meekness, and Temperance. The Principal's residence forms part of the block, but has a separate entrance and a garden extending to the back of the site. In the left wing (facing Hampton-road) is an entrance-hall and matron's room; occupying the centre of the block are two large apartments, which may be used separately as dining and common rooms, or thrown into one by the removal of the sliding doors. In the latter case they would give a room 60 ft. by 37 ft. At the end of this wing the kitchens and domestic offices are situated. The first floor of the two wings provides for a score of separate studies, a couple of lecture-rooms, and a hall. The second floor is entirely devoted to sleeping and bathroom accommodation. The architect has estimated the cost at 15,160l., but in his report to the Committee, says this would only provide for the plainest possible construction and interior finish, and for a building of such importance and in such a position he thinks at least 20,000l. is required.—*Western Press.*

THE BUILDING TRADE IN NOTTINGHAM.—So far as the building trade is concerned, no very big jobs have been undertaken during the past year, although a large number of important contracts, commenced before last January, have been completed. The state of employment generally can be said to be dull. There has been a gradual increase in the number of unemployed, especially with regard to carpenters, joiners, bricklayers, plasterers, and plumbers. Masons and slaters are certainly not fully employed, and numbers of their workpeople are leaving the town. Taken on the whole, the market, then, has been in a state of decline during the past twelve months, and the prospects of the coming year are not over bright. Brickmakers are fairly active, and have had a very good year. Their employment, too, is good, owing to the fact that a large portion of their production is sent away to other towns. Consequently the yards have been kept fully going, and the New Year promises well for the workers.

LONDON OFFICES FOR THE "BIRMINGHAM DAILY POST."—In juxtaposition to St. Bride's Church, Fleet-street, the new London offices of the *Birmingham Daily Post* have been erected. The lower story is of Cornish granite and the upper of Portland stone. Mr. John Belcher was the architect.

NEW ORPHANAGE AT ALDRIDGE.—A new orphanage is to be erected at Aldridge, for which Mr. F. W. Mager, C.E., is acting as Honorary Architect. The buildings will occupy a site of 3 acres in area, with a frontage of 98 yards to a main road, set back 30 ft. from the front boundary fence. For present purposes a building of oblong form with a central passage through the administrative department has been considered most advantageous. Future extension is to be by a block running out to the rear from the centre, the central passage of which would be directly under observation from the matron's room. Otherwise, passages will be as far as possible avoided. The committee decided upon a common dining-hall for boys and girls. The sick wards will be isolated by putting them at the top of the house in positions in the north and south ends of the building; the intermediate space between the wards and the staircase to be used as housemaids' closets and linen stores. The ground floor will contain dining-hall, master and matron's room, kitchen, office, scullery, laundry, store, larder, and boot-room. On the first floor, boys' dormitory (41 sup. ft. per bed), with lavatory containing six basins and six sinks; girls' dormitory, with similar lavatory; master and matron's bedroom; and on the second floor, servants' dormitory, boys' sickroom, girls' sickroom. Outside offices will comprise boys' urinal and four closets, in boys' playground; five closets for staff and girls; coal-store and tool-store; the outside closets to be flushed with the waste water from lavatory basins and baths. There will also be an enclosed yard and a covered way from the coal-store to the kitchen. The total number of inmates provided for is forty, exclusive of master, matron, and servants. The estimated cost is 1,057l.

COTTAGE HOSPITAL, KINGSBRIDGE, DEVONSHIRE.—A new wing in connexion with the Kingsbridge Cottage Hospital was opened recently. The plans were drawn by Mr. Latham, and Mr. Pearce was the builder. The wing consists of two wards which will accommodate six patients.

CASUAL WARDS, HOLBORN.—On the 1st inst. the Chairman of the Holborn Board of Guardians (Mr. J. Bolton) formally declared open the new casual wards which have been erected at Little Gray's Inn-lane. The architects were Messrs. Smith & Coggin, and the builders Messrs. Lawrence & Son. The new wards give accommodation to forty-eight men and twenty-four women and four rooms for the Board of Guardians.

ELECTRIC LIGHT STATION, EXETER.—On the 1st inst. the foundation-stone was laid of the new electric light and power station at Exeter. The foundation stone was laid in what will be the entrance-hall, at the bottom of the main staircase. The main facades will be carried out in red freestone, with freestone dressings set apart for the most prominent feature of the building will be a large chimney shaft, rising about 160 ft. above the ground, and the foundations of which will cover over 1,000 ft., being at the south-eastern end of the building. The section of the



building which is now being carried out has a capacity for plant of 2,500 h.p. It will consist, on the ground floor, of an engine-room, 103 ft. by 43 ft., lined with glazed bricks; a boiler-house, 103 ft. by 50 ft.; a pump-room, repairing shops, test-rooms, and economiser chambers. The first-floor level will comprise committee-rooms, switch-rooms, mess-rooms, stores, offices, &c., all opening on to a gallery overlooking the large engine-rooms. Over the boiler-house will be an actual bunk capacity for 800 tons. The machinery necessary for generating the electricity is to be supplied by the Westinghouse Co. As much as possible of the material and fittings required are being provided locally, the ironwork for the roofs being manufactured by Willey & Co. The land required to complete the site cost 2,000 l.; the building contract amounts to 14,000 l.; equipment contract 30,000 l. Mr. H. D. Munro is the electrical engineer; Mr. D. Cameron is the architect; and Mr. W. B. Brealy is the builder.

**MOTOR WORKS, CHISWICK.**—The Thornycroft Steam Wagon Co. are completing their motor works and offices at Hogarth-lane, Chiswick. The factory consists of ground floor, with various galleries for drawing-offices, pattern makers, stores, &c., the premises being lighted principally by extensive skylights. This office consists of two halls, 24 ft. by 30 ft. each, with various rooms leading out of the same. The entrance hall is paved with marble mosaic, with marble thresholds. The architects are Messrs. Scott & Hanson, of Basinghall-street. The builder is Mr. S. Hanson.

**NEW WARD, ROYAL VICTORIA HOSPITAL, Bournemouth.**—New wards have been erected at the Royal Victoria Hospital. The walls are of Purbeck stone, while the floors are fireproof. On the ground floor the men's ward, originally containing four beds, has been enlarged so as to provide eight additional beds, and on the first floor a new ward of four beds has been separated from the existing four-bed ward, which has been transformed into a large children's ward, providing accommodation for fifteen cots. A feature in connexion with this ward is a covered balcony, communicating with it by means of folding doors. In addition to the above, there has been some alteration in the construction of the roof, and on the second floor bedrooms for six nurses have been provided. The work of extension was commenced in August, 1901, and executed at a cost of over 2,100 l. exclusive of the furniture, electric light fittings, &c. Messrs. George & Harding, the original contractors, were the builders, and Messrs. Creeke, Gilford, & Oakley the architects.

**BUSINESS PREMISES, ABERDEEN.**—Messrs. Watt & Grant, 101, Market Street, Aberdeen, are carrying out alterations to their premises. The architect is Mr. A. H. L. Mackinnon, of Aberdeen.

**SANATORIUM, WHELLEY, WIGAN.**—The newly-completed additions to the Sanatorium of the Wigan Corporation, at Whelley, were opened recently. The additions are as follows:—A scarlet fever block, consisting of two wards for males and two for females. The female ward is 48 ft. long by 26 ft. wide, and has eight beds; the male ward is 30 ft. in length by 26 ft. in breadth, and has six beds; and each ward is provided with bath and lavatory accommodation. Between the two wards there is a nurses' duty-room, 16 ft. by 12 ft., a storeroom for linen, an entrance hall, and a vestibule. In front of this block there is a covered verandah, approached by a flight of steps from the carriage drive. The height of the block is 13 ft. from floor to ceiling. An observation block, consisting of two wards, one male and one female, with two beds in each, these wards being used for patients whom it is necessary to keep under observation, with a view to determining the character of the disease as it develops. Between the two wards there is a nurses' duty room, 15 ft. by 14 ft. The block is provided with a movable bath, and the necessary lavatory accommodation, and has in front a verandah similar to that in the scarlet fever block. The height of the block is 13 ft. 9 in. Discharging block, for the accommodation of convalescent patients for a short time before they are allowed to leave, this being situated near the exit gate, and consisting of dressing and undressing rooms, a bath room, and a lavatory. Addition to the administrative, and a dining-room, on the ground floor, each 24 ft. 6 in. in length, by 13 ft. in width; above these there being four bedrooms. There is also a new kitchen. The contractors for the erection of the buildings were Messrs. Wilson & Co. The structures are of brick, and harmonise with the older portion of the sanatorium, and the plans had been prepared by Mr. W. Bolton.

**WORKMEN'S DWELLINGS AT HIGH WINDCROFT, SHEFFIELD.**—At their meeting on the 31st ult., the Housing of the Working Classes Sub-Committee of the Sheffield Corporation had before them plans prepared by the City Surveyor, showing the suggested layout of the estate at High Windcroft. They approved the plans, and decided to invite tenders for the erection of cottages on the land at a cost not exceeding 160 l. and 185 l. each, the tenders to be accompanied by plans. The accommodation to be provided consists of a living-room, scullery, two or three bedrooms, and bathroom. Premiums will be given for the best plans sent in. The matter was subsequently brought before the Health Committee and confirmed.

## FOREIGN.

**FRANCE.**—The Académie des Beaux-Arts has elected Mr. G. F. Watts as a foreign corresponding member, in place of the late M. Siemiradski. Mr. Watts, who obtained a first medal in the exhibition of 1878, is also a Chevalier of the Legion of Honour.—M. Cormon, the painter, has been commissioned by the Government to execute, for the Museum of Versailles, a picture representing the reception of the Mayors of France in connexion with the 1900 exhibition.—M. Marquette has completed the model for the monument to be erected in Père Lachaise cemetery to the memory of Falguère. It consists of a stele decorated with bas-reliefs reproducing some of the works of the master—the "Junon" and the "Petit Martyr." By the side of the stele stands a figure symbolising "Inspiration."—The Department of the Seine has selected for the site of the new Ecole des Arts et Métiers at Paris the ground formerly occupied by the abbatoir of Ville-saint.—M. Cava, architect, of Argenteuil, has proposed to the town of Vanves (Morbihan) a scheme for the construction of covered market, a library, and a theatre, at an estimated cost of 454,000 fr.—The Conseil-Général of the Basses Pyrénées has voted a sum of 538,000 fr. for the enlargement of the lunatic asylum at Pau.—M. Bellemain, architect, of Lyons, has been commissioned to carry out a Salle des Fêtes at Trevoux (Ain).—M. Doillet has been appointed architect for a new firemen's barracks to be built at Menilmontant, at a cost of 1,200,000 fr.—The bridge over the Seine at Asnières is to be rebuilt shortly; a new bridge is to be built between that of Cléchy and Saint-Ouen. The two bridges will necessitate an expenditure of nearly 3,000,000 fr.—The exhibition of the Société des Amis des Arts at Pau will be held from January 15 to March 15.

**A VICTORIA HALL AT MONTEVIDEO.**—The Montevideo correspondent of the *Times* writes, under date November 20, in regard to a function which took place on November 14, when there was inaugurated the Victoria Hall, erected by the British residents in Montevideo to the memory of Queen Victoria. The hall, designed and built by the local English architect, Mr. John Adams, contains seating accommodation for about 600 persons on the floor and in the balcony, and is designed for balls, banquets, and social gatherings, while there is also a stage for concerts and dramatic performances. The façade is adorned with busts of Lord Tennyson, Sir Arthur Sullivan, and Sir Henry Irving, as representing the poetry, music, and drama of the later Victorian period.

## MISCELLANEOUS.

**PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.**—Mr. Matthew Garbutt, architect, has removed his offices from 40 Great James-street, Bedford-row, to Bishop's-road Station, Paddington, W.—Mr. J. R. Elliott, civil engineer and architect, of Burton Buildings, Parliament-street, Nottingham, has taken into partnership Mr. A. Goodwin Brown, civil engineer, who has been assistant to his father, Mr. Arthur Brown, M.Inst.C.E., the City Engineer of Nottingham. The practice will be continued at the above address under the firm name of Elliott & Brown.—Mr. Harry G. Assiter, F.S.I., has removed his offices from 19, Old Queen-street, Westminster, to 9, John-street, Adelphi, W.C.

**WHITAKER'S ALMANAC AND PEBBAGE.**—We have received the usual annual issue of these useful books of reference. Whitaker's Almanac has again increased in size, and now contains 702 pages, an increase of 425 pages since its foundation. The hundred pages dealing with the Indian Empire and the dominions beyond the seas have been subjected to a thorough revision. Tables are now provided showing the contents in outline of the Almanac proper, and of the supplementary matters. The latter include an article on the commerce of Great Britain during the South African war, another on the Education Bill, and other new matters.

**THE GRAMMAR SCHOOL, SLEAFORD.**—Mr. Jesse Clare, of Sleaford, is appointed architect of new school buildings to be erected for the Governors of the Charity, who have accepted a tender of 19,487 l. from Messrs. Maxey & Sons, of that town. The Free Grammar School was founded in 1603 by Robert Carr, of Aswarby, who endowed the trust with a freehold estate of 130 acres in the parish of Gedney, Lincolnshire, and a master's residence. The parish Church of St. Denis Sleaford, contains several monuments of the Carr family, formerly lords of the manor, including that of the founder of the school. The schools and master's house were rebuilt several years ago.

**THE SONNING BRIDGES.**—Mr. W. A. Ducat, one of the Inspectors of the Local Government Board, held an inquiry at the County Hall, Oxford, on the 31st ult., with regard to the proposal of the Oxfordshire County Council to borrow certain moneys for the rebuilding of Sonning Bridges and for other purposes. No opposition was offered to the proposal. The Clerk to the County Council explained that the amount it was proposed to borrow for the rebuilding of Sonning Bridges was 8,000 l. There was considerable traffic of all kinds over the bridges. The three bridges had become weak and were condemned as unsafe for heavy traffic. The County Council

were advised that the bridges were incapable of repair and restoration, and they had decided there was no alternative but to rebuild them. In rebuilding the county had to bear in view the necessity for permanent strength and of building a structure capable of carrying the heaviest modern traffic; they had also to deal with a flat roadway, which did not permit of curved arches, and, further, they had to provide sufficient waterway to satisfy the requirements of the Thames Conservancy. Plans had been laid before the Thames Conservancy, and they had approved of them. Under those conditions the County Council decided on building an iron bridge with iron pile supports and steel girders, having a span of 50 ft., and also on strengthening the present brick abutments and widening the roadway to 24 ft. The placing of an iron bridge over any portion of the River Thames was not wholly popular, and they had encountered a certain amount of adverse public criticism. The County Council had given fair consideration to it, and had sent Committees to visit the bridges and had discussed the objections. Having in view that there must be a permanent structure in the interests of public traffic and the requirements of waterway insisted upon by the Thames Conservancy, the Council had come to the conclusion that the proposed structure was the proper kind of bridge to erect over this portion of the river. The inspector subsequently visited the Sonning bridges which it is proposed to demolish, and will report to the Local Government Board in due course.

**THE LABOUR MARKET IN THE COLONIES.**—The January circular of the Emigrants' Information Office, 31, Broadway, Westminster, states that in New South Wales, owing to the severe drought, there is no demand for more labour at the present time, and many persons are unemployed; it is hoped that the recent fall of rain may improve prospects. The Government is endeavouring to relieve the distress by promoting public works. The ordinary emigrant, without means of his own, could not go to New South Wales at the present time. In Victoria there is no general demand for more labour, and many men are out of work. No large public works are being proposed by Government which might provide employment. In Cape Colony there is a good demand for skilled mechanics, especially those in the building trades, in the inland towns except Kimberley, but not at Cape Town or other towns on the coast, where a great many are out of work. In Natal a great many skilled artisans, more especially carpenters and those in the building trades, have recently arrived, so that those going now do so at their own risk of finding employment. Permits are still required by those proceeding to the Transvaal and Orange River Colony; they are not issued in this country, but must be applied for at the permit office at the port in South Africa at which the emigrant lands. Application forms may be obtained at the Emigrants' Information Office, and elsewhere. The latest reports as to labour in the Transvaal are to the effect that the supply both at Johannesburg and Pretoria is more than sufficient, that a great many skilled mechanics and large numbers of unskilled labourers are unable to find work, and that a good deal of distress prevails. Emigrants, therefore, are warned against going to the Transvaal at the present time, unless they have already secured employment there, or take not less than 100 l. with them to meet the very high cost of living. In the Orange River Colony there is a fluctuating demand for good carpenters, masons, fitters, and painters. The cost of living is very high. Permits are necessary. By the new Lands Settlement Ordinance, the "Land Settlement Board of the Orange River Colony" may dispose of Crown lands by sale or lease to any applicant who is not the owner or lessee of fifty acres or more of land in the Colony. Applicants may be required to apply personally. Those obtaining land either by lease or purchase must reside on and cultivate their land. Leases are for five years, renewable for five or ten years more, and the rent is 5 per cent. of the purchase price. Purchasers pay by instalments spread over thirty years, or may pay up after five years' occupation the whole of the purchase money then owing. As soon as the whole is paid up, and any advances have been repaid, the land becomes the property of the purchaser, who receives a grant thereof on perpetual quit rent. The Government may advance money to any such lessee or purchaser for the purpose of his effecting permanent improvements on the land.

**ENGINEERING TRADES' REPORT.**—Messrs. Matheson & Grant's Engineering Trades' Report states that there are fair prospects of activity for the coming year, and the engineering works of the country were never better prepared for it. Selling prices are, however, almost everywhere lower than in January last. Coal of the kinds used by engineers has been cheaper than in 1901; a conference regarding wages is now proceeding between the coal-owners and miners, both of whom claim alterations favourable to themselves, but further reductions are improbable. The output and prices of finished iron and steel have fallen, with the unfortunate circumstance for the makers that their materials have not fallen in proportion. The price of pig-iron has been upheld by large shipments to the United States, where the demands of the



iron-founders and steel-makers cannot be met by the American blast-furnace. There is as yet little sign of this export diminishing; but, as the output capacity of their furnaces increases, or their home consumption falls off, the current may be reversed and iron shipped to England. The demand for bridges, piers, buildings and roofs has been lower in 1902 than in the preceding five years. Competition is keener and prices are lower in proportion to cost. There has been a fair amount of work in the extension and replacement of structures for the home railways, and a moderate export of steel work for bridges and harbours. The Committee appointed by the Institute of Civil Engineers to consider the standardisation of rolled sections of iron and steel, recommends a great reduction in the number of angles, channels, beams and other forms. This change tends to reduce the cost of structural work and has other advantages.

The private Bills deposited for the coming session of Parliament represent a considerable aggregate of works interesting to engineers. None of the leading railway companies propose large schemes, nor are large additions to railway capital invited. No less than thirty-four municipalities seek powers for tramway undertakings, and there are forty private schemes, these latter being generally for wider districts around and between towns, many of them being put forward under the special procedure of the Light Railways Act. The large cities are going wide afield to obtain control of watersheds and water-bearing areas to satisfy their growing needs; and in connexion with these undertakings, machinery, pipes and plant on a large scale will be required. Few gas lighting schemes are presented; only extensions of existing works, and the Uganda scheme is questionable if any entirely new gas lighting projects will ever again be proposed. Abroad, hopes of revival in the Transvaal are still deferred, but railway and mining projects in South, Central and Western Africa already signify the advance in works of public utility that may be expected under the auspices. The Assuan dam, the Uganda railway, and the development of mines north and south of the Zambesi, are not only important in themselves, but pave the way for further developments.

**GLASGOW HOUSING SCHEME ABANDONED**—The Glasgow Corporation Housing Committee have decided to recommend that the scheme for providing 700 houses for workmen in the East End of Glasgow be not proceeded with. The estimated cost of the scheme was 100,000, and it was proposed to erect houses of one, two, and three apartments at an annual rental of 5s., 8s., and 12s.

**BUILDING AND BUILDING MATERIALS IN BILBAO.**—Mr. Ronald Macdonald, the British Consul, in a report to the Foreign Office on the trade and commerce of the consular district of Bilbao, mentions that the imports to that port in 1901 of building stones, cement, earth, &c., from the United Kingdom amounted to 7,782 tons. Two companies, with headquarters at Bilbao and San Sebastian, respectively, are working asphalt rock quarries in Alava, from which 3,000 tons of asphalt were obtained in twelve months. The price of asphalt rock at the works was 6s., and that of asphalt 1s. 10d. per metric ton. There are ten cement works in Guipuzcoa, where hydraulic cement is manufactured from natural rock. The total output in 1901 was 82,081 tons, manufactured out of 112,503 tons of rock. Cement is also manufactured at Sestao, out of slag from the blast furnaces. After being closed for some years for want of a proper technical administration this business resumed operations in 1901 with good prospects of success, due to the growing interest and reliability of the system of reinforced cement known as "ciment armé." This establishment can produce fifty tons daily. Considering the rapid increase in the population of Bilbao, and the insufficiency of house accommodation, of which complaints are general, there is a curiously little speculative building. Most of the houses in the town, especially in the modern part, are built in flats, but subdivided internally to a degree that leaves scant room to swing the proverbial cat. On the other hand, there is much activity shown in the erection of fine private residences, especially in the outskirts of the town near the sea, to which many rich inhabitants resort during the summer months. At Portugalete, Las Arenas, and other suburbs, rows of houses may be seen closed from November to May or later, the tenants paying high rentals all the year round for the pleasure of occupancy during four or five months. At San Sebastian extensive building operations are being carried on, and quite a new town of handsome villas and streets has sprung up in the neighbourhood of the beautiful church of Buen Pastor. A company is being formed for the purchase of the bull ring and the construction of a new theatre and an hotel. The electric lighting, the water supply, and the sanitary conditions of this charming watering-place are excellent.

**DIARIES, &c.**—The Builders' Accident Insurance, Limited (31 and 32, Bedford-street, Strand, W.C.), have issued a neat little memorandum book, alphabetically arranged. The Campbell Gas Engine Company, Limited, Halifax, have sent us a useful little pocket diary and notebook, which contains an accident insurance policy for 500l.—From the Willemsen Paper and Canvas Works, Ltd. (Willemsen Junction, N.W.), we have received a

tear-off date indicator which the firm have issued. —We have received from the Patent Victoria Stone Co., Ltd. (Hamilton House, Bishopsgate-street Without, E.C.), a useful folding blotting-pad and diary. The diary portion contains illustrations of some of the works where the firm's stone has been used. —The London Drawing and Tracing Office (98, Gray's Inn-road, W.C.) have issued a neat little card almanac for 1903.

**EXCAVATIONS AT ATHENS.**—The Athens correspondent of the *Daily Chronicle* has communicated to that journal as follows:—"The Greek Archaeological Society has resolved upon the thorough excavation of the ancient Agora, or market-place, the centre of Athenian life in classical times. Owing to the extent of the ground to be excavated, the much increased value of land of recent years, the rise in wages, and the purchase of houses which now encumber the site, the work will be very costly, and is expected to occupy five years. But Dr. Kavvadias, the eminent archaeologist, believes that many important discoveries will be made, and a strong committee has been formed for the prosecution of the scheme, which will be begun at once. Steps are being taken for the restoration of the fine Byzantine church at the Monastery of St. Luke the Younger, the subject of a fine monograph by two members of the British Archaeological School—Messrs. Schultz and Barnsley. The new Minister for Education is therefore showing the same zeal as his predecessor in archaeological matters."

**PROPOSED NEW BUILDINGS AT OXFORD.**—The Heteronadical Council have published an important statement in which they set forth what are the principal needs of the University in respect of provision for public teaching and for new buildings and institutions. Under the latter head they represent that at the Bodleian the most instant requirement is for additional storage rooms, which could be met by the construction, at a computed cost of 9,000l. (to include the shelving), of an underground chamber, as has been proposed. Other needed improvements include heating, electrical lighting, precautions against fire, more accommodation for readers, and an increased staff. The Keeper of the Ashmolean Museum and University Galleries states that a sum of at least 3,500l. will soon be required for upper galleries and additional cases, as the collections are rapidly extending; and that at no distant time new exhibition rooms, a coin-room, a lecture-theatre, and basement storage should be provided. Similar representations are made by the Keeper of the Hope Collection of Engravings and the Picture Galleries Committee. A laboratory for experimental research in psychology is asked for by the philosophical and some other professors upon estimates of 2,000l. for initial expenditure and 300l. annual maintenance, whilst the more pressing needs of various departments of the University Museum, Observatory, and Botanical Garden involve a capital outlay of 3,000l. or more, and a yearly expenditure of 3,500l. The new professorships asked for include one of Art in connexion with History. More adequate endowments are called for on behalf of the Chairs of Physics, Experimental Philosophy, Geology, and Zoology, and of the Slade Professorship, the Curatorship of the Pitt-Rivers Museum, and the Professorship of Applied Mechanics.

**OPEN SPACES.**—The Enfield District Council intend to give 7,000l. for 14 acres at Ponder's End for purposes of a recreation-ground. The Windsor Town Council are about to lay out part of the "Bachelor Acre," in the middle of the borough, as a garden, at a cost of 800l., and to give a portion of the rest for an enlargement of the adjoining Royal Infirmary and Dispensary. —The scheme for the preservation of Merrow Downs, about 200 acres, near Guildford, is now practically settled, as the K. D. Council have consented to waive their rights to dig for flints on the Downs as long as Lord Onslow, Lord of the Manor, observes a similar abstinence, and they will contribute 50l. towards the maintenance of the space. —For a sum of 11,500l. raised by public subscriptions and votes by the Oldbury and Smethwick Local Authorities, the Lightwood Estate of about 16 acres has been secured, together with an additional piece of land given by Mr. Howard Galton and Major Galton, as a public park for the City of Birmingham. —The General Powers Bill of the London County Council provides for contributions by them and the twelve Borough Councils towards the purchase by the Camberwell Council of the site known as One Tree Hill at Honor Oak and the garden of Brunswick-square, and for a contribution by the Woolwich Borough Council of lands lying on the north side of High-street, Eltham, and adjoining the South-Eastern Railway Bexley Heath Carriage Works, for a public park or recreation-ground. —The Local Government Board have given their sanction to the borrowing, by the District Council of Southgate, Middlesex, of the necessary sum for purchasing Broomfield Park as an open space; the cost amounts to 20,000l., one-fourth of which is promised by the Middlesex County Council. The house, which is approached along an avenue of elms, one of the finest in England, and stands in a park of some 70 acres adjoining Arno's Grove, was for many generations a seat of the Jackson family. It formed a hunting-lodge of James I., and con-

tains a handsome staircase richly carved in oak; some of the walls and ceilings were painted by Sir James Thornhill. —The National Trust have issued an appeal for 400l. wherewith to purchase 9 acres forming the summit of Kymyn Hill, near Monmouth, whence is obtained a magnificent view over the Wye Valley, the Forest of Dean, and the surrounding country as far as the Mendips, and the Cleve and Malvern Hills. On the land stands the now partly decayed "Naval Temple" erected in 1805 "to perpetuate the names of those noble admirals who distinguished themselves by their glorious victories for England in the last and preceding wars," and dedicated to Elizabeth, Duchess of Beaufort, who was a daughter of Admiral Boscawen.

**THE BUILDING TRADE IN WURTEMBERG.**—The Foreign Office is in receipt of a report from Dr. Frederick Rose, H.M. Consul at Stuttgart, on the trade, &c., of Wurttemberg for the year 1901 and part of the year 1902. Dr. Rose states that a careful survey of the industrial conditions prevailing in Germany during that period does not reveal any important facts tending to show that the hope of improvement is as earnestly entertained on all sides as has been realised to any appreciable extent. In Wurttemberg, although a great increase in the number of unemployed was feared, the dismissals of workmen which actually occurred were comparatively few in number. Many firms did their utmost to retain their workmen, in spite of the decline of orders, by employing them at reduced hours of work. Wages, generally speaking, have not declined to any great extent. In some cases the weekly amount has been reduced owing to the shortening of the hours of labour and the restriction of the output, but, on the other hand, there were instances of a moderate increase of from 10 to 15 per cent. Although private building enterprise was very dull (owing to commercial depression, the scarcity of money, and the uneasiness felt by capitalists), the State found a use for the numerous unemployed workmen by the building of churches and schools and the completion of the Stuttgart Town Hall, which, in addition to a new section of hotels, &c., enabled the building trade to about keep pace with that of 1900. The dulness in the building trade naturally affected the demand for building materials somewhat heavily, the more so as in many cases yards had to be overstocked in 1900. In almost every instance manufacturers of building materials report a heavy falling-off in demand and price.

**MEMORIAL WINDOW, CLIFTON CHURCH.**—On the 22nd ult. the Bishop of Bristol unveiled a memorial window which has been erected in Emmanuel Church, Clifton, to the memory of the late Canon Breanan and Mrs. Breanan. The main portion of the window, which consists of tesselated tiles and tracery, represents St. Paul on Mars Hill, declaring to the citizens of Athens the "unknown God," to Whom they had erected an altar. Beneath this group, which is carried through the three main lights, the window is divided into three smaller panels, which represent other scenes in the life of St. Paul. In the large circular pieces of tracery at the top of the window is a figure of our Lord, throned in majesty. Both the window and tablet were designed and executed at the studio of Messrs. Joseph Bell & Son, Bristol.

## PATENTS OF THE WEEK.

### APPLICATIONS PUBLISHED.\*

25,227 of 1901.—J. MEEHAN: *Fittings for Electric Installation in Buildings.*

This invention relates to certain fittings for electrical installation in a building, such that the operations of the workmen employed are greatly facilitated. For this purpose a device termed an adapter is employed, which is a ring of porcelain or other non-conducting material having on its under side concentric circular grooves, in which wires are laid and held by cement. From the wires in the grooves branch wires pass up through holes to radial slots which extend to the circumference, each slot having at its outer end a metal bush and screw for holding the wire. The adapter is provided with a cover having several holes through which pass wires provided with fixing screws. The adapter is inserted and fixed in a junction box, which has lateral holes holding screwed nipples through which wires pass, and through the top of the junction box are screwed T or L Tubes also for passage of wires.

26,214 of 1901.—C. F. THURBER and H. C. HANSEN: *Kilns for burning Portland Cement lime Mark, Magnesia, and the like.*

This relates to a continuously working kiln for working with producer gases and for burning cement, magnesite and the like, comprising the combination with a sintering chamber of considerably smaller diameter than the kiln, of gas producers situated within the walls and around the said sintering chamber, descending gas conduits connected to said producers and opening out into the space between the cooling chamber and the sintering chamber.

\* All these applications are in the stage in which opposition to the grant of a Patent upon them can be made.



81 of 1902.—S. H. HODGKIN: *Water Purifying and softening Apparatus.*

This relates to water-softening apparatus wherein the hard water to be softened is caused to pass into a mixing vessel in definite quantities by means of an automatic water-flushing apparatus provided with a piston plunger or float that rises and falls with the level of the water admitted to and discharged from such apparatus, and the motion of which is utilised to automatically stir lime or other solid chemical substance so as to admit of air readily mixing with it and forming the required liquid re-agent.

804 of 1902.—A. H. KENDRICK: *Screens for Sand and the Like.*

This relates to screens or sifters for sand and the like, provided with a screening mesh made up of a series of metallic strips or blades arranged edge-wise within the frame of the screen and separated by intervening distance pieces; both the blades and distance pieces being carried upon rods or bars secured to the said frame.

1,122 of 1902.—H. H. LAKE (D. Wachtel & Co.): *Edge Runner Grinding Mills.*

This relates to an edge runner grinding and crushing mill with cylindrical runners and smooth grinding table characterised by a wheel-shaped runner frame supported merely by the central pillar and provided upon the underside of its crown with driving teeth, this frame guiding and driving the runners by means of vertically displaceable sliding bearings.

3,364 of 1902.—G. C. MARKS (C. Frerichs): *Manufacture of Artificial Stones, Building Blocks, Bricks, and the Like.*

This relates to a process for the production of glazed facing stones, consisting in hardening calcareous stones by steam, then providing the same with a suitable glazing material, and finally burning the stones at the temperature required to impart the rigidity or solidity for building purposes.

4,917 of 1902.—G. C. MARKS (C. Frerichs): *Fire-proof Bricks.*

This relates to the production of Dinas stones or fire-bricks from sand and lime, and consists in treating the moulded masses by steam before the burning operation to an extent sufficient to only partially harden the same.

10,866 of 1902.—L. OVEREND and J. C. OVEREND: *Sinks, Lavatory Basins, Baths, Yard-gullies, and the Like.*

This relates to sinks, lavatory basins, baths, and the like, and consists of an outlet tube surrounded by an annular recess, and a loose cap supported by radial projections above such outlet tube in such manner as to form a trap.

10,896 of 1902.—MDE. E. N. N. BERTRAND: *Production of Mosaics.*

This relates to a covering in mosaic characterised by the combination of debris of potteries or stone-works of which some have visible plane surfaces and others a visible concave or convex surface, according as the part of the design which they form, must serve to represent plane, hollow, or projecting parts.

20,238 of 1902.—W. H. BAKER: *Double-acting Combination Lock Valves.*

This invention relates to a double-acting combination lock valve for use upon pipes for water, gas, air, &c. One application of this invention is to gas-pipes in the immediate vicinity of meters, for the purpose of preventing dishonest persons from using the gas without the same having passed through the meter. The invention consists in the combination of a cap and a revolvable plug fitted with posts having shoulders to be engaged by a key, when said parts are used in a lock valve.

711 of 1902.—R. KENNEDY: *Liquid Meters for Measuring and Recording the Rate of Flow of, and Quantity of Water or other Liquid passing through, Pipes Channels or the Like.*

This invention consists in, or connected with, liquid meters for measuring and recording the rate of flow of, and the quantity of, water or other liquid passing through pipes, channels, or the like, of a chamber having inlet and outlet openings, and provided with a flap or back pressure valve, inclined in its closed position, and fitting closely between the sides of the chamber in all its positions, a bottom portion of the chamber on the inlet side being made to slope downwards from a point some distance in front of the flap or valve.

2,086 of 1902.—T. WHITE & GAMLINS, LTD.: *Machines for Boring Woodwork.*

This relates to machines for boring woodwork, and consists in the combination of a cam or cams formed with a groove and mounted on a shaft, with a pulley or equivalent organ carried on each head-stock so as to travel the drills to and from the work in an automatic manner.

2,871 of 1902.—J. COOMBER and A. BAUMGARTEN: *Elastic Floor Coverings.*

This relates to an elastic floor covering formed of a series of sections, each of which comprises a long central strip formed on each of its opposite sides with a series of interlocking tongues and inter-

mediate spaces whereinto the tongues of a contiguous section will fit, and whereby the sections will be secured together; the said tongues on said strips being alternately disposed on opposite sides of the strip.

4,951 of 1902.—J. RITSON: *Grip or Vice for Bending and Screwing of Pipes.*

This relates to a portable grip or vice for bending or screwing pipes comprising a trough-shaped bed forming a U-shape at one end and half round at the other end, adapted to be fixed to a bench by lugs and a cap or canopy secured on said trough fitted with a screw firmly attached to a grip plate, for holding the pipe firmly in position when being bent or screwed.

21,064 of 1902.—A. J. BOULT (W. A. Koneman): *Pulverising Machines.*

This relates to a pulverising machine characterised by a horizontally-disposed rotating crushing bed having a frusto-conical crushing face, and a series of radially-disposed crushing rollers journaled beyond the periphery of the crushing bed in vertically adjustable supports.

22,104 of 1902.—A. ACKERMANN: *Construction of Girders for Building and other Purposes.*

This relates to a hollow girder provided with a tension rod or band bent over the ends of the girder and drawn down and secured on the underside of the girder at one or more points by one or more cross bars or the like.

22,391 of 1902.—G. KNOCHENHAUER: *"Lights" or Glazed Frames for Hot Beds, Forcing Frames, and the Like.*

This relates to a "light" or glazed frame for hot beds, forcing frames and the like, comprising a series of longitudinal bars, the upper and lower ends of which are traversed by screw bolts, the heads and nuts of which are embedded in the outer longitudinal bars, filling blocks being inserted between the upper and lower ends of the longitudinal bars.

22,263 of 1902.—J. RUEF: *Boilers for Water Circulating Heating Systems.*

This relates to a boiler for water circulating heating systems composed of separate members, and in which the smoke flues are arranged in such a manner that the combustion gases are drawn off from bottom part of fuel space, ascending laterally of the latter and having again to be drawn downwards, to pass from the chimney to the base part of the boiler.

18,350 of 1902.—R. HADDAN (E. J. B. Vache): *Letter Flush Valves.*

This relates to a valve for flushing water, placed in the column itself, and provided with a lever, extended externally and manipulating in the same way as an ordinary flushing apparatus. The invention consists of a cap preventing the valve from receiving direct the water pressure of the feed-pipe on its upper front, the orifices of water penetration in the said cap being preferably placed above the valve.

1,998 of 1902.—L. WILLIAMS: *Method of Treating Magnesite in the Manufacture of Bricks and like Magnesite Goods.*

This relates to the method of treating magnesite in the manufacture of bricks, as like magnesite goods. The raw material is ground in its crude state, and made into bricks or blocks direct, and these bricks or blocks are burnt at a high temperature. In its first operation the shrinkage is taken out of the crude material. The material being thus reduced, or dead burnt, is at this stage—after being ground—applicable for the making and repairing of furnace bottoms. In the second operation the residue of the first calcination is ground over again, and made into the finished brick, in the ordinary way, using finely-ground crude magnesite, clay water, a solution of hydrochloric acid, or other suitable matter, as a binding material. Any resinous or adhesive vegetable substance may be used, if desirable, as an auxiliary binding agent.

## MEETINGS.

FRIDAY, JANUARY 9.

*Architectural Association.*—Mr. Andrew Oliver on "Old London: being Notes on Whitehall and Strand," illustrated by old engravings and lantern slides. 7.30 p.m.

*London Institution.*—Rev. Canon Benham on "Old London: Old Rectory."—11.15 p.m.  
*Birmingham Architectural Association.*—Mr. Bedford Lemere on "Architectural Photography." 8 p.m.

MONDAY, JANUARY 12.

*Royal Institute of British Architects.*—The President, Mr. Aston Webb, A.R.A., will hold an "At Home" in the rooms of the Institute, No. 9, Conduit-street, from 8.30 p.m. to 11 p.m. A collection of drawings by the late Mr. J. F. Bentley will be on view.  
*Surveyors' Institution.*—Mr. H. T. Scoble on "Rural Drainage and Sewage Disposal." 8 p.m.  
*Royal Philological Society of Glasgow (Architectural Section).*—Mr. D. Murray, M.A., LL.D., on "The Architecture of Old Glasgow." 8 p.m.

TUESDAY, JANUARY 13.

*Institution of Civil Engineers.*—Mr. H. F. Joel on "Electric Automobiles." 8 p.m.

*Institution of Electrical Engineers (Glasgow Section).*—Mr. Wm. A. Chamen will open a discussion upon "Up-to-date Wiring in connexion with Corporation Supply." 8 p.m.

WEDNESDAY, JANUARY 14.

*St. Paul's Ecclesiastical Society.*—Mr. C. R. Peers, F.S.A., on "Saxon Churches." 8 p.m.  
*British Archaeological Association.*—Rev. H. J. Dukinfield Astley, M.A., on "A Series of Norman Fosses in North-west Norfolk," with lantern illustrations. 8 p.m.  
*Society of Arts.*—Professor W. Smart, LL.D., on "Industrial Trusts." 8 p.m.  
*Edinburgh Architectural Association.*—Mr. R. Traquair on "Scottish Domestic Detail"—limelight views. 8 p.m.  
*Northern Architectural Association.*—Mr. H. Cayley, M.A., on "Some Special Features of Somersetshire Churches," with lantern illustrations. 7.30 p.m.

THURSDAY, JANUARY 15.

*Royal Institution.*—Dr. A. J. Evans on "Pre-Phoenician Writing in Crete, and its Bearings on the History of the Alphabet."—1. 5 p.m.  
*London Institution.*—The Rev. W. Marshall, M.A., on "The Romance of Architecture," illustrated. 6 p.m.  
*Leeds and Yorkshire Architectural Society.*—Mr. Arthur Marshall on "Rome, Ancient and Modern." 6.30 p.m.

FRIDAY, JANUARY 16.

*Institution of Mechanical Engineers.*—Mr. H. F. Donaldson on "Cutting Angles of Tools for Metal Work, as affecting Speed and Feed." 8 p.m.  
*Institution of Civil Engineers (Students' Meeting).*—The fifth annual lecture to the Students will be given by Professor W. C. Unwin on "The Measurement of Water." 8 p.m.

SATURDAY, JANUARY 17.

*Junior Institution of Engineers.*—Visit at 3 p.m. to the New Electricity Works of the Metropolitan Borough of Shoreditch, Whiston-street, Haggerston.

## SOME RECENT SALES OF PROPERTY:

### ESTATE EXCHANGE REPORT.

December 17.—By GERMAN & GERMAN (at Ashby de la Zouch).  
Ashby de la Zouch, Leicestershire.—Tunworth-rd., three building sites, area 4,015 yards, f. .... £2,325  
Kilward-st., four freehold messuages, ..... 1,950  
The Mount House Farm, 63 a. 2 r. 22 p., f. .... 2,500  
Leicester-rd., a freehold field, 3 a. 1 r. 23 p., ..... 165  
Avenue-rd., toll house and private road, f. .... 445  
Woodville, Derby.—Three freehold fields, 5 a. 3 r. 18 p., ..... 1,535  
Packington, Leicestershire.—Two messuages and four cottages, f. .... 330  
Ibstock, Leicestershire.—A freehold messuage, ..... 250  
Castle Donington, Leicestershire.—A freehold residence, area 1,210 yds., ..... 365  
Ten freehold messuages, ..... 550

January 1.—By TROTTER & WOODS.  
Feltham, Middx.—High-st., Wilton Lodge and 5 a. 2 r. 30 p., f., e.r. 1901, ..... 2,970  
High-st., Sydney House, with shop, f., y.r. 5-6-14s., ..... 1,160  
High-st., Ashleigh Cottage and ca. 1 r. 30 p., f., p., ..... 450  
Bedford-rd., freehold cottage with blacksmith's forge adjoining, y.r. 234 ss., ..... 470

*Contractions used in these lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yns. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; h.h. for beer-house; p.h. for public-house; o. for offices; s. for shops.

## PRICES CURRENT OF MATERIALS.

\*s. Our aim in this list is to give, as far as possible, the average prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.	£ s. d.
Hard Stocks ....	1 13 0 per 1,000 alongside, in river.
Rough Stocks and Grizles, .....	1 10 0 " " " "
Facing Stocks, .....	2 12 0 " " " "
Shippers, .....	2 5 0 " " " "
Flemons, .....	3 7 6 " at railway dep't.
Red Wire Cuts, .....	1 12 0 " " " "
Best Fareham Red, .....	3 12 0 " " " "
Best Red Pressed Runbon Facing, .....	5 0 0 " " " "
Best Blue Pressed Staffordshire, .....	4 5 0 " " " "
Do. Bullnose, .....	4 12 0 " " " "
Best Stourbridge Fire Bricks, .....	4 8 0 " " " "
GLAZED BRICKS.	
Best White and Ivory Glazed Stretchers, .....	23 0 0 " " " "
Headers, .....	12 0 0 " " " "
Quoins, Bullnose, and Flats, .....	17 0 0 " " " "
Double Stretchers, .....	19 0 0 " " " "
Double Headers, .....	16 0 0 " " " "
One Side and two Ends, .....	19 0 0 " " " "
Two Sides and one End, .....	20 0 0 " " " "
Splays, Chamfered, Squints, .....	20 0 0 " " " "

[See also next page.]



## COMPETITIONS, CONTRACTS AND PUBLIC APPOINTMENTS.

(For some Contracts, &amp;c., still open, but not included in this List, see previous issues.)

COMPETITIONS.			
Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered
Designs for University Buildings, Cape of Good Hope.	Agent.-Gen. for Cape of Good Hope	400l., 200l., 100l.	Jan. 31
Laying out Piece of Land for Recreation Ground	Winchester Corporation	75l. and 25l.	Feb. 10
CONTRACTS.			
Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c., supplied by	Tenders to be delivered
Cottages, &c., near Dublin	Blackrock U.D.C.	F. C. Caldwell, Architect, 2, St. Andrew-street, Dublin	Jan. 13
Library Buildings	Ilkeston Corporation	Hunter & Woodhouse, Architects, Belper	do.
Additions to Workshops, St. John's Home	Ipswich Guardians	H. J. Wright, Architect, Museum-street, Ipswich	do.
Road-making and Paving Works	Willesden District Council	W. D. Morgan, Architect, Public Offices, Dyne-road, Kilburn, N.W.	Jan. 11
House, West-road, Elgin	do.	Sutherland & Jameson, Architects, Elgin	do.
Well-Boring, &c., West-Nichol, Jililand, Northumberland	do.	H. W. Taylor, C.E., St. Nicholas Chambers, Newcastle-on-Tyne	do.
Wesleyan Church, &c., near Walsbridge	do.	S. Symons, U. of Arts Cottage, Walsbridge	do.
Alterations, &c., Police Office	Leith Corporation	G. Simpson, Architect, Town Hall, Leith	do.
Surveyor's Materials	Leith Corporation	T. C. Hughes, Town Hall, Lancaster	do.
Sewerage Works, &c., near Walsbridge	Kingswood U.D.C.	A. J. Sales, Surveyor, High-street, Kingswood	do.
Free Library, Waterford	Committee	A. E. Murray, Architect, 57, Rawson-street, Dublin	Jan. 15
Additions to Chapel, Pontre, Rhinudda, Wales	do.	W. D. Morgan, Architect, Victoria Chambers, Pentre, Glam.	do.
Cottages at Workhouse	Landrester Guardians	N. Webb & Co., Architects, Pill-in-street, Newcastle	Jan. 16
Public Lavatories, Hillyard, &c.	Ashton-under-Lyne Corporation	A. Lindley, Architect, Market-square, Ashton	do.
Erection of Four Chimneys, Three Water closets, &c.	St. George-in-the-East Guardians	R. J. Tasker, 38, John-street, Bedford-row, W.C.	Jan. 17
Bricks, near Harlow	Wigan Corporation	T. L. Hughes, Engineer, Chapel-lane, Wigan	Jan. 19
Sixty Cottages, Merthyr Tydfil	Wardlaw R.D.C.	G. W. Eggleston, Surveyor, Stanhope, Durham	do.
Additions to Baths, Smith-street	Barnet Building Club	The Architects, 34, Gresham-street, London	do.
Drainage, Kerbing, &c., First-avenue, Cowley-place, &c.	Rochdale Corporation	Engineer to the Council, Council Offices, Hendon, N.W.	do.
Additions to Asylum, Devizes	Hemm U.D.C.	C. S. Ayle, Surveyor, County Offices, Trowbridge	Jan. 20
Business Premises, &c., Spencer road	London-derry Equit. Co-op. Soc. Ltd.	The Secretary, 90, Strand-road, Londonderry	do.
Water supply Works	Street (Somerset) U.D.C.	A. P. P. Cottrell, Civil Engineer, 28, Baldwin-street, Bristol	do.
Water Supply Works, Colchester	Liverpool Corporation	The Engineer, Municipal Buildings, Liverpool	do.
Abutments, &c., Shrewsbury Station	L. & N.W. and G.W. Joint Railway	Joint Engineer, Shrewsbury Station	do.
Block of Balcony Dwellings, Linton Fields, N.E.	London County Council	Housing Section of Architect's Dept., 19, Charing Cross-road, S.W.	do.
Stables, Cart Sheds, &c.	Tottenham U.D.C.	Engineer to the Council, 712, High-road, Tottenham	do.
Making-up Lamb passage	Brentford U.D.C.	Council's Surveyor, Cluden House, Boston-road, Brentford	Jan. 21
Road Metal, &c., near Mablestone	Hillingbourne R.D.C.	H. J. Bracher, 33, East street, Mablestone	Jan. 24
Stockport Road (1st) Tunnel	Stockport Corporation	J. Atkinson, Civil Engineer, Stockport	Jan. 27
Making-up Streets	West Ham Council	Borough Engineer, Town Hall, West Ham, E.	Jan. 28
Supply of Articles and Execution of Works	Chelsea Borough Council	Borough Surveyor	Jan. 29
Erection of Ten Cottages	R.D.C. of Gledstone	Alfred Williams & Son, 14, Victoria-street, S.W.	Jan. 30
Eighty-five Houses, East Dulwich	Birmingham Corporation	J. Mansergh & Son, 5, Victoria-street, S.W.	Feb. 4
Four Guard Buildings, Isle of Wight	Canterbury Borough Council	Superintending Engineer, Town Hall, Canterbury	Feb. 6
Works at Road Working	The Director of Works	Superintending Engineer, Portsmouth Dockyard	Feb. 10
St. Mary's, Batley	Middlesex County Council	County Engineer, Middlesex Guildhall, Westminster	No date
Remodelling the Museum, Armes Inn, Whitby, &c.	Co-operative Society, Ltd.	H. B. Burdick, Architect, 85, Commercial-street, Batley	do.
Conversion of Villas into Shops, &c., Clacton-on-Sea	Messrs. W. Hancock & Co., Ltd.	Feather & Wilson, Architects, Queen-street, Cardiff	do.
	W. Dooney, Ltd.	G. Gardner, Architect, 5, Marine Parade, Clacton-on-Sea	do.
PUBLIC APPOINTMENTS.			
Nature of Appointment.	By whom Required.	Salary.	Application to be in
*Assistant (Borough Engineers' Department)	Southampton Corporation	100l.	Jan. 12
*Clerk of Works	Southampton-on-Sea School Board	3d. weekly	Jan. 14
*Architectural Assistant	Kingston-upon-Hull School Board	100l.	Jan. 19
*Clerk of Works	Woolwich Borough Council	It. is per week	Jan. 20
*Assistant (Mechanical Section) (Met. Engineers' Dept.)	London County Council	100l.	Feb. 2
Those marked with an asterisk (*) are advertised in this Number.			
Competitions, iv.		Contracts, pp. iv. vi. viii. x. & xxi.	
Public Appointments, xviii. & xix.			

Those marked with an asterisk (\*) are advertised in this Number.

Competitions, iv.

Contracts, pp. iv. vi. viii. x. &amp; xlii.

Public Appointments, xviii. &amp; xlix.

## PRICES CURRENT (Continued).

BRICKS, &c.	
£ s. d.	
Best Glazed Salt	
Double Stretches and Headers	12 0 0 per 1,000 at rail-way depot.
Quoins, Bullnose, and Flats	14 0 0 " " " "
Double Stretches	15 0 0 " " " "
Double Headers	16 0 0 " " " "
One Side and Two Ends	15 0 0 " " " "
Two Sides and one End	15 0 0 " " " "
Plays, Chamfered, Squints	14 0 0 " " " "
Second Quality Whitehead Dipped Salt Glazed	2 0 0 " less than best.
Thames and Pit Sand	7 0 per yard, delivered.
Thames Ballast	6 0 " " " "
Best Portland Cement	30 0 per ton, delivered.
Best Ground Blue Lias Lime	21 0 " " " "

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.  
 Grey Stone Lime ..... 12s. 6d. per yard, delivered.  
 Stourbridge Fire-clay in sacks 27s. 6d. per ton at rly. dpt.

## PRICES CURRENT (Continued).

STONE.	
s. d.	
Ancaster in blocks	11 per ft. cube, deld. rly. dpt.
Each	7 " " " "
Farleigh Down Bath	1 8 " " " "
Beer in blocks	1 10 " " " "
Grinshill	1 10 " " " "
Low Portland in blocks	2 " " " "
Darley Dale in blocks	2 4 " " " "
Red Corsehill	2 5 " " " "
Closeburn Red Freestone	2 0 " " " "
Red Mansfield	2 4 " " " "
YORK STONE—Robin Hood Quality.	
Scrapped random blocks	2 10 " " " "
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 3 per foot super.
6 in. Rubbed two sides ditto, ditto	2 6 " " " "
3 in. Sawn two sides slabs (random sizes)	0 11 " " " "
2 in. to 24 in. Sawn one side slabs (random sizes)	0 7 1/2 " " " "
24 in. to 2 in. ditto, ditto	0 6 " " " "

## PRICES CURRENT (Continued).

STONE.	
s. d.	
Best HARD YORK	
Scrapped random blocks	3 0 per ft. cube dld. rly. dpt.
6 in. sawn two sides landings to sizes (under 40 ft. sup.)	2 8 per ft. super.
6 in. Rubbed two sides ditto	" " " "
3 in. sawn two sides slabs (random sizes)	1 2 " " " "
2 in. self-faced random flags	0 5 " " " "
Hoppon Wood (Hard Bed) in blocks	2 3 per ft. cube, deld. rly. dpt.
" " " " 6 in. sawn both sides landings	2 7 per ft. super. deld. rly. dpt.
" " " " 3 in. ditto	1 2 " " " "
SLATES.	
£ s. d.	
20 x 12 best blue Bangor	13 2 6 per 1000 of 1200 at rly. dpt.
20 x 12 " " " "	13 17 6 " " " "
20 x 12 best seconds	12 15 0 " " " "
20 x 12 " " " "	12 10 0 " " " "
16 x 8 best	7 0 0 " " " "



## PRICES CURRENT (Continued).

## SLATES.

in. in.	do.	£ s. d.
20x10 best blue Portma-	12	5 0 per 1,000 of 1,200 at rly. dep't.
26x8 best blue Portma-do	0	0 " "
20x10 best Eureka un-	15	0 " "
fading green	15	0 " "
20x12 " "	16	0 " "
18x10 " "	11	0 " "
16x8 " "	8	6 " "
20x10 permanent green	10	0 " "
18x10 " "	9	0 " "
16x8 " "	6	5 0 " "

## TILES.

Best plain red roofing tiles.	£ s. d.
Hip and valley tiles	3 7 per doz. " "
Best Broseley tiles	50 0 per 1,000 " "
Do. Ornamental Tiles	52 6 " "
Hip and valley tiles	4 0 per doz. " "
Best Rusbon Red, brown or	
brindled Do. (Edwards)	57 6 per 1,000 " "
Do. Ornamental Do.	60 0 " "
Hip tiles	4 0 per doz. " "
Valley tiles	3 0 " "
Best Red or Mottled Staf-	
fordshire Do. (Peakes)	51 0 per 1,000 " "
Do. Ornamental Do.	54 0 " "
Hip tiles	4 1 per doz. " "
Valley tiles	3 8 " "
Best Rosemary brand	
plain tiles	48 0 per 1,000 " "
Do. Ornamental Do.	50 0 " "
Hip tiles	4 0 per doz. " "
Valley tiles	3 8 " "

## WOOD.

## BUILDING WOOD.—YELLOW.

Deals: best 3 in. by 12 in. and 4 in.	£ s. d.	£ s. d.
by 9 in. and 12 in.	15 0	10 0
Do. best 3 by 9 in.	14 0	15 0
Battens: best 2 1/2 in. by 7 in. and 8 in.	11 0	0
and 3 in. by 7 in. and 8 in.	10 0	0
Battens: best 2 1/2 by 6 and 3 by 6	10 0	0
Do. 7 in. and 8 in.	10 0	0
Do. 7 in. and 8 in.	10 0	0
Battens: seconds	10 0	0
Battens: seconds	10 0	0
2 in. by 4 in. and 2 in. by 6 in.	9 0	0
2 in. by 4 in. and 2 in. by 5 in.	8 0	0
Foreign Sawm Boards	10 0	0
2 in. and 1 1/2 in. by 7 in.	10 0	0
3 in.	10 0	0
Fir timber: Best middling Danzig	4 10	0
or Memel (average specification)	4 5	0
Seconds	4 5	0
Small timber (8 in. to 12 in.)	3 12	6
Small timber (6 in. to 8 in.)	3 0	0
Swedish balks	2 15	0
Pitch-pine timber (30 ft. average)	3 5	0

## JOINERS' WOOD.

White Sea: First yellow deals,	£ s. d.	£ s. d.
3 in. by 11 in.	23 0	0
3 in. by 9 in.	21 0	0
Battens, 2 1/2 in. and 3 in. by 7 in.	17 0	0
Second yellow deals, 3 in. by 11 in.	18 0	0
" " 3 in. by 9 in.	17 0	0
Battens, 2 1/2 in. and 3 in. by 7 in.	17 0	0
Third yellow deals, 3 in. by 11 in.	15 0	0
Do. 3 in. by 9 in.	14 0	0
Battens, 2 1/2 in. and 3 in. by 7 in.	14 0	0
Petersburg: first yellow deals, 3 in.	21 0	0
by 11 in.	20 0	0
Do. 3 in. by 9 in.	19 0	0
Battens	18 0	0
Second yellow deals, 3 in. by	18 0	0
11 in.	16 0	0
Do. 3 in. by 9 in.	14 0	0
Battens	14 0	0
Third yellow deals, 3 in. by	13 0	0
11 in.	12 0	0
Do. 3 in. by 9 in.	10 0	0
Battens	10 0	0
White Sea and Petersburg:—		
First white deals, 3 in. by 11 in.	14 0	0
" " 3 in. by 9 in.	13 0	0
Battens	11 0	0
Second white deals 3 in. by 11 in.	13 0	0
" " 3 in. by 9 in.	12 0	0
" " battens	9 0	0
Pitch-pine: deals	16 0	0
Under 2 in. thick extra	10 0	0
Yellow Pine—First, regular sizes	33 0	0
Odments	22 0	0
Seconds, regular sizes	24 0	0
Yellow Pine Odments	20 0	0
Kauri Pine—Planks, per ft. cube	0 3	6
Danzig and Stettin Oak Logs	0 2	6
Large, per ft. cube	0 2	6
Small	0 2	6
Waincot Oak Logs, per ft. cube	0 5	0
Dry Waincot Oak, per ft. sup.	0 7	0
3 in. do.	0 6 1/2	0
Dry Mahogany—		
Honras, Tabasco, per ft. sup.	0 9	0
as inch	0 9	0
Selected, Figury, per ft. sup.	0 9	0
as inch	0 9	0
Dry Walnut, American, per ft. sup.	0 70	0
as inch	0 70	0
Teak, per load	16 0	0
American Whitewood Planks—		
Per ft. cube	0 4	0

Prepared Flooring—	Per square.
3 in. by 7 in. yellow, planed and	0 13 6
shot	0 17 6
3 in. by 7 in. yellow, planed and	0 14 0
matched	0 18 0
3 in. by 7 in. yellow, planed and	0 16 0
matched	0 18 0

## PRICES CURRENT (Continued).

## WOOD.

Prepared Flooring—	£ s. d.	£ s. d.
3 in. by 7 in. white, planed and	0 11 6	0 13 6
shot	0 12 0	0 14 0
3 in. by 7 in. white, planed and	0 12 0	0 14 0
matched	0 14 6	0 16 0
3 in. by 7 in. yellow, planed and	0 11 0	0 13 6
matched	0 12 0	0 14 0
3 in. by 7 in. do. do.	0 11 0	0 13 6
3 in. by 7 in. do. do.	0 10 0	0 11 6
3 in. by 7 in. do. do.	0 11 6	0 13 6
6 in. at 6d. to 9d. per square less than 7 in.		

## JOISTS, GIRDERS, &amp;c.

Common Bars.	£ s. d.	£ s. d.
Staffordshire Crown Bars, good	8 5 0	8 15 0
merchant quality	8 5 0	8 15 0
Staffordshire "Marked Bars"	10 10 0	0
Mild Steel Bars	9 0 0	9 10 0
Hoop Iron, best price	9 5 0	9 10 0
" " galvanised	16 0 0	0
And upwards, according to size and gauge.		
Ordinary sizes to 20 g.	10 0 0	0
" " 22 g.	11 0 0	0
" " 24 g.	12 0 0	0

## METALS.

Iron—	£ s. d.	£ s. d.
Common Bars.	7 15 0	8 5 0
Staffordshire Crown Bars, good	8 5 0	8 15 0
merchant quality	8 5 0	8 15 0
Staffordshire "Marked Bars"	10 10 0	0
Mild Steel Bars	9 0 0	9 10 0
Hoop Iron, best price	9 5 0	9 10 0
" " galvanised	16 0 0	0
And upwards, according to size and gauge.		
Ordinary sizes to 20 g.	10 0 0	0
" " 22 g.	11 0 0	0
" " 24 g.	12 0 0	0
Sheet Iron, Buck.	12 0 0	0
Ordinary sizes to 20 g.	10 0 0	0
" " 22 g.	11 0 0	0
" " 24 g.	12 0 0	0
Sheet Iron, Galvanised, flat, ordinary quality—		
Ordinary sizes 6 ft. by 2 ft.	12 15 0	0
3 ft. to 30 g.	13 5 0	0
" " 22 g. and 24 g.	14 5 0	0
Sheet Iron, Galvanised, flat, best quality—		
Ordinary sizes to 20 g.	16 0 0	0
" " 22 g. and 24 g.	16 10 0	0
" " 26 g.	18 0 0	0
Galvanised Corrugated Sheets—		
Ordinary sizes, 6 ft. to 8 ft. 20 g.	12 15 0	0
" " 22 g. and 24 g.	13 5 0	0
" " 26 g.	14 5 0	0
Best Soft Steel Sheets, 6 ft. by 2 ft.	12 0 0	0
" " 10 ft. by 20 g.	12 0 0	0
" " 22 g. and 24 g.	13 0 0	0
" " 26 g.	14 5 0	0
Cut nails, 3 in. to 6 in.	9 0 0	9 15 0
(Under 3 in. usual trade extras.)		

## LEAD, &amp;c.

LEAD—Sheet, English, 3 lbs. & up.	£ s. d.	£ s. d.
Pipe in coils	13 10 0	0
Soil pipe	14 0 0	0
Comp Pipe	16 10 0	0
ZINC—Sheet—		
Vieille Montagne	25 0 0	0
Silesian	24 15 0	0
COPPER—		
Strong Sheet	0 10 0	0
Thin	0 11 0	0
Copper nails	0 11 0	0
BRASS		
Strong Sheet	0 9 0	0
Thin	0 10 0	0
TIN—English Ingots	0 1 1/2	0
Solder—Plumbers	0 6 1/2	0
Tinner's	0 5 1/2	0
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W. D. & Sons (Too late; next week.)

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All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

## TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us not later than 10 a.m. on Thursdays. N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under 100, unless in some exceptional cases and for special reasons.]

\* Denotes accepted. † Denotes provisionally accepted.

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[See also next page.]



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# The Builder.

VOL. LXXXIV.—No. 3128.

JANUARY 17, 1903.

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Bird's-eye view of Whitehall Palace, as designed by Inigo Jones. . . . . *From an Old Print.*  
Illustrations to Mr. Andrew Oliver's Paper at the Architectural Association:—  
View of Charing Cross in the Eighteenth Century; The Adelphi; and old Somerset House . . . . . *From Old Prints.*

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### Underpinning the Philæ Temples.



IN a recent article on "The Nile Dams" we made some brief reference to the underpinning of the Temples on the Island of Philæ, and our readers will probably be in-

terested in the more detailed account of the work which is here presented. It will be remembered that the original height proposed for the Aswân dam by Mr. Willcocks in his designs of 1890 and 1894 would have involved the total submersion of the island. The scheme put forward by Mr. Willcocks, and approved by Sir William Garstin, was to remove the principal temple and to re-erect it upon the adjacent island of Bighé. However, when the question came before the International Commission, M. Boulé declined to have anything to do with a project that interfered with the temples in that way; Signor Torricelli stated that he should give his opinion as to the dam without taking into consideration temples, which he regarded as outside his province entirely; while Sir Benjamin Baker made the ingenious proposal that the great Temple of Isis should be hoisted up and planted on supports so as to keep it well above the high level of the reservoir. Eventually the compromise was adopted of reducing the height of the dam by some 8 metres, so that the Island of Philæ should be only partially submerged at times when the reservoir would be full.

Like most compromises, this particular one has proved to be satisfactory to neither party, but we do not propose to reopen discussion of the general subject. Even with the present height of the dam, most of the temples and other buildings on the island, excepting the great Temple of Isis, will be covered with from 2 metres to 4 metres of water when the reservoir is filled. Knowing the risks to which the buildings would consequently be exposed, the Government decided to undertake exploratory operations with the object of affording data for the preparation of a scheme for ensuring the future stability of the temples. For this purpose the services of Dr. Ball were offered by the Geological Department, and Mr. Mat Talbot, who has had unrivalled experience as a contractor's foreman, was specially engaged as an expert by Sir Benjamin Baker. Although the Temple of Isis was known to be founded on rock, and the two great pylons to be on massive foundations extending through silt down to R.L. 101.5, very little was known as to the rock depths and foundations below the other buildings on the island.

The work of exploration was commenced in April, 1901, and a special grant of £1,000\* was made by the Public Works Ministry for the execution of the necessary work. More than fifty shafts, and a number of headings and trenches, were excavated at different points selected as being likely to afford useful information, and full records were taken of all foundation exposures and rock levels. Bearing in mind the slender knowledge then existing as to the stability of the buildings, the greatest possible caution was exercised. All openings were strongly timbered, and the structures were carefully shored wherever the slightest risk of movement was anticipated. Altogether, 690 cubic metres of excavation were performed, without mishap or perceptible movement of any kind. Most of the shafts measured 1.30 m. by 1.00 m., and some of them were carried to a depth of 13 m. before bed-rock was reached. By the end of June enough information had been obtained to permit the preparation of an estimate as to the extent of the necessary underpinning works, the timbering being then removed and the excavations filled in.

The following notes represent the chief conclusions drawn as to the condition of the foundations, and we give in fig. 1 a small plan of Philæ, whereon the principal buildings are marked. The East Colonnade, between the Temples of Ar-hes-Nefar and Adelphos, has a nearly continuous masonry

foundation, about 2.5 m. wide, extending down to R.L. 100.60, but the wall behind it, carrying the eastern ends of the lintels, reaches on an average to only R.L. 101.60. Neither of these structures descend to the rock, which is encountered at R.L. 91.50 at the northern end, and R.L. 98.00 at the southern end. The soil between the base of the foundations and the rock is composed of silt from the river, the upper layers being chiefly mud, and the lower layers chiefly fine sand.

The West Colonnade, following the shore line of the island, exemplifies a different form of construction from that in the East Colonnade. From the Quay Wall counterforts 1.80 m. thick and spaced about 3 metres apart, are carried eastward and descend to a considerable depth, though probably not to bed-rock. Above these counterforts are stone beams on which the colonnade is supported. It appears that most of these beams are fractured, owing to the subsidence of the earth between the counterforts. The Temple of Nectanebo, or more correctly the Vestibule of Nectanebo, stands upon ancient foundation walls descending to the rock, but the superstructure, which was restored many centuries ago, is placed in such a manner that some portions of it are only supported on stone beams, nearly all of which are fractured. The Temple of Ar-hes-Nefar has foundations descending to R.L. 103.30, 4.30 metres above the rock foundation. The foundations of the Temple of Trajan, commonly described as Pharaoh's Bed, or the Kiosk, are carried down to R.L. 100.60, and average 4 metres in width. At the river face of the building the rock level is not above R.L. 90.00, and it nowhere rises higher than R.L. 95.10 beneath the foundations. Some old foundation walls, probably indicating an abandoned site, were found, but they do not tend to prevent settlement of the ground. The Temple of Hathor has footings which descend to R.L. 103.40, the nearest approach to rock being on the east side, where the rock is encountered at R.L. 95.70. The East building, facing the forecourt of the Temple of Isis, and the colonnade in front of the new building are based on a broad

\* £E—27, os. 6d. sterling.







EAST COLONNADE

WEST COLONNADE

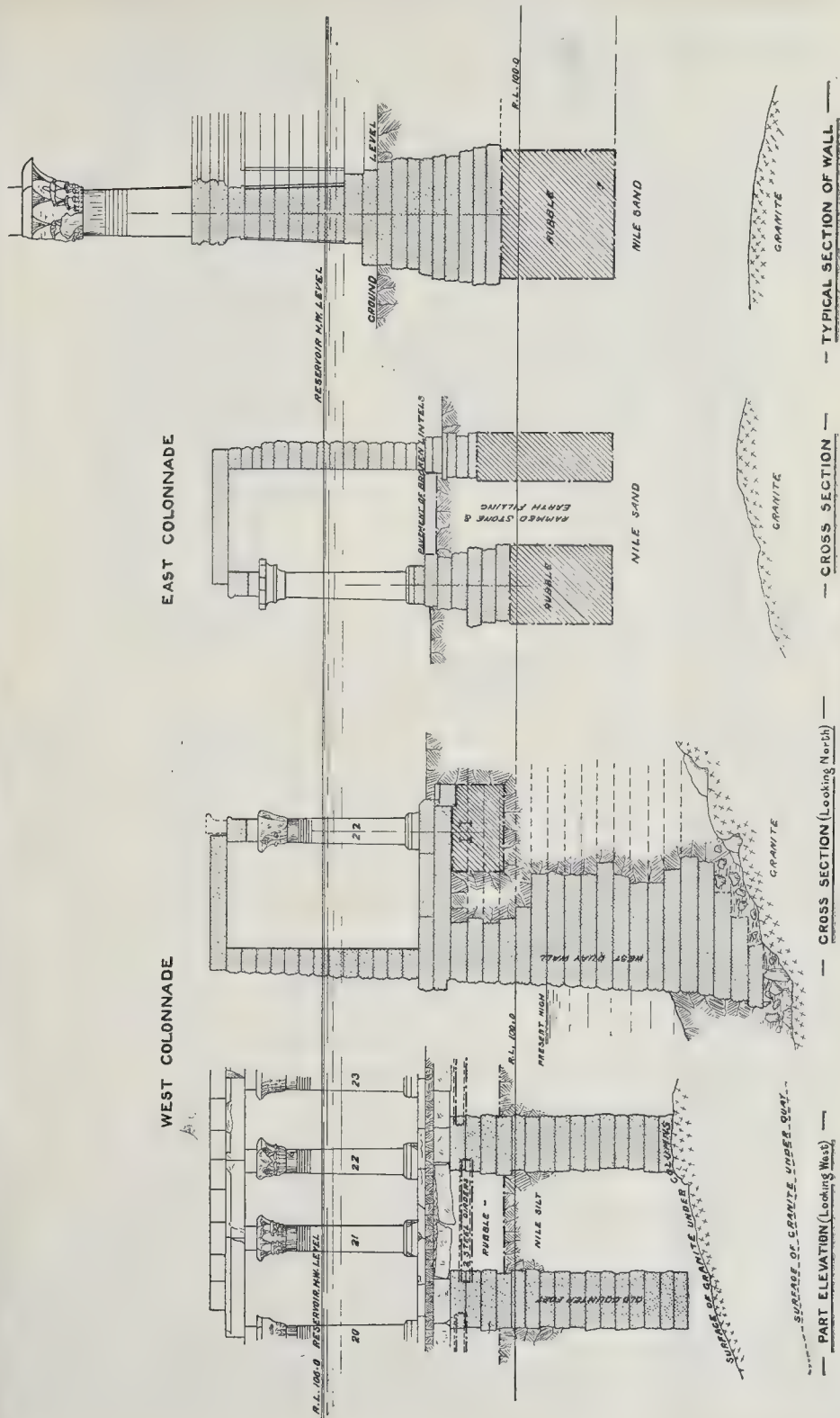


Fig. 2.—Sections of Buildings on Philae.



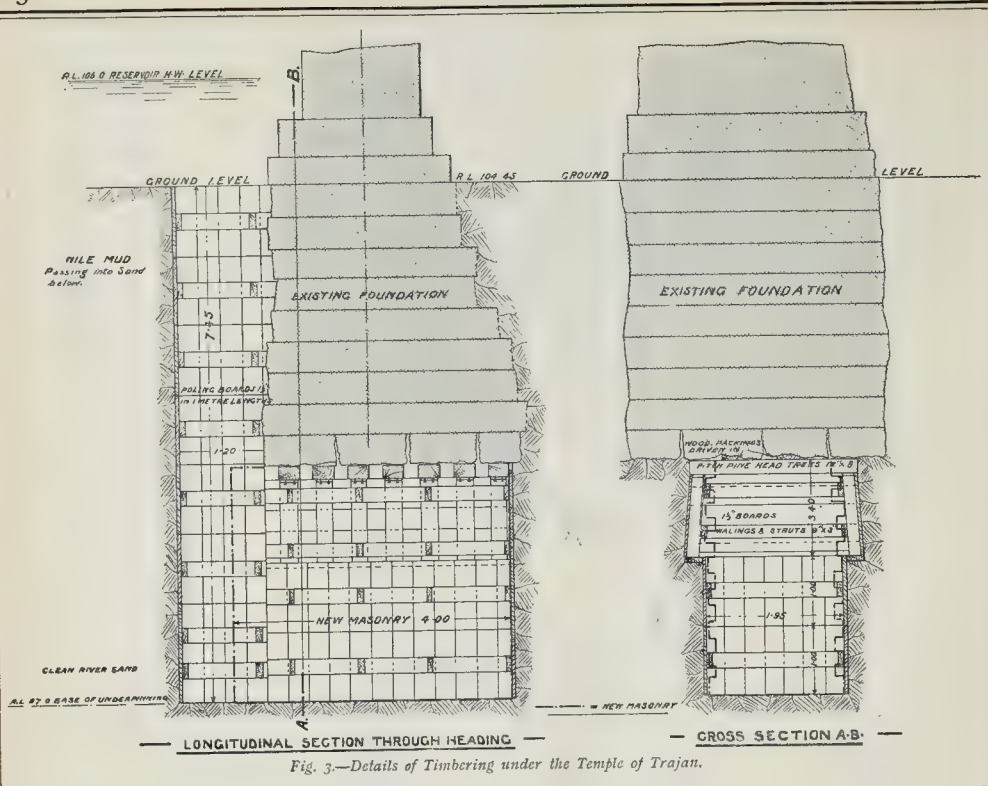


Fig. 3.—Details of Timbering under the Temple of Trajan.

continuous pavement of large stones, one course thick, at R.L. 103.30, while the rock level averages R.L. 96.00. The walls of the Mammisium are carried to a depth of R.L. 101.50, rock being found at R.L. 93.60 at the southern end, and gradually rising towards the northern end. Part of the Coptic town was cleared as an experiment, with the result that ample supplies of sandstone were found, chiefly in roughly-squared blocks, suitable for the underpinning works contemplated.

After the completion of the investigation mentioned, a complete set of drawings of the various buildings was prepared from the measurements and records, and was submitted to Sir Benjamin Baker with a request for his opinion as to the best course for adoption. When his views were made known, an estimate was prepared showing the probable cost of the works proposed, and a sum of £E.22,000 was granted for their execution by the Caisse de la Dette Publique. The following is a statement of the underpinning works first suggested:—

1. To underpin the East Colonnade, and the wall behind, with rubble masonry down to R.L. 97.00, the present saturation level.
2. To underpin the West Colonnade and the Temple of Nectanebo with rolled steel girders, 14 in. by 6 in., weighing 54 lbs. per foot, surrounded by rubble masonry, well grouted to resist access of water to the steel. The girders were to rest in seats cut in the existing counterforts, and to be placed in pairs below the fractured stone beams.

To underpin the Temple of Trajan

to R.L. 97.00 with rubble masonry 4 mètres wide.

In addition to these works, it was decided that any other underpinning or supplementary work should be undertaken, as might be found desirable or necessary to ensure the success of the general scheme. Conformably with this decision, the following were also undertaken:—

4. To underpin the east building and colonnade facing the forecourt of the Temple of Isis, down to R.L. 97.00.
5. To underpin the Temple of Hathor to R.L. 97.00.
6. To strengthen the foundations of the Gateway of Hadrian by suitable underpinning.
7. To similarly strengthen the foundations of the Gateway of Adelpheos.
8. To clear the whole of the Coptic town.
9. To carry out certain drainage works and to repair the revetments of terraces.

From the particulars already given, it will be gathered that the foundations were largely upon loose silt and fine sand, saturated to different heights according to the season of the year and the plenitude of the Nile flood. As the higher water level consequent upon the completion of the reservoir would necessarily saturate the previously dry soil, further settlements would inevitably follow, causing injury to the ruined buildings. The principle underlying the scheme adopted was that further subsidence of earth and sand need not be feared below the original saturation level, and that the safety of the buildings would be secured by carrying their foundations down in sufficient breadth to that level. By

referring to the rock levels ascertained during the exploratory work, it will be seen that in no case was it proposed to carry down the foundations to the bed rock.

Early in November, 1901, operations were commenced by Dr. Ball, who then had the assistance of Mr. Mat Talbot and his two sons from England, and of Mr. Roberts, Masonry Inspector from the Aswân Dam. By the end of the year the West Colonnade was completed, and considerable progress was made with the East Colonnade and the Temple of Trajan. In the first of these three buildings, the West Colonnade, openings were made along the east face, outside the colonnade proper, in widths corresponding with the spacing of the old counterforts. A part elevation is given of this colonnade in fig. 2, showing four of the thirty-one existing columns and two of the old counterforts, one resting on granite and the other on silt. One of the fractured stone beams is also indicated in the figure. The cross-section of the same structure shows the west quay wall and the final position of the steel joists surrounded by new masonry (cross-hatched in the figure), which in this, and the other underpinning works, is set in cement mortar in the proportion of three parts cement to one part of sand. This treatment, as may readily be gathered, affords admirable support for the stone beams under the columns, for the steel girders and new masonry are carried by the old counterforts, which are of ample stability. In the case of the East Colonnade, the shafts were sunk between the row of sixteen columns and the wall behind, headings being driven both ways



from the central excavation. In our issue of September 20, 1902, a photographic view was reproduced of the main excavation in the East Colonnade, and we now give a cross section showing the new masonry carried down, as indicated by cross-hatching, to the old saturation level. In fig. 2 will be found a typical wall section at the Temple of Trajan, where new work is shown as before, and fig. 3 includes longitudinal and transverse sections showing typical details of the timbering in shafts and headings. The two latter drawings represent an initial opening, and it should be noted that in the succeeding lateral openings the timber supports on one side were replaced by the new masonry, while the end boards seen in the longitudinal section were not removed when the masonry was built. In this building the whole of the openings were made from the interior. The Mammiæum, on the contrary, was opened entirely from the outside, so as to avoid the necessity for breaking the floor. With the exception of the East and West Colonnades, underpinning was done in lengths of from 150 metres to 200 metres, being carried on simultaneously from a number of points. The remains of the ancient Coptic town, consisting chiefly of unsightly mud-brick dwellings, have been removed, and the worked stone they contained was utilised as far as necessary for underpinning operations. Both of the Coptic churches, and a few of the more interesting houses have been preserved intact, and all stones having hieroglyphic or other inscriptions were put aside for the Antiquities Department.

About 330 men were engaged upon the works, of whom 300 were native excavators and labourers. The remaining thirty included twenty-six Italian timbermen and masons and four English Inspectors. Sir W. E. Garstin says that the energies of the last-named were severely taxed owing to the necessity for very careful supervision in view of the special and somewhat dangerous nature of the work. Of Mr. Talbot, Sir Benjamin Baker says: "There were few men to whom I would have entrusted the task, but amongst those was Mat Talbot—one of the well-known Talbots who have done such splendid service as non-commissioned officers in the army of workmen employed by contractors during the past forty years; and well has he justified his reputation at home, where his last job was the most difficult part of the Central London Railway." Sir W. E. Garstin has also recorded that exceptionally useful assistance was rendered by Mr. Mat Talbot, adding that it was largely due to his sound judgment in matters of timbering that the works were carried out without a single accident or movement of the buildings. Mr. Fitzmaurice, the present engineer to the London County Council, was in chief command of the exploratory works, of the preparation of estimates, and of the commencement of the underpinning. Dr. Ball was in actual charge at Philæ, and to him much credit is due for the admirable records and drawings made of the works, as well as for the supervision and payment of the workmen. His services have been highly appreciated by the authorities, and it was clearly an advantage that a man of his knowledge and experience was available for the exceptional task to be performed. The drawings which we publish show the old high Nile level—lettered "Present high Nile"—and

also the high-water level of the new Reservoir. The latter indicates the height to which the buildings will be submerged when the reservoir is full, or accepting the term with a double signification, during "flood time." At such periods there will be little inducement for the tourist to visit the island, and it may perhaps be feared that it will not be particularly pleasant to land there when the waters of the Nile have retreated to a lower level. As a matter of fact, however, the turbid flood water will pass freely through the Dam, and the gates will not be closed until the water has become clear. Sir W. Willcocks believes that the "Philæ Temple, dedicated to Venus, will, like Venus herself, rise annually out of the water, renovated and refreshed by her temporary immersion." Lovers of old buildings will certainly hope for the fulfilment of this prophetic utterance.

#### THE ARTS AND CRAFTS EXHIBITION.



THE exhibition of the Arts and Crafts Society at the New Gallery is one of the most varied and one of the fullest which the Society has held. It is, however, still pervaded by a certain spirit of eccentricity, especially in furniture design, which has characterised these exhibitions from the first, and which gives one the impression that with some of the contributors the idea of art is associated with the idea of differing from everything that is ordinarily made, and of repudiating finish of style and grace of line as attributes of Philistinism. In fact, the exhibition is not so much an illustration of what can be done to give beauty to articles of ordinary use, as an expression of the tastes of a certain sect of art workers, whose enthusiasm and talent may be admitted, but whose artistic sympathies seem rather restricted.

There has been a reaction against the falsity and pretentiousness of furniture of the Victorian era which has not unnaturally led to the opposite extreme—to a kind of pretentiousness of acted simplicity and straight-linedness, if one may coin a word. This reaction was wholesome in itself, but it is time that its extremes were moderated, and that artists in furniture should endeavour to show us that really artistic spirit and design may be quite compatible with high finish and even with elegance. We have surely had enough of seeing a thing looking like a common kitchen chair labelled "dining-room chair," and an erection suggesting a kitchen dresser offered as a side-board. Whatever the virtues of "truth" and "simplicity," this is not the kind of furniture really suitable for the homes of a highly civilised generation, nor is it necessarily the more artistic in virtue of its (in every sense) unpolished appearance. These things are better, no doubt, than the commonplaces of the former state, but they are in great danger of becoming commonplaces themselves, and that this kind of naïveté is not necessary to render objects really artistic is shown by a trading firm who are among the exhibitors—Messrs. Heal & Son, whose suite of bedroom furniture, designed by Mr. Ambrose Heal, jun., in silver-grain wood inlaid with pewter and blue wood, is among the most really artistic work in the galleries, and is delicate and refined enough in character and finish to stand anywhere. This

is the furniture of a gentleman's house; a good deal else of what is exhibited is what we should call cottage furniture, and what most unsophisticated people would imagine to be so intended.

The piano is rather maltreated in this exhibition. Standing on the floor of the Central Hall is an object which, if we had not already seen it elsewhere, we should have taken for a large wooden cistern on bearers. This is the grand piano designed by Mr. Ashbee for Messrs. Broadwood; an immense square mass, rounded at the angles with coarse-looking metal hinges and other work; really about as ugly and unwieldy an object, and as little suggesting a musical instrument, as could well be. It is impractical too, for the method of opening, with swing-doors opening as folding-doors, is inconvenient and likely to be annoying to the player. The old-fashioned folding-back lid, which disappears and leaves the keyboard quite open and unimpeded, is ever so much better in a practical sense. The supports are well designed—that is the best part of it; and there are some pretty decorative paintings on the front and the inside of the lid; but as for the general appearance, we would rather have the old stereotyped form of grand piano (decanter-stopper legs and all) as an inmate of a drawing-room; for its general form at least was characteristic and more graceful than this immense square box. An upright piano designed by Mr. Voysey for Messrs. Collard has a pretty feature in the heart-shaped sound openings in the front, but otherwise there is too much of acted simplicity about this too, and the legs, which are prolonged upward into candle shelves or holders, are far too thin and meagre in proportion; a piano is a heavy thing for its size, and as it has to be moved sometimes, it should look as if it were massive enough to bear moving without straining the structure. It may be doubted whether the carrying up of the legs as candle-holders—a little dodge invented we believe by the author of this design—provides the best position of the candles for lighting the page, and they would be very much in the way when it is necessary for any one to turn over for the player. Artistic designs for pianos too often ignore the practical conditions of using the instrument, and our impression is that they are generally made for people who are not musical, and who only want a piano as an ornament.

We cannot feel much more pleased with the oak pulpit designed by Mr. H. Wilson and carved by Messrs. Trask, which stands next to the grand piano aforesaid. The carving being all concentrated on a bulged-out section of the front gives it the look of being hung on, and the zigzag bounding lines are disturbing to the eye. Messrs. Liberty's large oak sideboard, behind these (designed by Mr. Leonard Wyburd), has good lines about it, and is admirably executed; but there is a little bit of scenic effect about it which is not quite satisfactory; the ends, with their broad top surface, are made so as to convey the impression (or do convey it) of being solid slabs of sublime proportions; the real construction, which is much less monumental, is concealed in the cupboard, the door of one of which we had the sinful curiosity to open, so as to inspect behind the scenes. However, this is a fine piece of work in the main. Two large examples of metal chimney-pieces are exhibited, one of which,



No. 472, is not sufficiently metallic in character, and is more like the ordinary sections and proportions of a masonic chimney-piece done into metal, the whole being of course in reality a mere sheet of metal with supports in the rear. The other one, No. 482, by the same designer (Mr. W. Bainbridge Reynolds), is more metallic in character, especially in the decorative details. The object of using this material for a chimney-piece is of course the effect of lustre of the metal; but for a chimney-piece on a large scale it can never be so satisfactory as stone or marble, from its unavoidably superficial constructive character.

Among the other large works in the Central Hall are the pair of church doors sheathed with plates of embossed copper (shown in an imitative plaster cast), by Mr. L. B. Rathbone; against which we must protest for its naturalistic treatment of wriggles of metal foliage, or rather branches. This kind of treatment is contrary to all the best tradition and practice of decorative art, and is exactly the kind of thing that an Arts and Crafts society should practically protest against; yet we do not believe we have ever gone to any one of these exhibitions without coming across specimens of this kind of metal vegetation. High up on the wall, near to these, hangs a design which we can admire without reservation—Mr. Heywood Sumner's coloured cartoon for the west wheel window for All Saints, Enismoregardens, to be executed in "Prior's Glass." This is a real stained glass design, just what the material is fitted for and what no other material would show so well; and when executed in Mr. Prior's thick and richly-textured glass it will be an exceptionally fine work of its class. A model of a figure and accessories for the frieze of the new Gaiety Restaurant, by Mr. Hibbert Binney, with small photographs of other figures, shows a good example of the introduction of decorative architectural sculpture. Among the smaller works in the Central Hall are two which we particularly admire. One is Mr. J. C. Powell's memorial tablet for the English church of San Paulo, Brazil; a bronze medallion of the late Queen is framed in an alabaster square-moulded frame, relieved on a grey marble slab which is shaped into a graceful outline and the whole finally bounded by an alabaster setting. The effect is very refined and decorative. The work was executed by Messrs. H. A. Pegram, T. Day, and A. Taylor. Another thing worth special attention is Miss Florence Steele's plaster model for a silver salver, with modelled ornament on the rim, divided by small panels in each of which is a small nude figure in an attitude arranged to occupy the shape of the panel. This is a charming production—a real work of art.

Most of the larger works in furniture, other than those already mentioned, are arranged in the North Gallery, where they are grouped according to "recesses," which are numbered, and the separate articles in each recess distinguished by letters. This is a good way of simplifying the catalogue, though it has not been carried out quite without oversights, and it is not always easy to identify an article with the reference to it in the catalogue. This kind of exhibition, however, is a peculiarly difficult one to catalogue, where there are such multifarious articles which have to be placed about on the floors; not like pictures which can be

hung on the wall in a regular order. We can only mention a few of the more important articles of furniture in the present notice, which is necessarily hurried, as the gallery was only open to the Press on Wednesday. We have already referred to Messrs. Heal & Son's admirable exhibit. In recess No. 2 is a fine tile panel designed by Mr. Lewis Day and produced by the Pilkington Tile and Pottery Co.; dark green tiles with a floral design with crimson flowers. Some tiles in coloured glazes, painted by Mr. Laurence Hall, are also very good both in colour and in their conventional foliage design, and form a pleasing change from the usual style of tile pattern. In recess No. 3 an oak dresser, designed by Mr. Chas. Spooner, is very suitable for its purpose, and shows a good practical treatment of the wooden handles. The same designer's oak writing-table, inlaid with pearl, is, like a good many other articles of furniture, too square and stiff in line. The three-light candlesticks on the dresser, by Mr. Harold Stabler, are good. In recess No. 4 Mr. Longden exhibits a large mantel and fireplace designed by Mr. G. Jack, and two small cast-iron grates and mantels, both excellent as cast-iron work, designed respectively by Mr. Voysey and Mr. Fletcher. In recess No. 6 is a serviceable oak chest of drawers by Mr. Barnsley with handles that will not come off, and by the same designer a cabinet of English walnut inlaid with pearl, which is very nice and refined. Excellent copper vessels are to be seen in recess 7, by Mr. T. Burford; and near these (there is some confusion in the catalogue here—recess 8 seems to have dropped out) is a nice little oak sideboard with a semi-octagon top diversified with lines of inlay, designed by Mr. Curtis Green and made by Mr. Romney Green; a sideboard in rather a novel form, but suitable for the cottage rather than the mansion—perhaps intentionally so. At the top of the room is a large and well-designed sideboard in English oak by Mr. E. W. Gimson, with an open-work lattice at the top and some very effective and well-considered ornament in other portions; an excellent piece of design and execution. But we cannot regard this untreated white oak as suitable for dining-room furniture; it has too crude and raw an appearance. The bay window and Italian walnut cabinet exhibited in recess 11, and credited to Mr. W. A. S. Benson, ought to have been better, at least as regards the metal-work, the design of which we think distinctly bad, and feel surprise at seeing it under Mr. Benson's name. Among other objects in the remaining recesses we notice a good and original chimney piece and tiles by Messrs. Pilkington & Co.; a writing-table by Mr. W. H. Tingey, which looks like a miniature four-post bed—what is the sense of the four posts; are they to put four candles on? They would give a better light on the table, and be less liable to be overturned. A cabinet by the Guild of Handicraft, in ebony and holly-wood, we have seen before in Bond-street, and appreciated as good and original. In the centre of the room is a very good hall table by Messrs. Heal & Son (designed by Mr. Ambrose Heal), twelve-sided on the top and octagonal in respect of the arrangement of its supports, the whole being a cunning piece of design and workmanship. We must not quit furniture without referring to the admirable drawing-room cabinet (9) which stands

apart in the West Gallery, exhibited by Morris & Son and designed by Mr. G. Jack. This is Italian walnut, inlaid with holly, satin-wood, and rosewood. The conventional scroll inlay in the upper doors is exceedingly fine. We should have preferred, in regard to the general design, that the curve on plan of the upper portion should have been continued to the floor. In the same gallery the china-cabinet of Mr. Barnsley and Mr. Gimson (102) is a pretty and characteristic piece of work.

We shall return to the exhibition in another article.

#### NOTES.

THE Blue Book issued this month by the Select Committee of the House of Commons

which has sat to consider the advisability of some amendment in the Standing Orders of the House relating to private business will be studied with interest by promoters of private undertakings; but the recommendation which will strike members of the public as one of the greatest importance is that "steps should be taken to secure more uniformity in the decision of the Committees on opposed Bills." We are not in a position to state how far the other recommendations of the Committee are likely to further this object, but at a time when so many undertakings which vitally affect the interests of the general public are subjected to the decision of the various Committees, it seems an end much to be desired, and yet, owing to the constitution of the Committees, as difficult of attainment as absolute uniformity in the decisions of the Courts having summary jurisdiction. Fixed principles are somewhat difficult to trace in some of the recent decisions of the Committees, and examples of much inconsistency might be cited by reference to many recent Bills either passed or thrown out. For instance, in the case of the recent amalgamation of the South-Eastern and Chatham Railway Companies, a vast monopoly over the county which not only supplies London with much of its vegetables and fruit, but through which nearly the whole Continental traffic and supplies must pass, was granted to a company proverbial for its incapacity to deal with its traffic in a liberal spirit or on comparatively modern principles, and the Bill was passed in the face of considerable and influential opposition, apparently only in the interest of the shareholders of the two undertakings. Yet, in some of the recent underground Railway Bills opposition and competition were favoured, when to the general public it would appear that an extension of the powers of existing companies could only favour through traffic being more efficiently secured. Owing to the constitution of the Committees, and to the manner the questions are brought before them, the interests of the public being less clearly brought out than the interests of the rival undertakings, their task is a difficult one, and uniformity of principle seems hopeless; but it is gratifying to see that the House of Commons is alive to the deficiencies in the system, and anxious to effect some reform.

The Improvement of Highways. The discussion which has for some time past been taking place in regard to the improvement of roads near London will, we expect, produce no result without some legis- .on.



To make a trunk road from London in any direction for a distance of 20 miles is impossible until the law obliges the Highway Districts through which such a road would pass to undertake it together and systematically. Apart, however, from any new system of trunk roads, much might be done to improve the present condition of the highways near London if the County and District Councils would bear in mind that where roads are of insufficient width they should and can be widened as a matter of course if the traffic demands it. Highway Authorities, however, consider at the present time that their duty is only to repair roads as they exist now, whereas it is obvious that, from every point of view, where a road is too narrow for present traffic, the Highway Authorities should widen it. Nothing is more wasteful than to keep placing metal year after year on a road which is so narrow that its surface is continually broken up, and money would be saved by widening which is now practically wasted. Here again, however, we doubt whether the Highway Authorities would be inclined to widen the roads systematically until their duty in this respect is clearly stated in a new Act of Parliament.

In our Note last week on Municipal Trading we drew attention to the opinion expressed by the Hon. Vicary Gibbs that the schemes of municipalities for the better housing of the poor had not only not proved successful in themselves, but had had a deterrent effect on private or charitable enterprise in the same direction. In connexion with this subject we would draw attention to the facts disclosed in a speech of the Bishop of London at Bournemouth on the 12th inst. In Stepney the condition of affairs appears to be that the population in the past ten years has increased by 13,000, yet the number of houses has decreased by 2,000. His Lordship further states that each year he finds the population in his diocese to increase by some 40,000, the housing of this population being likened by the Bishop to the packing of sardines into a tin (the advantage, however, rather tending in favour of the sardines); and each year what has been deemed the last resort of the outcast is found to have an overflow even in a worse condition than itself. In the same issue of the newspaper in which this speech is reported, we read a report of a meeting of the Municipal Officers' Association agitating for a Superannuation Bill. It seems fairly obvious that Corporations, with their expensive machinery, highly-paid servants, and new life and routine similar to government, must be incapable of entering the arena to deal with the state of affairs and the requirements of such a population as that described by the Bishop, but it behoves them very carefully to consider how far the restrictions they enforce in the case of new buildings are not drawn with reference to too high a standard, and in consequence how far, instead of accomplishing the object they are put in force to attain, viz., the better housing of the community at large, they only tend to create a slough of despond out of which, owing to the minimum standard of buildings allowed, it is impossible for private or charitable enterprise to rescue the poorest of the people.

#### The Notification of Accidents.

THE Report of the Departmental Committee upon the system of notification of industrial accidents is interesting in itself, but is also an object-lesson of the difficulty of attaining any counsel of perfection in legislation which is directed, as so many of the recent statutes are directed, to lessen individual responsibility and to foster the responsibility of the State. Thus under the Mines Act, the Committee find too much to be left to the discretion of the employer, only fatal accidents and accidents (apart from those specified as due to certain special causes) causing serious personal injury require reporting, and in regard to what constitutes "serious personal injury" the Committee find that too much latitude is allowed to the mine-owner. Under the more modern Factory Act, however, the Committee finds that the Legislature has erred in the other direction, and the necessity imposed for reporting accidents leads to an embarrassing number of trivial matters being reported. The Committee proceed to recommend that in the case of mines and quarries, disablement for a fortnight should be the test of what constitutes a "serious" accident, and in the case of factories and railways, absence from work for more than a fortnight. We presume "disablement" and "absence from work" are taken to include the same cases, but in legislating on the subject it would seem wise to combine the two, and to specify "absence from work caused by disablement." The Committee suggests certain amendments in the specified causes in each undertaking, and the Report humorously observes that the main duty of factory inspectors is not to count accidents but to prevent them.

#### Boiler Explosions.

DURING this severe weather it may be of service to draw attention to the explosions of heating-apparatus boilers, mentioned in a recently issued Report to the Board of Trade, for the year ending June 30, 1902. Only four boilers of this kind are mentioned in the Report, and the details are particularly instructive at this season. The first explosion occurred on November 17, 1901, at a school at East Finchley, belonging to the Finchley School Board; the boiler was of the tubular type, eighteen years old, and it failed through excessive pressure, consequent on the presence of ice in some part of the circuit. On December 7, 1901, a boiler of similar type, twenty-one years old, used for heating a chapel at Barnoldswick, failed in consequence of defective welding. At Earlstown Wesleyan Chapel, on February 13, 1902, another tubular boiler exploded in consequence of excessive pressure, the pipes being choked with ice; this boiler was only four years old. Two days later, the top of a saddle boiler at the Philiphaugh Congregational Church, Selkirk, was blown off, the pipes in this case also being blocked with ice; the boiler was five years old. Three out of the four explosions were caused by frost. Fortunately no lives were lost, and only one person was injured, but explosions are not always so considerate to life and limb, and a word of warning may be of service in preventing more serious results during this winter. Safety-valves ought to be fitted to every apparatus, and attendants ought to exercise particular care

in frosty weather. It is a good plan to keep the fires burning throughout the week, even in the case of buildings used only on Sundays.

#### Electrical Design.

THE papers on "Recent Electrical Design," by Mr. Esson, and on "Dynamos and Alternators," by Mr. Scott, which were read in abstract to the Institution of Electrical Engineers last week will be of the greatest value to manufacturers. Both papers were very thoughtful; and covering, as they do, a vast field, they provide plenty of debatable topics for their discussion, which will begin next week. We were glad that both authors fully recognise the importance of the shape of the wave of electromotive force of an alternator. Mr. Esson stated that he had found considerable differences in the efficiency of an alternating current motor when tested at the works and when tested on the mains of a supply company. The humorous side of this remark struck the meeting, but it is undoubtedly true that you can get considerable differences in the efficiency of motors depending on the shape of the wave of electromotive force given by the mains. We noticed this fact six or seven years ago but it is only lately that we have been able to demonstrate it completely by aid of the curves given by the oscillograph. Mr. Scott discusses various details in connexion with dynamo manufacture. He points out that beauty of form and finish in dynamos are now of considerable importance from the commercial point of view. At recent exhibitions many machines, otherwise well designed, failed to attract attention owing to their clumsy appearance and want of finish. Now that cast steel is almost universally used for field magnets it is easy to give a certain amount of artistic finish to a machine. We were interested to hear that pure linseed oil was becoming popular for insulating purposes. Although it has not very great insulation resistance, yet when properly oxidised it is very trustworthy. It is well known that one of the drawbacks to using shellac varnish on the cotton covering of wires is that it makes it brittle. When, however, they are varnished with pure linseed oil the cotton remains perfectly flexible. Mr. Scott approves of well-made shrink-ring jointed cast-steel flywheels being run at a peripheral speed of 7,000 ft. per minute. This may be all right from the contractor's point of view, but our sympathies are with the engineers who have often to cross the line of fire of these wheels in their day's work.

HYÈRES was the first of the towns on the French Riviera to become the resort of those

who desired to enjoy the sunshine of Southern France. It has now been left somewhat behind by the towns to the east, and, though it is the nearest of all the Riviera towns to London, it does not hold its own. The Municipality have, therefore, almost completed the construction of a large Casino, which will probably be opened in the course of the present month. Architecturally it is of no importance, and it may be doubted whether it will increase the popularity of the place sufficiently to repay the outlay. Hyères could be made more agreeable were its streets better cleaned and the roadways kept in better



order. Its streets have high-sounding names, such as the Avenue Gambetta, but they contain buildings which are often mere shanties. Modern Hyères, it must be admitted, is not an agreeable town, and far inferior—in spite of its palaces—to Cannes, Nice, and Mentone. The old town, clustered round the church on the hillside, is preferable to the modern buildings below it. We fear that, excellent as is its climate, Hyères, off the main line of railway, will not recover its popularity merely by the building of a new Casino.

We give on another page a few particulars as to the history of the Westminster Aquarium, which has just been closed preparatory to its demolition, as it was an institution which had attracted, deservedly or not, a good deal of public attention. We must add, however, that we regard its impending extinction with the greatest satisfaction. In our opinion, it was an absolute discredit to the government of London that such a building should have been allowed to be erected contiguous to and immediately opposite the west front of the Abbey. Its architecture was of the most ordinary and commonplace character, and the institution, with whatever aims it might have been started, soon subsided into a home for third-class entertainments for a third-class public: the so-called "Aquarium" having been little more than a pretence from the first. The site will certainly be more worthily occupied by a large Wesleyan place of worship; and as the Wesleyans are now getting over their former indifference to the architecture of their churches, it is probable that they will endeavour to erect a building worthy of the site and of their religion. It is rather curious to think of the Church and Dissent being architecturally represented, on a large scale, almost side by side, in the Abbey and the proposed new Chapel; while the tower of the new Roman Catholic Cathedral will survey them, across the housetops, from no great distance.

**THE President's Smoking "At Home"** at the rooms of the Institute of Architects, on

Monday evening last, turned out a most successful experiment. There was a very large attendance, some members coming in specially from the provinces, and professional acquaintances who had not met for some years renewed acquaintance amidst a general cloud of smoke. The only drawback to the success of the evening was that the arrangements for recapturing hats and coats were somewhat primitive and unconstitutional. The walls of the Institute rooms were hung with a large and very interesting collection of drawings, chiefly working drawings, by the late Mr. Bentley; all, we believe, the veritable work of his own hands. Among the most interesting sets were the drawings for the Church of the Holy Rood at Watford, especially that of the massive tower with its plain surfaces of masonry contrasting with the enriched story at the top. Among works of a different class were the drawings of the Gothic design for the altar at St. John, Brentford, with its delicate tracery, and the candlesticks for use with it, which repeat the incident of the spiral fluting

which occurs also in the finials of the screen. One or two sets of working drawings of convent buildings were noteworthy for their quiet and unpretending architectural treatment. The majority of the work shown was Gothic, but there was a nice sheet of Renaissance detail of the chimney-piece in the Preparatory School at Beaumont College; oddly enough, flanked by a distinctly Gothic detail of cross and finial for the same building, in which the detail of the spiral fluting, seen in the Brentford drawings, is repeated. Among the collection were a good many slight but very effective brush drawings of heads and portions of figures for sculpture. The whole collection of drawings gave a good idea of the artistic genius of the late architect, who has somehow become more renowned since his death than he was during his lifetime.

#### THE ARCHITECTURAL ASSOCIATION.

AN ordinary meeting of this Association was held on Friday evening last week in the Meeting room of the Royal Institute of British Architects, No. 9, Conduit-street, Mr. H. T. Hare, President, in the chair.

The minutes and some nominations having been read, the following gentlemen were elected members, *viz.*—Messrs. E. F. Lofting, W. Kerr, and C. Woodward. Messrs. C. Stanley Peach and R. Stephen Ayling were elected by acclamation, and Mr. W. F. Cave was re-elected.

Mr. R. S. Balfour, hon. Secretary, announced the following donations to the library:—"Palladio," by Banister F. Fletcher, presented by the publishers; and forty photographs of English cathedrals, presented by Messrs. Bolas & Co. A vote of thanks having been accorded to the donors,

Mr. Balfour announced that a meeting of the Discussion Section would be held on the 28th inst., when a paper would be read by Mr. T. Norman Dinwiddie on "Poor Law Buildings."

The Chairman announced the following donations to the New Premises Fund:—Messrs. E. Prioleau Warren, 2*l.*; Gerald Horsley, 5*l.* 5*s.*; W. H. Lever (second donation: proceeds from sale of Port Sunlight pamphlets, per B. T. Batsford), 5*l.*; A. B. Botterill, 2*l.* 2*s.*; Maurice B. Adams, 2*l.* 2*s.*; W. J. N. Millard (further donation), 2*l.* 2*s.*; A. A. Carder, 1*l.* 1*s.*; F. F. Green (further donation), 1*l.* 1*s.*; Leonard Judge, 1*l.* 1*s.* [Mr. Leonard Stokes has been appointed as architect for the alterations to the new premises in Tufon-street, Westminster.]

Mr. Andrew Oliver then read the following paper on "Whitehall and the Strand," which was illustrated by a large number of prints and lantern slides:—

#### Notes on Whitehall and the Strand.

The subject which we have to consider this evening, by its nature, will prove that it will be almost, if not quite, impossible to mention but in a brief manner the various items of interest which attach to it.

We have to bear in mind that we are dealing with the ages of the past and with the buildings which in their time took rank as being part of the period to which they belonged and which now belong to the realm of history, and, like all things which belong to the ages of long ago, there has become woven about them in the course of time, as might be supposed, details of interest which are part of them, and which by their very nature belong to them.

It is difficult to believe now that, as the poet Gay expresses it, on the river Thames—

"There Essex's stately pile adorned the shore,  
There Cecil's, Bedford's, Villier's now no more."

Of all the Palaces but two small fragments are left, *viz.*, the Chapel of the Savoy and the Banqueting House at Whitehall. We have to gather from various sources, in the names of the streets, out of books, manuscripts, maps and views what we wish to learn about them, and it is by these means that we shall endeavour to pierce the surrounding veil and learn something of the buildings which are now little more than traditions. It is proposed to take the subject in the following order:—Whitehall, the Palaces which were formerly along the side of the River, the north side of the Strand to Charing Cross.

**Whitehall in the Sixteenth and Seventeenth Centuries.**—At this period Whitehall consisted solely of the Palace. In the eighteenth century were erected the Horse Guards and Dover House on the site of the Tilt-yard, the Treasury on that of the Cockpit. In the nineteenth century the Privy Council and Education Offices were erected on the old Tennis Court, and various other streets and private houses were erected during that time.

**Whitehall.**—The history of Whitehall may be briefly described: Hubert de Burg devised his house here to the Black Friars, 1242, who sold it to Walter de Grey, Archbishop of York. It continued as the London house of that See until, by a deed dated February 11, 1530, Wolsey conveyed York House to Sir Thomas More, and others on the King's behalf. In the year 1536 an Act of Parliament was passed which said that the old Palace of Westminster was then, and had been a long time before, in utter ruin and decay, and that the King had lately obtained one great mansion place and house, and that upon the soil and ground thereof he had "most sumptuously and curiously builded and edified many and distinct beautiful, costly and pleasant lodgings, buildings and mansions and adjoining streets"; had made a park and walled and environed it round with brick and stone, and there devised and ordained many and singular commodious things, pleasures, and other necessities, apt and convenient, to appertain to so noble a Prince for his pastimes and solace.

In the year 1606 the "old, rotten, slight builded Banqueting House," built by Queen Elizabeth, was removed, and a new one built in the following year; but of this we read as follows:—"About ten o'clock in the morning, upon Tuesday, the 12th day of January, 1619, the fair Banqueting House was upon the sudden all flaming, a fire from end to end and side to side . . . at sight whereof the Court, being sore amazed, sent speedy news to the great Lords of the Council, who were then but newly sat in the Guildhall in London, but they all rose and returned to Whitehall, and gave directions to the multitude of people to suppress the flames, and by hook to pull down some other adjoining buildings."

Upon the site of this destroyed edifice was erected the present one. The last of the old buildings disappeared on 10th of April, 1691, when the whole of the building, with the exception of the Banqueting House, was burnt. In Evelyn's "Diary" it is thus described:—"Whitehall burnt; nothing but walls and ruins left."

Six years later, in 1697, a second fire broke out. After this nothing was done to rebuild it. William III. died, and Queen Anne lived at St. James's, and with this came the end of Whitehall as a Royal Palace.

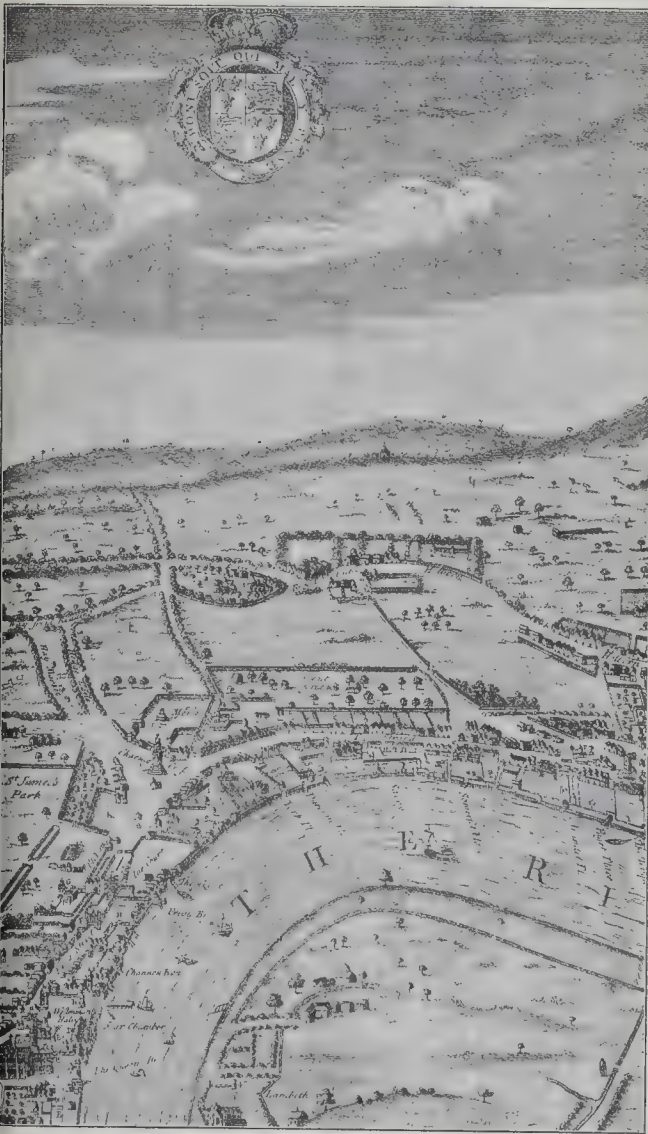
**The Banqueting House.**—The Banqueting House is the only portion that was erected of the building designed by Inigo Jones. As already stated, it took the place of a former building which was destroyed by fire. It was commenced on June 1, 1619, and completed March 31, 1622, the total cost being 14,940*l.*, an additional 713*l.* being expended on a pier at Oatland. The original account is to be seen at the Record Office, from which it would appear that the excess of cost over the original estimate was 5*l.* The account was not settled in full until 1633. The architect received 400*l.*

**The Ceiling.**—The great painted ceiling by Rubens consists of three central compartments, and the same number, but smaller, on either side. It represents King James I. welcoming the beauties of Peace. The panels at the sides show the contrast between Peace and War. The inscription at the foot of the engraving is as follows:—"Graved by Sim Gribelin from the painting of Sir P. P. Rubens on the ceiling, in the Banqueting House at Whitehall, in the year 1720, Cum Privilegio Defunctæ Annæ Reginæ. This ceiling presents in proper and curious emblems the prosperous state of Great Britain in the reign of King James I. His concern for religion, his love of arts and sciences, the birth of a Prince, the union of the two Kingdoms, and His Majesty's most eminent virtues crowned with glory and immortality." The painter received the sum of 4,000*l.*—about 10*l.* a square yard.

Before being turned into the United Service Museum it became "The Chapel Royal, Whitehall." It was here that the "Maundy" alms were distributed until the ceremony was removed to Westminster Abbey on the Chapel being abolished as a place of worship.

\* St. James's Park.





The Whitehall Neighbourhood in 1560.  
(From an old map.)

**Views of Whitehall Palace.**—The five large engravings consist of three of the fronts, viz., the Westminster, the Park, the River front, a bird's-eye view taken from the Charing Cross side, and a ground plan showing the arrangement of the old Palace. The fronts show an elevation divided into four divisions. In the central portion, two towers are carried up above the roofs of the adjoining building, with entrance gateway. The main central building is in three stories, on either side a wing in two stories, and on the outside of the whole, square towers in three stories. In the bird's-eye view there will be seen three great courts to the left, the line of the roofs separating them being in a line with the square towers of the centre portion of the fronts. The court to the right side is also divided into three, the central one being circular, with an open gallery on each story, the arches of which are carried on figures. The two other courts are oblong, with a pediment in the centre, the corresponding court on the

other side being similar, except that at an oblong. The central court runs right through the building, the central portion on each face having pediments as the others. We will now take the plan.

**The Plan of Whitehall Palace.**—The plan of the Palace as it was in the reign of Charles II., and which is exhibited, shows a large rambling building occupying a large area. It extended from what is now Richmond-terrace, along the river to Great Scotland Yard, close to where the National Liberal Club now stands. It included on the north the Horse Guards, the Treasury and Downing-street. A gateway was placed at the south end of the Banqueting House, and another at the corner of Downing-street. The south side of the Palace began with the Bowling Green next to this was the Privy Garden. The front consisted of the Banqueting Hall, the Gate and Gate Terrace, and a long row of mean buildings. The Gate opened up on a series of three courts or quadrangles. In the first, called The Court, was

situated the Banqueting House, opposite to this on the east side was the Great Hall or Presence Chamber, the Chapel and the private rooms of the King and Queen. This part contained all that was left of old York House. Behind the Privy Garden was the Stone Gallery which contained the Art Gallery and Library. Between the River and the Stone Gallery were the apartments of those connected with the Court. The numbers given on the plan amount to fifty-eight. In the second court we find the kitchen, pantry, cellars, and several others, each with its own superintendent with his own quarters. In fact, everything that could be wanted to carry on so large an establishment as we find here that occupied the site of what is now Old Scotland Yard and Whitehall Place. In Scotland Yard were placed stores, with a wharf on the river. In front of the Palace, the Tilt Yard and the Horse Guards Yard, and in front of the Privy Garden the Cock Pit and Tennis Court, and various apartments, chiefly of great officers.

**The River Front.**—The river front of Whitehall consisted of a red brick wall with six small turrets. In the Crace collection at the British Museum there is a water-colour sketch showing a portion of the River wall and the Palace. There is shown on Vertue's plan, a landing stair leading to the Bowling Green, which was close to the wall. The Privy Garden Stairs consisted of a long bridge or gangway, about 70 ft. in length with the stairs at the river end, and a little further on were the Palace Stairs, about 150 ft. in length and similar to the other. At the easternmost corner of the wall was Scotland Dock, where the stores were landed on to "The Wharf" to which the dock gave access.

**The Strand in the Sixteenth Century.**—The earliest map of the Strand is Ralph Aggas', 1560. In the rear of Charing Cross is the Royal Mews, surrounded by a wall at the northern end, buildings being situated at the west and south. To the west is Hedge-lane, now Whitcomb-street, which joins the southern wall of the mews and Cockspur-street. St. Martin's-lane, on the eastern side, ends opposite to Northumberland House.

Opposite to the eastern wall of the mews is St. Martin's Church, and above St. Martin's is the Convent or Covent Garden, bounded by a wall, now Long-acre, which joins Drury-lane, and which is continued into Wyche-street, the old name being "Via de Aldwyche," corrupted into "Wyche-street." At the end of this is St. Clement Danes, which is hemmed in by houses on all sides. A single row of houses is between St. Clement Danes and Charing Cross.

On the south side of the Strand the houses of the nobility, which faced the river, are to be seen.

**The Seventeenth Century.**—It is to this period that we owe nearly all of the streets that are at present to be found in the Strand and Covent Garden and the Church of St. Clement Danes.

**The Eighteenth Century.**—To this period belong the Churches of St. Martin and St. Mary-le-Strand; Southampton-street, which was made in 1704, on the site of Bedford House; the Adelphi, by the Brothers Adam; and Bow-street was prolonged to Long-acre, continuing the portion between Hart-street and Great Russell-street.

**The Nineteenth Century.**—Although there have been but few new streets formed, at the same time great improvements have been made at the eastern and western ends of the Strand. In the year 1863 Garrick-street was made to connect Long-acre with Henrietta-street. Wellington-street was made to connect Bow-street, which originally ended at Great Russell-street, with Waterloo Bridge, 1830.

The improvements at Trafalgar-square and those near St. Martin's Church in the years 1830-2. Northumberland Avenue in 1874. Victoria Embankment, commenced in 1863, and completed in 1870. The new street to Holborn was commenced in 1901.

**The Royal Mews.**—A plan of the Royal Mews, taken at the close of the eighteenth century, shows that they occupied the centre of a space which extended from the site of the National Portrait Gallery to within 75 ft. of the statue of King Charles. The great Mews was about 370 feet in depth by about 240 feet in width. At the farther end were the Royal Stables with a depth of 50 feet, and in rear the Green Mews, which had a depth of 130 feet.

The front elevation of the Royal Mews,





*The Royal Mews, Charing Cross.*  
(On the present site of the National Gallery.)

erected 1732, shows a building in two stories. The centre consisted of an arch with a range of windows over, and above them the Royal Arms under a pediment, carried upon two pairs of rusticated columns. At the farther end there is a cupola which is in two stories, and the line is carried down into the main building, where the cornice is broken by a pediment.

*St. Martin's Church.*—Beyond is St. Martin's Church, the portico being nearly concealed by the houses which are in front of it. The present church was erected in the year 1721, when that which previously occupied the site was taken down. It was built by Gibbs. A sarcastic allusion to the worshippers and the new church occurs in the *London Spy*, 1725:—"The inhabitants are now

supplied with a decent tabernacle which can produce as handsome a show of white hands, diamond rings, pretty snuff-boxes, and gilt prayer books as any cathedral whatever. There the fair penitents pray in their patches, seek for pardon in their paint, and see their heaven in man."

*Trafalgar-square.*—The first great change was made when the new street was cut in



prolongation of Pall Mall to St. Martin's Church about the time when the National Gallery was commenced. Sir Charles Barry's idea for Trafalgar Square was different from what we see it now. He intended a low flight of steps to lead up from the Square to the National Gallery. In place of the present fountains, which he wished to have much larger, his intention was to have had monuments to Wellington and Nelson.

**Charing Cross.**—The story of the erection of this monument, and the others of a similar character, is too well-known to touch upon here. The original structure was of wood, but later on it was built in stone by Richard, and after his death by a son or a brother of Roger de Crundale; the material was of Caen stone. The Cross itself was ordered to be taken down in 1643, but it was not destroyed until four years later; the site is now occupied by the statue of Charles I. In the dialogue between the Cross in Cheap and Charing Cross, 1641, we find the following humorous description:—"In King Henry's days I was begged . . . Then in Edward the VI., when Somers House was in building, I was in danger. After that in the reign of Queen Elizabeth, one of the footmen had like to have run away with me; but the greatest danger of all I was in, was in the time of King James, when I was eight times begged. Part of me was bespoken to make a kitchen chimney. An innkeeper in Holborn had bargained for as much of me as would make two troughs. . . . The rest of my poor carcase should have been carried, I know not whither, to the repair of a decayed stone lodge, as I was told, on the top of Francis Hill."

**Northumberland House.**—The House has been known by the name of Northampton House and Suffolk House. The Strand front consisted of a long widespread building, in the centre a gateway with a low window which was continued up above the top story, where it terminates in an arch over which there was placed the Percy Lion. As seen here the lion faces the west, but in the time when George IV. was King it was turned round the other way. The lion was, when the House was taken down in 1874, placed on the top of Lion House, opposite to Kew Gardens.

At the four corners were square towers with small figures at the angles, a view of the garden front of Suffolk House will be found in Wilkinson's "Londina Illustrata."

**River Palaces.**—From the Palace of Whitehall to Arundel House there stretched a line of River Palaces the whole distance, the sites of which can even now be traced in the names of the streets. The two earliest maps which show where they were situated are Ralph Aggas' map, 1560, and Hofnagels, 1572. In those times the greater number belonged to the Bishops. The great nobles it would appear appropriated them and in later times they have been disposed of as eligible building sites.

They were destroyed in the 17th and 18th centuries. The principal fronts facing the river, the Strand, apparently, possessed a long unlovely line of high brick walls to hide the great personages from the eyes of meaner mortals. On the northern side of the Strand we find, also, a row of houses with gardens in the rear as Bedford House, Burlington House and others.

**Water Stairs.**—The way of access both from and to the river was by what were termed stairs, and these were situated either at the end of a street or else only belonged to the house which they adjoined. In the latter case they were private and in the former public. Of the first division there is but one now left, viz., York Stairs, and the archway at the end of Essex Street marks the old entrance to the house from the river.

Stairs were also at Hungerford House, Salisbury House, Worcester House and Somerset House. Public stairs at Ivy Bridge Lane and at the end of Arundel Street, and other places.

In addition to being used as a roadway to the river, the streets also formed the boundaries of the various properties. For instance, Exchange Lane separated York House from Durham House, Ivy Bridge Lane Durham House from Salisbury House, &c. Nearly, if not all, of these old lanes are still in existence at the present time.

The stairs for the most part, with the exception of York, Essex, and Somerset Stairs possessed no architectural beauty, being merely an arch in the river wall.

**Hungerford House.**—Old Hungerford Market, which was destroyed in 1862 to make room for the Charing Cross Railway Station, was erected at the close of the 17th century on the site of Hungerford House. The history of the family will be found in Sir Bernard Burke's "Vicissitudes of Great Families." Sir Edward Hungerford, it would appear, had here a magnificent mansion, which on the break up of Durham Yard was cut up into small tenements, which together formed a market. Over the market was a room called the French Church, afterwards it became a charity school, and lastly a tavern and music-hall. The town house of the family was destroyed in 1669, and is thus described by Pepys:—"April 26, 1669. A great fire happened here last night, burning the house of one Lady Hungerford, by carelessness of the girl sent to take off a candle from a bunch of candles, which she did by burning it off." Sir Edward obtained permission to hold a market three days a week on the site of his former mansion, and this was the origin of Hungerford Market.

**York House.**—This mansion acquired the name from its having been the residence of the Archbishops of York. Before then it was the Inn of the Bishops of Norwich. The next owner, Charles Brandon, Duke of Suffolk, exchanged Southwark Palace for it. In the reign of Queen Mary it was bought by Dr. Heath, Archbishop of York, and reverted to its original name. Archbishop Matthew exchanged it for several manors with James I. Lord Chancellors Gerlin and Bacon lived in it, and it was then granted to George Villiers, Duke of Buckingham, who rebuilt it. The Parliament gave it to General Fairfax, whose daughter married the son of the first Duke of Buckingham, who sold it. The names of the streets, which are George, Villiers, Duke, Buckingham, and "of Court." Readers of Sir Walter Scott's novel, "The Fortunes of Nigel," will recollect this. The only portion now left is that known as the York Stairs, Watergate.

The following account is taken from Britton and Pugin's "Public Buildings of London":—"This fabric is of Portland stone. On the northern or street side it consists of three arches flanked by pilasters supporting an entablature, upon which are four balls. Ornamental shields rise above the keystones of the arches, those at the sides being sculptured with anchors and that in the centre with the arms of Villiers impaling those of the Mannes family.

The Villiers motto, 'Fidei coticula crux'—the Cross is the touchstone of faith—is inscribed upon the frieze. The southern or river front displays a large archway opening upon the steps leading to the water. These conjointly with four rusticated columns support an entablature ornamented with scrolls and crowned with an arched pediment and two couchant lions bearing shields sculptured with anchors. In the middle of the pediment, within a scroll, are the arms of Villiers—viz., on a cross, five escallops, encircled by a garter and surmounted by a ducal coronet. At the sides are pendant festoons. The apertures flanking the steps are each divided by a small column and partly closed by balustrades."

**Durham House.**—The site of this mansion is now occupied by the Adelphi-terrace. It would appear to have been a castellated building, with a square tower at the east end. The main building shows a row of pointed arches. There was also a low, square tower at the west end, together with a round tower, which was carried up above the parapet of the principal building.

In 1608 a building called the New Exchange was erected on the site of the stables in the Strand.

**Salisbury House.**—Hollar's drawings show this to have been of considerable importance. It is designed in two styles, the western building consisting of four gables and a smaller one; the eastern portion looks as if it was like the western when first erected, as a gable end is at the furthest end. In place of the gables we have a battlement, or parapet, and turreted angles, showing that the building had been raised at this portion of it. In the river wall there are two sets of stairs, and two small structures adjoining. The site is now occupied by the Hotel Cecil.

**Worcester House** occupied the space known as Beaufort-buildings, but which is now being covered by the Savoy Hotel. It originally belonged to the Bishops of Carlisle; then to the Earls of Bedford, and called Bedford and Russell House; then the Earl of Worcester

became possessor, and his son, the first Duke of Beaufort, came into possession, and consequently it changed its name. Pennant informs us that the Earl of Clarendon lived here and paid the extravagant rent of 500*l.* a year.

Styrie tells a curious story that the Earl of Salisbury offered the gardener of the Earl of Worcester 100*l.* if he would cut down a tree which obstructed his view. On this being done, my Lord of Worcester built a large brick house which took away the whole of the Earl of Salisbury's east prospect.

From Hollar's view this house is not of much importance architecturally speaking. It is similar to the western side of Salisbury House, with six gables. A battlemented parapet forms the garden wall.

**The Savoy.**—The Savoy Palace, or rather what is left of it, was built by Simon de Montfort in 1245. It was granted by the King Henry III. to Peter of Savoy in the thirtieth year of his reign. It was given by Peter to the Brethren of the Great St. Bernard, who had a priory at Hornchurch, Essex; from them it was purchased by Queen Eleanor, and presented by her to Edmund, Earl of Lancaster, and it has since that time always belonged to the Royal Duchy of Lancaster. Henry VII. restored it, and dedicated it to St. John in 1509 for use as a hospital for 100 poor people.

We find a different state of things in 1755.

Styrie gives the following account:—"This Savoy House is very great, and at present a very ruinous building; the large hall is now divided into several large apartments, a cooper hath part of it, other parts serve as two marshalseas for keeping prisoners—as deserters, &c."

The Chapel of the Savoy was the last place where the so-called Fleet marriages were carried out. Long after the right of sanctuary was abolished it was a place of refuge for debtors. In the *Postman*, 1696, is the following:—"On Tuesday a person going into Savoy to demand a debt from a person which had taken sanctuary there the inhabitants seized him and agreed after the usual custom to dip him in tar and roll him in feathers; after which they carried him in a wheelbarrow into the Strand and bound him fast to the Maypole."

**Somerset House.**—In order to obtain a site for erecting Somerset House, the Lord Protector cleared away, according to Stow, several buildings. The following is his account:—"Next beyond Arundel House was some time a fair cemetery, and in the same" a parish church called the Nativity, Our Lady, and the Innocents of the Strand, and of some by means of a brotherhood kept there, called St. Ursula of the Strand, and near adjoining to the said church there was an Inn of Chancery, commonly called Chester's Inn because it belonged to the Bishop of Chester."

There is some doubt whether the Protector ever resided there. The building was commenced in 1547. He was committed to the Tower in 1548, and remained there for two years. In 1549 he was again arrested, and beheaded in 1552. A short account of its later history may be of interest. At the death of the Duke it was forfeited to the Crown, who made it over to the Princess Elizabeth on her coming to the Throne. It was returned to the Dowager Duchess of Somerset. The Queen of James I. lived here. It was then called Denmark House. The palace was much improved by the Queen, and Inigo Jones was employed to carry out the work as architect.

The architect is given in Pennant as being the celebrated John of Padua. The architect of Longleat, Wilts, he is said to have held the post of Devizer of his Majesty's Buildings.

The Strand front of Somerset House consisted of a central gateway, with a bay over, in two stories. On either side of the gateway were two windows, with pedimental heads and double bay windows with similar features. The courtyard front was in two stories, and consisted of an arcade of nine arches, a bell-cot being placed on the roof. The gardens faced the Thames. These were laid out in the monotonous style of the period, so well described by Pope:—

"Grove nods to grove, each alley has its brother,  
And half the gardens just reflects the other."

As regards the architecture, quaint old Stow has the following:—"I am extremely pleased with the front of Somerset House, as it affords us a view of the

\* This is marked on the Ordnance map as being at the east side of Somerset House as well as Chester's Inn.



first dawning of taste in England, this being the only fabric which deviates from the Gothic or imitates the manner of the ancients. Here are columns, arches, and cornices that appear to have some meaning. If proportions are neglected, if beauty is not understood, if there is in it a strange mixture of barbarism and splendour, the mistakes admit of great alleviation."

The old building was demolished in 1776, and Sir William Chambers appointed the architect of the new edifice. The accounts of the building are in the library of the Royal Institute of British Architects.

**Arundel House.**—Formerly the Bishop of Bath's Inn.

Hollar's plates show a large courtyard with buildings. To the left what appears to be either the hall, or possibly a chapel, with four windows in the Perpendicular style, a half-timber structure next to it, and beyond that an open shed, and to the left another building with a sundial.

The lower view of the building last mentioned is on the right of the picture, then next to that a row of outbuildings. Facing us there is to be seen a building with a high pitched roof, with an open staircase which projects over the courtyard, and the windows are under the steep pitched gable. Just to the right of this is the top of a church tower, possibly St. Clement Danes.

In the view looking towards London we are supposed to be on the battlements. Middle Temple Hall is directly in front, and St. Paul's and other churches in the background. The streets which now occupy the site rejoice in the aristocratic names of Norfolk, Howard, Arundel, and Surrey. The site was bought on the death of Lord Seymour, brother of the Protector, by Henry Fitzalan for the "incredibly small sum of little more than 40*l.*," we are informed by Styrpe.

**Essex House.**—Essex House stood next to Arundel House, a plan of both is given in Walford's "Old and New London," vol. III., page 72. Of the old house nothing now remains but the water-gate at the bottom of Essex-street. It takes its name from the Earl of Essex, the unfortunate favourite of Queen Elizabeth. His son was the great Parliamentary general. About the year 1640 the house was divided. In 1682 Essex-street was built on one-half of the site. The present houses, however, date from the middle of the reign of George III.

**Temple Bar.**—The last of the old City Gates was taken down in the year 1879. For some years after it lay in fragments on a waste piece of land close to Farringdon Market. It was then given to Sir Henry Meux, who has rebuilt it at "Theobalds" in the county of Herts. It must be said that it was a great pity that it could not have been re-erected by the Corporation of the City of London in some locality in the City, instead of its being taken to a place with which it never had any connexion. Its place, as is well known, is occupied by the Griffin monument.

**Butcher Row.**—On the north side of the Strand there used to be a row of houses which went by the name of "Butcher-row." It took its name from its being the place where "foreign" butchers were being allowed to sell meat, granted under a charter of Edward I. to Walter de Barbier. They were termed "foreign" because they did not belong to the City Guild.

Stow thus describes it:—"On the north side, some distance from Temple Bar, from a pair of stocks there standing, stretched one large middle row partly opening to the north, partly to the south, and up west to a stone cross over against the Strand." This stone cross was the old Strand Cross. On the south side of the Strand there was a similar block. The passage between the north and the south sides was so narrow that it was called in Addison's time "The Pass or the Straits of St. Clement."

For the clearing away of this obstruction one man was responsible, viz., Alderman Pickett, who afterwards gave his name to Pickett-street. The whole of the north side was cleared away when the Law Courts were built.

The money was raised by means of a lottery started in the year 1807, and called the Great City Lottery. This gave rise to great loss and inconvenience, and the Corporation had to obtain no less than six Acts of Parliament to deal with the matter.

Alderman Pickett also projected a plan whereby a new street was to be made from

Lincoln's-inn-fields to the Strand. This last improvement has taken no less than the space of 113 years to carry out.

In Wyche-street, Clement's Inn, which is now being demolished, is situated. It is said to date from the reign of Edward II.

Holywell-street takes its name from the well there. Lyons Inn, upon the site of which was built the Opera Comique Theatre, stood here.

The Angel Inn, shown on the ordnance map, was one of the oldest in London. It had the characteristic galleries. It was pulled down in 1853.

A view will be found in the "Parish of St. Clement Danes," by John Diprose, page 195.

In the *Public Advertiser*, March 28, 1769, is the following:—"To be sold a Black girl, the property of J.B., eleven years of age, who is extremely handy. . . . Enquire of Mr. Owen at the Angel Inn, behind St. Clement's Church in the Strand."

At the Strand end of Wyche-street stood Drury House, which gave its name to Drury-lane.

Craven House afterwards occupied the site and later the Olympic Theatre. Pepys tells us how he saw fair Nelly "standing in her smock sleeves and bodice, a mighty pretty creature," at her door in Drury-lane.

**St. Mary-le-Strand.**—The present church of St. Mary-le-Strand is the second, the first one being pulled down to build Somerset House, as we have seen. It was the first church designed by Gibbs, or, as he puts it, "upon which I was employed after my return from Italy." There was no steeple designed for this church, only a small campanile or turret. A bell was to have been at the west end, but at the distance of 80 ft. from the west front there was to be a column 250 ft. high, intended to be erected in honour of Queen Anne, on the top of which her statue was to be placed . . . but the thought of erecting that monument being laid aside at the Queen's death, it was ordered to erect a steeple instead of the campanile, as first proposed. The site was occupied by a windmill in the time of James I. The site of the old Strand Cross is marked on the Ordnance Map as being just within the porch of the present building, and this was afterwards the place where the Strand maypole was erected, which was pulled down in 1644, and a new one put up after the Restoration in 1661.

**Pasquill's** "Palmodia and Progress to the Tavern," 1619, has the following:—

"Fairly we marched on. Till our approach  
Within the spacious passage of the Strand,  
Objected to our sight a summer broach  
Uplift a maypole, which in all our land  
No city, town, nor street can parallel."

In 1798 James Brainerd, in the "Art of Politics," wrote as follows:—

"What's not devoured by Time's destroying hand?  
Where's Troy? and where's the Maypole in the Strand?"

**Burleigh House.**—"A noble pile built in brick and adorned with four square turrets" faced the Strand. Its gardens extended from the west side of Wimbledon House, close to where Wellington-street now is, to the green lane westward, now Southampton-street. On Lord Burleigh's death in 1598, it came to his son, afterwards the Earl of Exeter. Exeter Change, a curious mixture of shops and menagerie occupied the site later, and taken down in 1863.

**Bedford House and Covent Garden.**—In March, 1552—"John Russell, Earl of Bedford, was granted the Convent or Covent Garden, lying in the parish of St. Martin-in-the-Fields, with seven acres, called Longacre of the yearly value of 6*l.* 6*s.* 8*d.*, parcel of the possession of the late Duke of Somerset."

The first market was erected in 1632 by the Earl of Bedford, the charter dating from 1671. The church of St. Paul, designed by Inigo Jones, was erected between 1631 and 1638, was then, as now, the western side of the Garden, the southern side being formed by the blank wall of Bedford House.

In an old print the market is shown as being fenced in. In the centre there was a Corinthian column with a sundial on the top (from an inscription it would appear to have been erected in 1686). The column stood upon a pedestal raised upon six steps. The capital supported a square stone, three sides of which served as sundials.

A similar dial used to be at Seven Dials. This was removed with its column to Weybridge Common, where it was re-erected as a memorial to the Duchess of Kent in 1822.

Since that time the quaint old dial stone which shows six, viz., . . . on each of the sides and another on the top, has been lying by the roadside. Now that the London County Council is taking steps to preserve relics of Old London, could not an effort be made to rescue this interesting relic from its present ignominious position?

Mr. R. Phené Spiers, in proposing a vote of thanks to Mr. Oliver, said he was not able to throw additional light on the subject, though he could speak of buildings which had disappeared in his time. Could Mr. Oliver say why the road in front of the Royal Mews, shown in the print as a horizontal space, had been converted into a deep slope? One's attention was called to that by the fact that when St. Martin's Church was built it probably rested on a horizontal plane, whereas now there were the well-known steps, about which there had been so much dispute; and looking at the front of the mews one could not see any difference in the levels. Was the lion from Northumberland House still at St. Martin's? [Mr. Oliver: Yes.] He remembered going over Northumberland House shortly after he returned from Paris, and it seemed to be very commonplace compared with the French palaces; and he thought the great staircase, about which so much was said, poor in execution and design. There was one place which Mr. Oliver had not mentioned, and that was where the Association used to meet, viz., Lyon's Inn Hall. He had been to the meetings in that Hall on several occasions, and once heard Professor Ruskin there. One thing he remembered about the Association then was that they used to have a soiree once a year as now, but with this difference—a very great difference—ladies were not permitted to be present, and the only person who put on evening dress was the secretary. But in thinking of the past, and of Lyon's Inn Hall, he could not help thinking that, although the membership of the Association has increased something like four times what it was twenty years ago, the number of members who attend the ordinary meetings had not increased in anything like that proportion. One would have thought that with a membership of 1,392 there would have been a larger attendance that evening to hear Mr. Oliver's paper. Their hearty thanks were due to Mr. Oliver not only for the paper, but also for the great pains he had taken in getting the lantern-slides and in the preparation of the maps.

Mr. Walter Spiers seconded the vote of thanks to Mr. Oliver for his lecture. The subject was a very interesting one, especially in relation to Whitehall and its palace, more of the history of which was known, especially in the seventeenth century, than of many other palaces, on account of those interesting diarists, i.e., Pepys, Evelyn, and De Grammont. He would be glad if Mr. Oliver could say when the Cockpit was pulled down. There was some intermediate building between the pulled down Cockpit and Kent's Treasury building, which was erected in 1733. Not only the Banqueting Hall still existed at Whitehall, but also the wine cellars of Wolsey's Palace under the Board of Trade offices, in Whitehall-gardens. And on the opposite side of the way there existed a few fragments of the passage to the cockpit, and a brick wall and some masonry, which may be of the time of Henry VIII. As to the steps of St. Martin's, they were constructed when the church was rebuilt, as the street behind the mews was always on a slope. The steps are shown with great clearness on Rocque's Plan of London of 1760.

Mr. W. A. Pate said the paper had brought before them very vividly the old streets and buildings of the Strand and Whitehall. What had struck him was how, while all those old houses and streets had gone, we still have their history kept for us in the old names. The paper would, he believed, make them think more than they had done of their old streets and squares.

The Chairman, in putting the vote of thanks to the meeting, said the subject opened up new ground to many of them, and he had heard and seen much that evening about which he was previously ignorant. The subject had been left in such a way that it made one hope to pursue it still further. In looking at the illustrations, he could not help thinking how very much more picturesque the aspect of the district round the Strand



must have been in former times compared with the present, and one could not help regretting that so many interesting and historical buildings had disappeared. At the same time, as had been mentioned the history of these buildings and districts was preserved to some extent in the names. The study of these districts must help one very much to understand one's city and the meaning of the names and localities very much better, and therefore it was a valuable pursuit to go more deeply into a study of the subject. The subject of Whitehall and the Strand was a very fascinating one, and it was a matter of great regret that Inigo Jones was not able to realise his great conception, which would have given us a palace which would have been more worthy of the country and the capital than anything else we have. One of the failings of our architectural conceptions was that they lack in dignity and grandeur, and fall a great deal behind the magnificent palaces which are to be seen in other countries; but this Whitehall Palace would have saved us from what must, to some extent, be a national reproach.

The vote of thanks having been agreed to,

Mr. Oliver, in reply, said the reason for the steps at St. Martin's was, he supposed, an architectural one: the building would not have looked well without them, and on the same level. The old church was on a level site. The cockpit was pulled down when the Treasury was built [Mr. Walter Spiers: Yes, but there was some intermediate building between the pulled down cockpit and Kent's Treasury. It is shown on some of the plans.] As regards the St. Martin's steps, those upon the pavement are not a part of the original design, but were added later and made to fit in the site when Duncannon-street was made, and the levels were in consequence altered about the year 1835. He had not come across any views of the cockpit of the period referred to by Mr. Walter L. Spiers. They would all agree as to the picturesqueness of the Strand in the old days compared with the present time; but in these days of ground-rents we could not think of picturesqueness.

The Chairman announced that the next meeting will be held on the 23rd inst., when Mr. J. Dudley Forsyth will read a paper on "The Attitude of the Architect towards the Crafts."

The meeting then terminated.

#### A LONDON PAY HOSPITAL, FITZROY-SQUARE.

THE Home Hospitals movement, which was originated in 1877 by Sir Henry Burdett, has hardly made the progress, as a movement, which the project, and the undoubted success of Fitzroy House, would seem to deserve, though at the Press inspection of the new premises on the 7th inst. Sir Henry gave the outlines of a big scheme for further developing this sound movement in regard to general hospitals.

In 1878 the Home Hospitals Association for Paying Patients was incorporated, a sum of 20,000l. was raised by those interested in the movement, a freehold property was purchased in Fitzroy-square, and the first home hospital was there opened in 1880. Subsequently the freehold of the next house was bought and a lease of the adjoining house taken up.

The system adopted was that the home should be self-supporting, the patients paying a little more than the actual cost price for accommodation, and being attended by and paying for their own doctor. The usefulness of a home of this kind is self-evident. Surgical patients receive better treatment than would often be possible in their own homes, and at the same time are under no obligation, as must often be felt by patients in general hospitals.

After twenty-two years of useful work it was found necessary to remodel the home, which in construction and appliances had not unnaturally fallen behind the high level now demanded by modern surgical science, or to close the hospital and bring the undertaking to an end.

In response, however, to urgent representations to the committee from medical men, who had found the home a boon to themselves and their patients, it was decided to adopt the former course, and to endeavour to raise a sum of 10,000l. in order to bring the building up to a proper state of efficiency.

Messrs. Young & Hall were appointed

architects, and their efforts have been as entirely successful as is possible in the adaptation of an old building to other purposes than those for which it was originally designed.

It seems almost a pity that a more ideal and open site could not have been obtained, and an entirely new building constructed, for though the remodelled home will undoubtedly answer its purpose, and the fittings and appliances are in every respect admirable, it may possibly be found in a few years that the surroundings of a surgical home in central London leave a great deal to be desired. The pamphlet issued by the committee states that "The surroundings of a patient at the time of treatment have been proved by science and experience to be the important things that make for success or otherwise." Quite so, and it cannot be pretended that three terrace houses in a central London square, with very little open space at the back, make an ideal home, though the rooms themselves are well fitted, and the best use has been made of very difficult conditions.

The accommodation now comprises about forty rooms, thirty of which are single-bedded wards, besides dining-room, sitting and smoking rooms. A new story has been added, containing an excellent operating theatre, with a horizontal and vertical north light, fitted with a black roller blind which will exclude the vertical light, or daylight altogether, should artificial light only be desired by the operator. Electric light has been supplied generously throughout, and many of the latest electrical appliances for heating water, sterilising, &c., are provided on each floor. The current for this is of a higher voltage than for lighting purposes, and power plugs are placed in each ward as well as in the still-rooms. A new passenger lift, capable of taking an ambulance, nurse, doctor, and porter has also been put in. A somewhat bold experiment has been tried with the flooring; a new material called Papyrolith, a mixture of asbestos, paper pulp, sawdust, magnacite, and chloride of magnesium, laid in the form of cement in two thicknesses, has been put down over the old wood floors in order to render them aseptic. It certainly has a pleasing colour and a sound appearance, but it will be interesting to know its ultimate effect upon the wood floors below, particularly in the event of their inadequate ventilation. The floor difficulty is a real one, and if Papyrolith is successful in such a case as this, the committee is certainly to be congratulated upon their courage. The "new sanitary tower" contains a bathroom and water-closet for each floor, as well as the service lift for food, and though it is well separated from the wards, the close connexion between the sanitary arrangements and the service lift, as well as the fact that the still-room on each floor is in immediate connexion with both, hardly justifies the assertion in the pamphlet that "the new Pay Hospital is declared to be probably the most perfect and attractive building for surgical cases which science and experience have yet produced." Bright and cheerful grates on the Teale system have been inserted in all the rooms, the decoration and fittings of which leave little to be desired, though the back wards, with only a north aspect, cannot be said to have a cheerful or attractive outlook. The terms asked range from 4l. 4s. to 10l. 10s. a week, and as this does not, of course, include medical attendance, it would appear that the new Pay Hospital should do more than fulfil the functions claimed for it.

The kitchen fittings have been supplied by Messrs. J. Slater & Co., and are thoroughly up to date. An interesting feature is the food trolley, which is electrically warmed, and is designed to hold the food for an entire floor on each journey. The plumbing has been carried out by Messrs. Dent & Hellyer, and Messrs. Duncan & Watson are responsible for the electrical work, Messrs. Prestige being the builders.

TIMBER TRADES' BENEVOLENT SOCIETY.—The sixth annual general meeting of this Society will be held at the Cannon-street Hotel, London, on Monday, the 26th inst., at 11.30 a.m., to receive the report and for general business, at the conclusion of which an election of five pensioners will be held.

LUNATIC ASYLUM, BARNSELY.—On the 7th inst. Mr. North, M.Inst.C.E., held an inquiry at the Shire Hall, Worcester, relative to an application by the County Council for permission to borrow 215,887l. for a new lunatic asylum, which is about to be erected at Barnsley Hall, Bromsgrove. The asylum will accommodate 570 patients. Mr. G. T. Hine is the architect.

#### ARCHITECTURAL SOCIETIES.

INSTITUTE OF ARCHITECTS OF IRELAND.—A regular meeting of the Council of the Institute of Architects of Ireland was held at the Institute Rooms, 20, Lincoln-place, on the 5th inst. Mr. William Mitchell, R.H.A., in the absence of the President, occupied the chair. The Hon. Secretary brought before the meeting a letter he had received in his private capacity from the Clerk of the Bray Urban District Council in reference to the forthcoming appointment of an architect in connexion with the scheme of the Council under the Housing of the Working Classes Act. The Hon. Secretary submitted to the Council the letter he had written in reply, which letter the Council approved. The following is a copy of the letter to the Town Clerk of Bray:—"Dear Sir,—A copy of your circular on the subject of the appointment of an architect for your Council has reached me. I am writing to you in my official capacity as Honorary Secretary of the Royal Institute of Architects of Ireland to express the hope that in making an appointment your Board will give a preference to candidates who are members of the Institute. I may point out to you that membership of our Institute is in itself a guarantee both as regards the character and qualifications of the architect. Almost all the responsible and qualified architects in Ireland belong to our Institute, and it is very much in the interests of the ratepayers that your professional adviser should be a member of a recognised body of architects. When the Dublin Corporation were making the appointment of City Architect some years ago they took this matter into consideration, and they elected the present City Architect, Mr. McCarthy, who was and is still a prominent and distinguished member of our Institute. I enclose for the information of your Council the list of members for 1902." Several accounts submitted by the Hon. Treasurer, were officially passed by the Council. This being the first regular Council meeting of the year, the following gentlemen were appointed to form the Standing Committee. The Professional Practice Committee: Mr. Batchelor, Mr. Owen, and Mr. Orpen. The Arts Committee: Sir Thomas Drew, Mr. Mitchell, Mr. Hicks. The Publication Committee: Mr. A. E. Murray, Mr. Rawson Carroll, and Mr. C. McCarthy.

THE SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS.—The ordinary monthly meeting of the Sheffield Society of Architects and Surveyors was held in the lecture-hall of the Literary and Philosophical Society, Leopold-street, Mr. T. Winder presiding, when Mr. E. M. Gibbs gave a lecture on "A Short Visit to the United States and Canada." Mr. Gibbs explained that his visit had been a hurried one of only thirty-one days from Liverpool, of which eighteen days were spent in America, and that it was made for a holiday and a change, and that he had not made any effort to obtain any special information except as to the university buildings, and was not prepared with a lecture, but only a series of views of buildings in New York, Washington, Montreal, and Boston, supplemented by some casual remarks. In presenting views of New York he drew attention specially to the skyscrapers, and stated that they had the quality of architectural dignity so eulogised by Ruskin as "The Lamp of Power," which was due not only to their great size, but to the simplicity of design and the beautiful grey granite with which they were encased. Internally many of them were rich in marbles, and several were provided with post and telegraph and messenger offices, newspaper and barbers' shops, flower stalls and restaurants, and one had a railway station attached to it. The rents for an ordinary office, say, 5 yds. square, varied from 500l. on the lower, to 100l. per year on the upper floors, including lighting and heating. Some of the land had cost 350l. a yard, and there was said to be no difficulty in forming companies, with a promised dividend of 4 to 5 per cent. to purchase sites and erect the buildings. The most of them had been erected within the past ten years. The Park-row building has thirty stories, and is 390 ft. high, about double the height of the parish church in Sheffield, and the foundations are 70 ft. deep. The damage by skyscrapers to the light of adjoining buildings is, of course, very substantial, but as there is no protection against this by law in America, and electric light is in such universal use, there is apparently no complaint. In the views of Boston, Mr. Gibbs drew attention to the public library,



which is built of grey granite, and cost 500,000; and is one of the best examples of the work of the late, Mr. Hunt; and also to the Symphony Hall, which has seats for 2,680, and cost 100,000, and which is specially well arranged for convenience of access and egress by corridors all round on each floor, and has a most complete ventilating apparatus. As to the University buildings, he found that the sites were all larger than at present required, that in each case a good general plan had been adopted, and that the buildings were being erected gradually, as funds came in; that separate buildings were erected for separate departments; and that, very frequently, gifts of buildings had been made by gentlemen specially interested in one department—as an instance he exhibited the plans and views of the "Robinson Hall," at Harvard University, which was for the Department of Architectural Education. Mr. Gibbs also referred to his visits to the Architectural Department at Columbia University, Massachusetts Technological Institute, and at Montreal University, and suggested that in the new University buildings to be erected in Sheffield some provision should be made for architectural education. He also stated that with regard to the allegation that the American bricklayer laid more bricks than the British bricklayer, it was not apparently generally known that the American brick was only 8 in. by 3 in. by 2 in. thick, which, as compared with the Sheffield brick of 9 in. by 3 in. by 4 in., is less than half the size and weight. Speaking generally of the architecture of the United States, Mr. Gibbs thought that the finishing of the education of many of their architects in the Paris schools of architecture had a beneficial effect, and accounted for much of their good planning and dignified architecture. The lecture was illustrated by lantern slides, and on the motion of Mr. E. Holmes, seconded by Mr. J. Smith, and supported by Messrs. W. G. Buck and H. L. Paterson, a hearty vote of thanks was accorded to Mr. Gibbs for his lecture.

#### ARCHITECTURAL ASSOCIATION OF IRELAND.

—A general meeting of the Architectural Association of Ireland was held on the 6th inst. in the Grosvenor Hotel, Westland-row. The President, Mr. Frederick G. Hicks, occupied the chair, and Mr. M. Fortescue read a paper on "Iron and Steel Construction." He dealt with the general rules with regard to wrought iron and steel. Modifications were due more to the difference in strength and material than to anything else. He pointed out such differences in the mechanical properties and characteristics of cast iron, wrought iron, and steel. Every engineer should know something of the processes of manufacture. It was of little matter to him how the iron or steel which he used was made, for he was generally able to test whether it was good. Mr. Fortescue then spoke of the various strengths of cast iron, steel, and wrought iron with regard to tension, compression, shearing, and bearing. Wrought iron and steel were very trustworthy materials to deal with, provided proper specifications for tests and strength were given. He would like to lay special stress on the importance of designing a structure and its parts of sufficient strength to do the work required, and no more. It was not unusual to see joints and connexions far too strong and heavy in proportion to the amount of stress which they had to resist. Examples of such design were lasting monuments of the incompetency of the designer, showing want of knowledge of the strength of the materials with which he dealt, and a total disdain of the existence of a factor of safety. Not only had the designer of that description no regard for the structure itself, but no regard for the interests of those for whom he was designing the structure. Every superfluous plate added to the tonnage, and therefore to the cost. Every superfluous rivet-hole or bolt added to the extra cost of drilling holes, supplying bolts, and the cost of the template-makers' time. The lecture was illustrated by a view of the Montreal Tubular Bridge, which was built on the old style, showing waste of material. He then showed an adaptation of steel to high structures, notably to the "skyscrapers" built in some American cities. He also described the method of strengthening concrete foundations by steel. He mentioned an adaptation of weight flange wrought joists for gearing walls, instead of built girders, and an adaptation of steel and iron for ornamental work. The importance of proper form in

design was illustrated by the Eiffel Tower in Paris and the Tower Bridge, London. The application of theory should be regarded as an indispensable guide to design; its trustworthiness was fully recognised at the present day. The lecturer also exhibited views—accompanied by description—of the Brooklyn Suspension Bridge, the Niagara Suspension Bridge, &c. On the motion of Mr. C. J. McCarthy, City Architect, seconded by Mr. Herbert T. Sykes, a vote of thanks to Mr. Fortescue, endorsed by the President, was passed.

### Illustrations.

#### INIGO JONES'S DESIGN FOR WHITEHALL PALACE.

THE occasion of the reading of a paper at the Architectural Association partly concerned with Whitehall seemed a suitable opportunity for giving our readers plates reproducing, on a pretty large scale, two views of this celebrated palace, of which only a corner was built, yet on which the fame of its great architect so largely rests. One of these gives the bird's-eye view of the whole design as contemplated by Inigo Jones, the other the intended facade towards St. James's Park, with an ornamental pond, surrounded by cut trees and sculpture, in front of it.

There is a kind of resemblance in this design to a later grand scheme by another eminent English architect, which also was never carried out—that of Sir Charles Barry for the concentration of the Government offices. It is not improbable that Barry was partly influenced in his scheme by the consideration of Inigo Jones's design. It is melancholy to think of these two grand schemes, either of which would have made Whitehall architecturally celebrated throughout Europe, having been imagined and drawn out only to be abandoned.

#### ILLUSTRATIONS TO PAPER ON "WHITEHALL AND THE STRAND."

THESE four views, from old prints, are given as illustrations to the paper read at the Architectural Association by Mr. Andrew Oliver on "Whitehall and the Strand," which is printed in full in the present issue.

The view of Charing Cross is from a print of the latter part of the eighteenth century. That of the Adelphi is from Malton's print of 1795, and shows how the Adelphi Terrace, and the arcade of its subterranean vaults, appeared before the Thames Embankment was made.

The Strand front of old Somerset House (attributed by some to the rather mythical "John of Padua") is from an aquatint by Jukes after a drawing by W. Moss, of the date 1777. The front itself dates from 1547. The garden front is from a print after a water-colour drawing by Sandby in 1756. The date of the facade is however (as is quite obvious) later than that of the Strand front; Inigo Jones altered the river front and gave it its more decidedly Classical character.

### COMPETITIONS.

THE NEW STOCKPORT TOWN HALL.—Instructions have been issued to the invited architects relative to the proposed Stockport Town Hall. The assessor is Mr. T. E. Colcutt, of London, who will advise the Corporation on the relative merits of the designs admitted to the competition, and make a selection. Five premiums will be awarded to the best designs as determined by the assessor, ranging from 100l. to 50l. The successful competitor will be paid 250l. The cost of the building is not to exceed 60,000l., including everything necessary for occupation. The Town Hall is to include a public hall to seat 2,000 persons, with small stage and galleries to end and sides, council-chamber, three committee-rooms, mayor's parlour, and offices for the various departments of the Corporation. The front elevations are to be entirely of stone. All floors of corridors, offices, and storerooms are to be of fire-resisting construction. Designs have to be in not later than June 1 of this year.

VICTORIA MEMORIAL, ALLAHABAD.—Mr. R. F. Sherar, chief assistant to Mr. Henderson, architect, 122, George-street, Edinburgh, has

won the premium of Rs. 2,000 offered by the Queen Victoria Memorial Committee for the best design for a clock tower and canopy to be erected at Allahabad. The assessor was Mr. Oertel, F.R.I.B.A.

CLOCK TOWER, SURBITON.—In reply to the advertisement which appeared in our issue of November 22 last, 116 designs were sent in in this competition, and the committee have selected the designs by Mr. J. Johnson, architect, Queen Victoria-street, London. All the designs will be on view in the Council offices, Surbiton, on Friday and Saturday, January 16 and 17.

#### BANK, DUISBURG, GERMANY.

The accompanying illustration, reproduced from a plate in the *Architektonische Rundschau*, shows the new Government Bank ("Reichsbank-gebäude") at Duisburg, mentioned in our notice of the *Rundschau* under "Magazines and Reviews" last week.

The architect is Professor H. Stiller, Director of the Arts and Crafts School at Düsseldorf.

#### THE SURVEYORS' INSTITUTION.

AN ordinary general meeting of the Surveyors' Institution was held on Monday evening at No. 12, Great George-street, S.W., the President, Mr. Arthur Vernon, in the chair. Some donations to the library having been announced, and a vote of thanks passed to the donors.

Mr. H. T. Scoble read a paper on "Rural Drainage and Sewage Disposal." The author first referred to some letters in the *Times* in 1901, and then gave a short description of Dr. Poore's system; some remarks on the value of effluents, and reasons for the establishment of watershed authorities. Various publications of the Royal Commission were then reviewed, and the progress of bacterial treatment considered. He also dealt with the presence of pathogenic and other bacteria in effluents, and concluded with some remarks on the position as regards rural affairs. In regard to Dr. Poore's system, he said that where sewers are not already in existence, an inexpensive system such as that advocated by Dr. Poore might well be tried. It might be that we are becoming too civilised or too squeamish with regard to the disposal of faeces, &c., and were in consequence committing a gigantic economic error, the magnitude of which could be estimated when we remembered what Sir William Crookes in his book on the "Wheat Problem" stated that some 16,000,000l. worth of fixed nitrogen was annually lost to agriculture by the reckless discharge of sewage into our rivers and the sea. On the other hand, he (Mr. Scoble) did not think that where systems of sewerage and the complicated apparatus of disposal are already in existence, a saving would be effected by the adoption of Dr. Poore's method. The whole of the theoretical manual value of faeces, &c., need not be lost, but it was worth while for any one accustomed solely to the water-carriage of sewage to ponder over the matter.

Assuming that the water carriage system had been decided on or was in operation, the question arose as to the method of disposal. He had previously advocated the bacterial treatment of sewage, and he was more than ever convinced that, on the grounds of efficiency and economy, it was so greatly in advance of other methods, that its general adoption was a mere matter of time. The initial outlay for chemical precipitation works and bacterial installations did not present any great divergence, but, making all allowances for loss of capacity of bacteria beds and a possible renewal of material at intervals, it would be found that the biological system was less expensive, while at the same time giving a better effluent. We had all heard of the value of sewage, treated or untreated, and of sludge, &c., but attention had not, he believed, been directed to the great waste of water which occurred so constantly and in such large quantities. In years of less than average rainfall especially, and often in normal ones as well, root and other crops would benefit enormously could they but receive at such times as the growers desire, a plentiful supply of water. It might be urged that the expense of distributing the water would be too great in many cases that objection would hold good; but there were no doubt numerous instances where the cost would be more than repaid.





THE PARK FRONT OF WHITEHALL PALACE, AS DESIGNED BY INIGO JONES.









BIRD'S-EYE VIEW OF WHITEHALL PALACE, AS DESIGNED BY INIGO JONES.









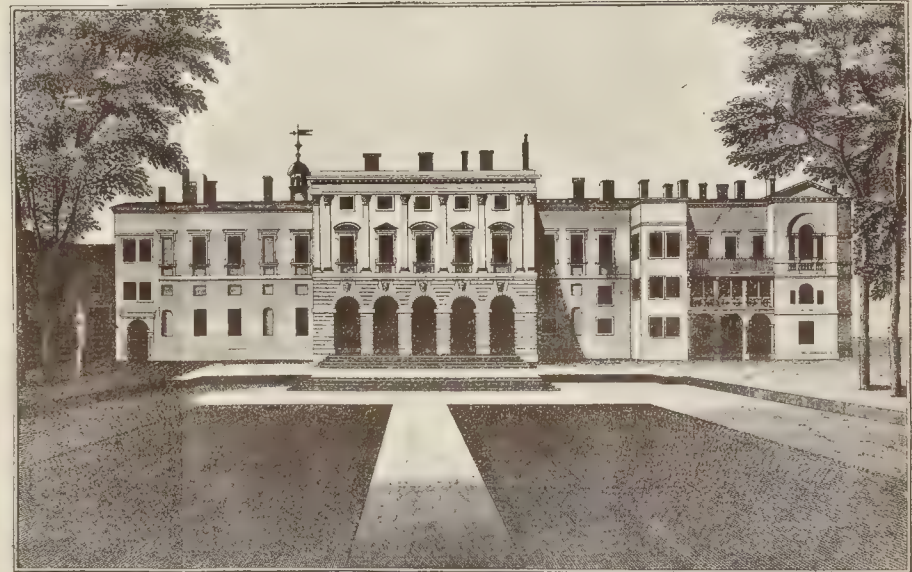
VIEW OF CHARING CROSS IN THE 18th CENTURY.



THE ADELPHI: RIVER FRONT.



OLD SOMERSET HOUSE: FRONT TOWARDS THE STRAND.

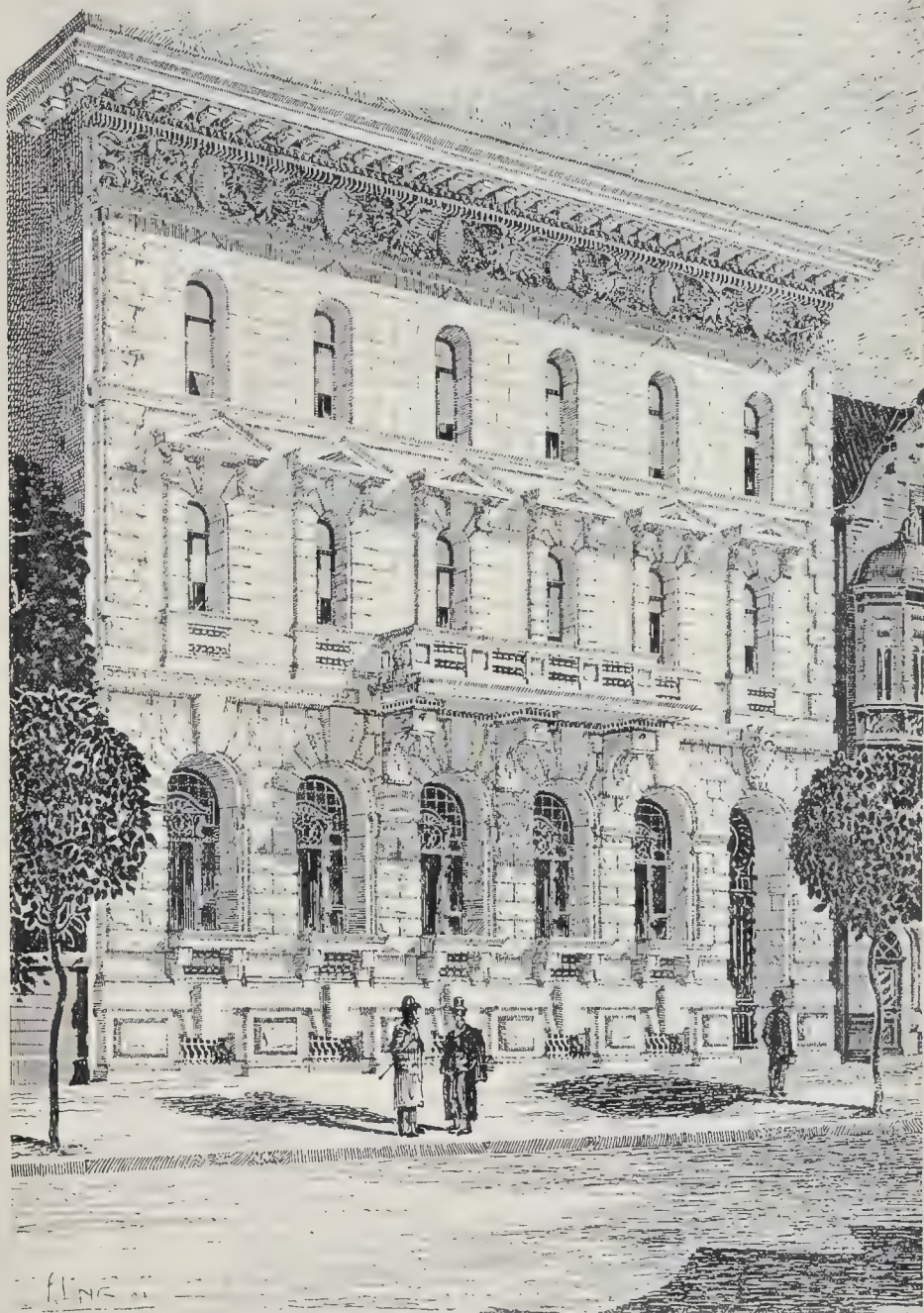


OLD SOMERSET HOUSE: GARDEN FRONT.









New Bank, Duisburg, Germany. Professor Stiller, Architect.  
(Reproduced from the *Architektonische Rundschau*.)

This, he said, must not be confounded with a desire to revert to sewage farms, because, although superficially alike the motives were different, and might be thus expressed: in a sewage farm the aim was to purify the sewage, thereby producing a good effluent; in the

proposed utilisation of a biological effluent the object was solely to benefit the crops. Too often on sewage farms produce had been the first consideration, and a pure effluent of secondary importance; whereas when a purified effluent was not wanted no nuisance attended its dis-

charge into stream or ditch. We must also bear in mind the fact that on account of the deficient rainfall in recent years, or because of the withdrawal of greater quantities of water from the subsoil by pumping on a large scale, a serious and widespread drought was



threatened in many country districts; indeed, to give only one instance, from details already published it appeared that in Essex the water level had been much lowered over a considerable area, and that in the last five years the rainfall had reached only a total of the average of four years. The manurial value of a bacterial effluent must not be lost sight of. By continually sending so much sewage, treated or untreated, into our rivers and the sea, we interfere with the natural food cycle and yearly impoverish the land. It had been calculated that some 90 per cent. of the nitrogen value of sewage could be converted into nitrate by biological treatment; it would seem worth while to take some steps to utilise, as far as possible, the manure thus prepared from sewage.

The author advocated the establishment of Watershed Authorities, having as their duties the supervision of water supply, sewage disposal, and dust destruction. It would seem reasonable, he said, to suppose that, where there is one authority in control of a watershed, no town should be allowed to foul the water supply of a place down stream, nor, on the other hand, should a water supply be taken from a river, already polluted, without special precautions.

Mr. Scole then referred to the various Reports of the Royal Commission on Sewage Disposal. The Commission was appointed in May, 1898, and was still engaged in examining the different methods of disposal now available. The Interim Report was issued in July, 1901. The present Commission holds that the Local Government Board was bound by the finding of its predecessors to insist on the final treatment of the effluent by land; but in view of the large amount of exact knowledge gained concerning the part played by bacteria in various processes of Nature and operations of man, it became necessary to study the many questions connected with sewage disposal, not only from a chemical but from a bacteriological point of view as well. Three questions were propounded and conclusions given, the first two being quoted by the author:

**Question 1.**—"Are some sorts of land unsuitable for the purification of sewage? As regards the allegations that certain sorts of land are so unsuitable as to render them practically useless for the purification of sewage, we have received evidence from a number of witnesses who have had much experience of sewage treatment. Almost without exception their testimony is to the effect that peat and stiff clay lands are unsuitable for the purification of sewage. Our own officers have made a large number of analyses of effluents from well-managed farms with different classes of soil, and their results support this general opinion."

**Conclusion 1.**—"We doubt if any land is entirely useless, but in the case of stiff clay and peat lands the power to purify sewage seems to depend on the depth of the top soil. There are, of course, numerous gradations in the depths of top soil which are met with in nature, and it is not easy to draw the line between lands which contain a sufficient depth to justify their use and lands which do not. We are, however, forced to conclude that peat and stiff clay lands are generally unsuitable for the purification of sewage, that their use for this purpose is always attended with difficulty, and that where the depth of the top soil is very small, say 6 in. or less, the area of such lands which would be required for efficient purification would in certain cases be so great as to render land treatment impracticable. Further information with regard to this point will be available when our investigation of land treatment is completed."

**Question II.**—"Is it practicable uniformly to produce, by artificial processes alone, an effluent which shall not putrefy and so create a nuisance in the stream into which it is discharged? The following general classification will serve to show the nature of the artificial processes to which we refer:—Closed septic tank and contact beds; open septic tank and contact beds; chemical treatment subsidence tanks and contact beds; subsidence tanks and contact beds; contact beds alone; closed septic tank followed by continuous filtration; open septic tank followed by continuous filtration; chemical treatment, subsidence tanks and continuous filtration; subsidence tanks followed by continuous filtration, and continuous filtration alone. Many valuable experiments in artificial treatment have been made by a number of Local Authorities, and

in particular the Corporations of Leeds and Manchester have subjected certain processes to sustained observation. In this way much reliable information has been obtained. We are not, however, in a position to express an opinion upon the relative merits of the several artificial processes, nor can we at present make a complete comparison between land treatment and artificial treatment of sewage, or state how far purification of sewage can be uniformly effected by one or other artificial process, and at what cost as compared with land treatment. The character of the sewage of different towns varies to a considerable extent, especially in respect to the amount and nature of the trade refuse mixed with the domestic sewage, but also in respect to domestic sewage itself; and a method applicable to one sewage might not be applicable to another. The problems involved in the matter are so many and so varied that only investigation and, we may add, experience of a prolonged and varied character will suffice to solve them."

**Conclusion II.**—"After carefully considering, however, the whole of the evidence, together with the results of our own work, we are satisfied that it is practicable to produce by artificial processes alone, either from sewage or from certain mixtures of sewage and trade refuse, such, for example, as are met with at Leeds and Manchester, effluents which will not putrefy, which would be classed as good according to ordinary chemical standards, and which might be discharged into a stream without fear of creating a nuisance. We think, therefore, that there are cases in which the Local Government Board would be justified in modifying, under proper safeguards, the present rule as regards the application of sewage to land. No general rule as to what these safeguards should be can be laid down at present, and, indeed, it will probably always be necessary that each case should be considered on its own merits."

More than 10,250 questions and answers, many lengthy statements, tables, and analyses were included in a volume of 570 odd pages, being Minutes of Evidence taken from June 22, 1898, to May 22, 1901. The appendices of 530 odd pages and some forty-five plans and diagrams were, of course, the complement of the foregoing. It contains several special Reports, detailed particulars of the methods of sewage treatment adopted by the Local Authorities in the West Riding of Yorkshire, Mersey and Irwell Watershed, and Ribbles Watershed, &c.

The second Report of the Commission consists of ten separate Reports made by specially appointed officers—micro- and other photographs are reproduced, plans supplied, and numerous diagrams and tables given. The following is a brief statement of its contents:—

1. *The Oxidation of Sterile Sewage.*—From experiments with sterilised sewage and sterile and non-sterile filters, the conclusion is drawn that the oxidation of sewage containing no bacteria is very slow, or in other words, that the chemical oxidation due to the oxygen in the atmosphere is inappreciable.

2. *The Manchester Experiments.*—It is stated that the experiments at Manchester extended over a period insufficient to establish their value, and it is questioned whether the arrangements made there for septic action were as perfect as they might be.

3. *Bacteriological Standards in Relation to Potable and Non-potable Streams.* 4. *Anthrax in Yeovil Sewage.* 5. *The Sub-cutaneous Injection of Animals.* 6. *The Longevity of B. Typhosus in Sewage.* 7. *Effect of Filtration in reducing the Number of Bacteria in Sewage Effluents.*

8. *The Pollution of the River Severn in the Shrewsbury District.*—"The aim of the investigators," he said, "was to find out what happened to the intestinal bacteria in the river—how far down they were carried; did they multiply in the river or accumulate and multiply in the mud; at what distance below the source of pollution was it safe to drink the water; what was the simplest and most rapid means of detecting intestinal bacterial pollution in the river; and what, if any, effect had the seasons upon the bacteria of the river. The reasons for the selection of the river Severn are given, and the only disadvantage stated is that the sewage is discharged in a crude state, but as no good biological effluent could be so rich in bacteria, it must follow that the purification shown to have been effected would with bacterially treated sewage have been even

greater. Twenty-six miles of river were under investigation, having a flow varying from 85,000,000 to 1,054,944,000 gallons per twenty-four hours, the height at different times was 1 ft. 5 in. and to 10 ft. 8 in., though normally about 3 ft. to 4 ft., the sewage of more than 28,000 people (some 844,000 gallons per twenty-four hours) reached the river absolutely without treatment, averaging probably less than 1 per cent. of the volume of the stream, which practically speaking was pure water; in addition, the cinder refuse, &c., of the town also contributed towards the fouling of the river, as it was in many cases stored on the banks. One of the first things noticed was that the faeces, &c., collected in bays and recesses, that the mud was much blacker than elsewhere in these places, and that the bacteria were more numerous. . . . Among the conclusions arrived at are the following:—1. That the *B. coli* is a most reliable test of pollution; 6. That the sewage of Shrewsbury causes a very great increase in the number of *B. coli* in the river, and that sixteen miles lower down the effect can still be detected by the number of *B. coli* present; 7. That there is no evidence of the multiplication of *B. coli* in the river water; 8. That the *B. coli* is present in considerable numbers in the mud of the Severn in the polluted area, and that this mud may be the means of keeping up and extending pollution, but that there is no evidence of the multiplication of the *B. coli* in the mud; 13. That in the destruction of organic matter, whether solid or in solution, whilst the bacteria take the greatest share, help is also rendered by the *Protozoa* (single or grouped cell animals) and higher forms of animal life, by the sewage fungi, the chlorophyll containing *protophytes* (lowest forms of vegetable life) and the river plants; and 15. That there is no evidence to show that pathogenic bacteria multiply in either the water or mud of the river.

9. *The Self-purification of the River Severn.*—This was a short Report on the chemical condition of the river, and the conclusion was that the Severn water shows a marked recovery from its Shrewsbury pollution within some twenty miles from the town, but no figures showing absolute recovery from organic pollution could be given because, of the further pollution which occurs as it proceeds.

10. *Some of the Chief Methods used in the Bacteriological Examination of Sewage and Effluents.*—As to the progress of bacterial treatment, the author said that the anaerobic treatment of sewage was finding greater favour the better it became known. The chief advantages were (1) that the effluent therefrom was rendered practically uniform (any particularly foul manufacturing or other liquid having to meet some eighteen to thirty-six hours' flow), and was therefore less likely to cause any interference with or interruption to the further steps in purification; (2) that cellulose—i.e., wood, paper, vegetable tissue, &c., as was universally admitted—being amenable to anaerobic action only, undergoes decomposition more quickly than in the interstices of a bacterial bed; and (3) that no fall was required, because the liquid left the tank at the same level as the sewer invert. The deposit on the floor of septic tanks had occasioned much controversy, but its amount was relatively small compared with the total quantity of solids in the sewage, and it could be very easily withdrawn by means of a sump and connecting pipe, without disturbing the general contents of the tank. According to Professor Boyce, the dried sludge from the septic tank at Manchester consisted of about equal proportions of inorganic and organic matter, and burnt readily when heated. A fourth report on the treatment of the sewage of London had been published, advocating the gradual adoption of "continuous undisturbed sedimentation" after the removal of road detritus, to be followed by coke bed treatment. The provision of two successive bacteria beds, to treat septic tank effluent had often been adopted, and it would seem from experiments that scientifically this was correct, as it would allow of the production of nitrates in the first and nitrates in the second bed. He still urged that the regulations of the Local Government Board should be modified in this respect, allowing two small beds each of rather less than half the capacity of those now required.

Both intermittent and continuous treatment (i.e. the holding up and the streaming through methods) in bacteria beds were being practised, and although the result with each was good, it was not possible to say that the one was so



much better than the other that either should be superseded. It would seem that the solution of the problem may arise by subjecting a septic tank effluent first to intermittent and then to continuous treatment. If the anaerobic stage were incomplete on leaving the septic tank, it might be finished during the resting full period, while the streaming through would undoubtedly preclude anaerobic and favour aerobic action. Continued use had fully proved the value of automatic gear, of which there were now many forms on the market. Work goes on day and night, and no storage was therefore required; this, both for large and small installations, was a great economy.

The numerous analyses of biological effluents which were carried out by the Royal Commission having demonstrated that the total number of bacteria present in these effluents as well as the number of *Bacillus coli communis* was usually large, the Commission decided that the effect of subsequent filtration of the effluent should be tried in order to see what further reduction could be effected. Two filters of washed sand, one of unwashed sand, and one of light soil were used, and a bacterial effluent dripped on to them at the rate of from 157,000 to 392,000 gallons per acre per twenty-four hours, the result being that 90 per cent. of the bacteria (all inclusive) were retained, and that some 3 per cent. only of *B. coli* found their way through. Dr. A. C. Houston found in samples collected at Yeovil from the experimental septic tank, first and second bacteria beds, and the mud in the River Yeo the spores of anthrax (*B. anthracis*), due no doubt to the particular industries carried on in that town. It was fortunate indeed that human intestinal anthrax was an almost unknown disease, and also that the River Yeo was not used as drinking water by human beings. There was nevertheless a risk that cattle might be infected, and this was increased by the extensive use of refuse from the hide factories as field manure.

More definite knowledge about the longevity of the *Bacillus typhosus* having been deemed important, it was decided to experiment with inoculations of this microbe in partially sterilised and non-sterilised sewage and effluents. It should be noted that seeing that a harder allied form (*B. coli communis*) is out-distanced and soon perishes when no longer sheltered by the alimentary tract, by reason of competition with coarser bacteria, it was expected that *Bacillus typhi abdominalis* would speedily be destroyed. Nor was this inference doomed to be refuted, for, to take a typical instance, out of 12,000,000 *Bacillus typhosus* per cubic centimetre (say, 200,000,000 per cubic inch) none were recovered at the end of six days or later.

In summing up the state of affairs as regards rural districts, he said: I would particularly draw attention to the very onerous conditions insisted on by the Local Government Board; conditions which must be altered ere the solution of this most important question is attained. We will suppose that for some reason or other the existing method (if there is one) of sewage disposal in a country district is condemned—if recourse be had to a Local Government Board loan it becomes necessary to deal with no less than six times the normal dry weather flow, viz., three times to be fully treated as ordinary sewage, and the other three times on storm filters or special plots of land set apart for this purpose. Further, notwithstanding the Royal Commission's interim Report, it appears that the Local Government Board still clings fondly to land for final purification, justifying its opposition to the letter of Conclusion 2 by a reference to the "under proper safeguards," thus failing to grasp the fundamental principle that bacterial treatment is essentially only an improved form of land treatment, wholly under control and efficient in all states of the weather. Where works can be constructed out of revenue, sufficient purification for all practical purposes can be attained with far less grandiose schemes. The cry to-day is for a common-sense view of the whole question. The evidence of Mr. G. R. Strachan given to the Commission is of so helpful a character that a note or two thereon will be of use if a sensible view of our present difficulties is to prevail. Briefly put, he advocates as a first step that effluents from sewage works should not putrefy or in any way cause annoyance where discharged or further down stream. But where the effluent is at present likely to be as pure as or purer than the water

it joins, the test should be made by taking a volume of tap-water in proportion to the flow of the river, and mixing with the sample for incubation. That is if the flow of the river is ten times the amount of the effluent in the first case, the mixture of ten volumes of river water with one of effluent, and in the second ten volumes of tap-water with one of effluent, must both give satisfactory results. When the whole course of a river is free from gross impurities the standard could be raised. "Fixed standards I hold in abhorrence." Mr. Strachan says further: "If I had my way I would say to Manchester, take all the money you want for that, we will be content if you deal with the dry weather sewage, and one volume extra to allow for the first rush of the water. We will be content if you tackle 60,000,000 gallons a day without your putting down works to deal, on a war footing, with 180,000,000, that must be dealt with later, for the present we excuse you dealing with the difference between that and the 180,000,000 gallons. And I am quite sure that Manchester, Leeds, Sheffield, Bradford, all those big towns, would tackle their problem with a better heart if they were given something more easily got at than the whole problem." If this applies (and clearly it does) to big populations, its force is not diminished when rural bodies are considered; for, if the problem from an engineering standpoint is more easily dealt with, the financial difficulty is as great, if not proportionately much more serious. . . . Existing methods of disposal in places where the population is not rapidly increasing will generally suffice if the importance of thoroughly attending to their duties be brought home to the responsible officials and individuals, but when land is developed as a building estate it is almost hopeless to expect that the owner will refrain from putting water-closets, &c., in the houses. It would be well could regulations be framed to prevent the erection of many contiguous dwellings without provision for a really sanitary system of disposal (cesspools are hardly that)—the person who causes the need should at his own expense provide the remedy. It is fortunate that on account of the adaptability of bacterial treatment this can easily be done—the author is well acquainted with numerous installations for private houses, either singly or in groups. There is some prospect of obtaining the final Report of the Commission during the course of 1903, and unless a substantial modification of its present regulations is then permitted, or rather insisted on, the Local Government Board will act as an incubus instead of being a help to local bodies, and this in two ways—firstly, by causing an urgent matter to be postponed to as late a date as possible; and, secondly, by saddling the owners of property with an altogether excessive burden.

Finally, seeing that it is impossible to lay down any hard and fast rule as to the need of rural drainage and sewage disposal in any district, or, again, as to the means which should be employed to deal with those substances which when collected together in water we call sewage, it seems to me that each problem must be considered on its own merits, but that at the same time the utmost effort should be made to utilise or adapt existing arrangements. This much may be taken as established, viz., that where sewers are adopted bacterial treatment will be found to possess so many advantages over the systems which till its advent held sway that it will be universally used, until, if ever, some Heaven-sent genius wins from excreta, &c., their manual value on a commercial scale and in a portable form, either before or after immersion.

Mr. J. H. Sabin briefly moved a vote of thanks to Mr. Scooble for his able paper.

Professor Robinson seconded the motion, and moved the adjournment of the debate until that day fortnight.

This having been agreed to, and the vote of thanks having been carried, the meeting adjourned.

SOCIETY FOR THE ENCOURAGEMENT OF THE FINE ARTS.—Among the lectures announced by this Society for the coming season are:—On February 10, "The Spirit of Ancient Egypt," (lantern illustrations), by Mrs. Ray S. Lineham; on March 26, "The Boy in the Studio," by Sir Wyke Bayliss, F.S.A.; April 23, "Ruskin's Bible of Amiens" (lantern illustrations), by Mr. H. Beaumont; May 7, "Pictorial Imagination expressed by Snapshot Drawing" (lantern illustrations), by Mr. T. R. Ablett.

## Correspondence.

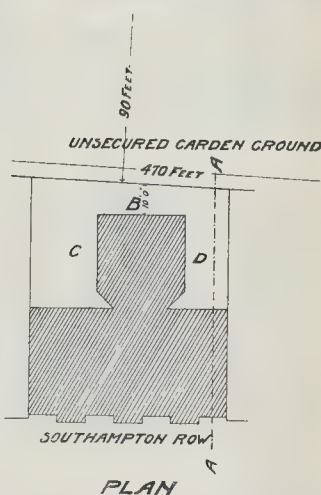
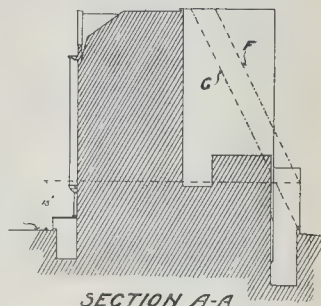
### LONDON BUILDING ACT, 1894.

#### IMPORTANT POINT UNDER SECTION 41.

SIR,—In your issue of the 27th ult., you give a report of the appeal under Section 41 of the Building Act, 1894, to the Tribunal appointed under the London Building Act in regard to the air space at the rear of a building now in course of erection upon the site formerly occupied by Nos. 83, 85, and 87, Southampton-row, against the decision of the London County Council "not to allow a modification of the provisions of that part of the Act with regard to the proposed erection of a building to be known as Nos. 83, 85, and 87, Southampton-row, Holborn, with an irregular open air space at the rear and portions of the building to extend above the diagonal line directed by Section 41 of the Act to be drawn as shown upon the plans submitted with the application."

Your report sets forth in full the application made to the Council; but upon coming before the Tribunal, the whole matter resolved itself into the one question of whether the air space was sufficient or insufficient.

The sketches herewith will explain the case more



fully. The calculations as to air space were admitted by both sides to be for all practical purposes correct.

Sub-Section 2 of Section 41 provides that when it is desired to extend beyond the diagonal line drawn at an angle of  $63\frac{1}{2}$  deg., an equivalent air space should be provided. Equivalent, that is, not to what would have been provided had no part of the building extended above the diagonal line "F" (in this case 55,000 cubic ft.), but equivalent to what would have been provided had no part of the building extended above the diagonal line "G," drawn from ground level (in this case 76,000 cubic ft. odd). The air space provided above the building as planned amounted to 94,000 cubic ft., of which 83,000 cubic ft. were provided above the level of a horizontal line drawn 16 ft. above the pavement.

The contention of the Council was that the spaces C and D were not at the rear of the building, but at the side of the building, and furthermore, that the Tribunal was not entitled to take these spaces into consideration, inasmuch as they were necessary for the lighting and ventilating of the building.

Upon the Tribunal indicating that it was against



the Council on this point, and that the quantity of air space provided was sufficient, counsel to the respondents argued that the quality of the air was not equal to that which would be provided if the whole of the space was entirely behind the rear-most wall of the premises above the 16 ft. line.

The Tribunal, however, were against the contention that the quality was not equivalent, and also against the view that the equivalent space must necessarily be provided entirely behind the rear-most wall of the premises, and allowed the appeal.

CHAS. FITZROY DOLL, F.R.I.B.A., F.S.I.

#### "SCHOOL PLANNING."

SIR,—You have, in your issue of January 10, given so helpful and interesting a review of my book on school building that I hope you will allow me to make a few remarks upon one of the points in which you disagree with the conclusion come to in the book, and that is, with regard to the height of classrooms. You insist that the height suggested, viz., 13 ft., is for ventilation purposes far too low, regretting that I should have used my influence to reduce the cubic space to be allowed. Ventilating engineers of the present day, English, German, and American, are unanimous upon the point, that high rooms are a mistake (see Billings, Carpenter, Morrison, Jacob, Baginsky, &c.). Dr. Billings, the American authority on ventilation, states, after going very carefully into the question, that when reckoning cubic space for the purpose of ventilation, nothing above 12 ft. should be considered. You go on to say that two school officers of health, whom I quote, are in direct opposition to me, but may I point out that one of them, and the more recent writer, while demanding a very large cubic space, expressly stipulates that the height is not to exceed 12 ft. (see p. 58).

My reason for venturing to write to you is that the point is one of importance, because the idea that a lofty room makes better ventilation not only adds largely and unnecessarily to the expense of the building, but actually makes the warming and ventilation more difficult. What I have tried to point out is that the necessary cubic space should be obtained by increasing the floor area, and not the height of the room, but more especially that no allowance of air space should be considered as a set-off against the supply of adequate means of ventilation.

I should like to add that the number of closets and urinals given, which you consider very inadequate, are taken from the new regulations for school buildings issued by the Board of Education a few months ago. I am most grateful to you for the numerous hints and suggestions contained in the article, and should not have thought of writing to dispute any of your remarks had it not seemed to me to be a question that ought to be cleared up.

FELIX CLAY.

#### RAMSGATE COMPETITION.

SIR,—In reference to the result of the competition for technical schools and free library at Ramsgate, a notice of which appeared in your issue of the 3rd inst., in which it was stated that in the first premiated design "the cubic contents amount to 660,700 cubic feet and the cost calculated at 5½d. per foot works out at about 15,250l."

In the conditions supplied to competing architects the following clauses appeared:—

"1. The accommodation required is set forth in the annexed schedule. The areas given should be adhered to as closely as possible, but are not to be taken as absolutely binding.

"2. The total cost of the buildings, including boundary walls, drainage, heating, ventilation, water, gas, and all sanitary appliances, but exclusive of furnishing fees, &c., must not exceed 15,000l."

"3. The following will be held to disqualify a competitor. If, in the opinion of the assessor, the cost will materially exceed the stipulated amount."

Unless there are unusual facilities for building operations at Ramsgate, it appears to be exceedingly unlikely that any building of this class can be erected at the cost of 5½d. per ft. cube.

The accommodation asked for in the above-mentioned schedule was so extensive that to provide it any plan would obviously have to be arranged on the most economical lines, that is if the building was to be cubed at a reasonable figure, the total contents must not exceed about 500,000 cubic ft., which at 7d. per foot (a reasonable figure) brings the cost to 14,500l.

The first premiated design at this figure works out at 10,450l.

It appears to be somewhat unfair to those competitors who kept within the stipulated price and were accordingly limited in the size and arrangement of their plans, that the first premium should be awarded to a plan which failed to comply with the most important and stringent condition of the competition.

If the clause re disqualification was to be taken seriously, surely the design in question should have been disqualified.

I venture to think the matter is of some importance in view of the large number of designs submitted in this competition, and that the facts of the case merit publicity.

E. HOWLEY SIM.

#### ARUNDEL BUILDING ESTATE COMPETITION.

SIR,—Referring to the letter signed "Equity" in your last issue, as competitors, we fully confirm all that is therein stated in respect of this competition. The printed conditions prepared by the Town Clerk were in our opinion badly drawn, and were misleading to the competitors, but the Town Clerk does not appear to be entirely to blame for this, as his Council, judging from reports of their proceedings appearing in the local papers, had really formulated no distinct policy for dealing with the estate.

The ten guinea fee given to the Assessor would have been better expended as a fee for advising the Town Clerk in drafting the conditions of competition. Ten guineas is inadequate as remuneration for properly examining and assessing thirty-five sets of plans.

We took the trouble to take levels and prepared and submitted a plan contoured to every foot of altitude. Without this levelling it is impossible to make a reliable estimate of cost. Our estimate was rather more than half as much again as the estimate of the author of the first premiated design, and having taken out the quantities, and being experienced in this class of work, we know that the roads and sewers in this estate will come to our figure.

The author of the first premiated design did not send sections or levels, and his estimate is, therefore, only guess work, and we think it is unfair that this competitor was permitted to supplement these deficiencies by supplying sections and levels after the award had been made.

FAIRPLAY.

#### "THE QUANTITY SURVEYOR."

SIR,—Will you allow me, in justice to Mr. Wood, to supplement my letter of last week? I fear that Mr. Leaning has misunderstood Mr. Wood's suggestion, which to my knowledge was expressed solely in the best interests of the profession at large.

Does Mr. Leaning suggest that "competency" can only be guaranteed under a membership of the Surveyors' Institution?

If so, his verdict condemns by far the majority of quantity surveyors. To quote the words of one of our High Court Judges, "Distinguishing letters convey to my mind a very questionable passport of a man's qualifications, which distinction has, in the majority of cases, been acquired by 'cramping'—a form of imparting knowledge which, in my opinion, is of little value in practice."

In establishing an association composed solely of quantity surveyors, I would strongly urge registration and strict examination. The quantity surveyor has a distinct profession, and it should not be possible to confound his with that of a house agent who calls himself a "surveyor" and possibly has distinguishing letters after his name.

F. E. HOLLIS.

SIR,—I should gladly see such an Association formed, and doubtless it would receive assistance and co-operation from the building trade.

Many losses now sustained by builders would be obviated if they refused quantities unless taken out by an efficient surveyor according to London or northern practice.

I agree with Mr. Leaning that a simple membership should not be sufficient, but a test examination should be imperative.

Architects not keeping a surveyor on their permanent staff would find the associated member useful.

C. MILLS.

#### The Student's Column.

##### BUILDERS' TOOLS AND THEIR USES.

###### CHAPTER 2.

###### Bricklayers' Tools.

THE following tools, &c., are employed by the bricklayer:—

- |                         |                            |
|-------------------------|----------------------------|
| 1. Trowel.              | 14. Jointer.               |
| 2. Brick Axe.           | 15. Level.                 |
| 3. Chisel.              | 16. Spirit level.          |
| 4. Crowbar.             | 17. Square.                |
| 5. Mash hammer.         | 18. Bevel.                 |
| 6. Bricklayer's hammer. | 19. Bedding block.         |
| 7. Tin saw.             | 20. Rubbing stone.         |
| 8. Scribe.              | 21. Float stone.           |
| 9. Camber slip.         | 22. Moulds.                |
| 10. Lines and pins.     | 23. Straight-edge.         |
| 11. Plumb level.        | 24. Beater.                |
| 12. Battering rule.     | 25. Accessories and plant. |
| 13. Rule.               |                            |

The Trowel is pre-eminently the tool of the bricklayer, and is required both for cutting and laying bricks. The diamond-shaped blade is of cast steel, of varying lengths from 8 in. to 14 in., with breadth proportionate, a convenient size being 12 in. by 5 in. (fig. 18).

Pointing trowels, or pointing tools, have smaller blades than the last, from about 5 in. to 9 in. long, but finished more acutely, and, as their name indicates, are used for pointing. They may be classed as cross joint, stop joint, tuck, and horizontal pointing trowels. "Frenchman" is the trade term for the tool employed in tuck pointing, which trims the face and edges of the raised line standing out on the middle of the thus finished joint. It usually consists of an old table-knife, with the end ground and turned up (fig. 19).

In pointed work the joints are first raked out with a raker, which is a piece of iron with both ends turned in opposite directions, and then stopped with cement or mortar by means of the above pointing trowels. These are sometimes styled pointers' cutting trowels, in contradistinction to bricklayers' brick trowels.

A small hawk (see "Plasterer") is used for holding the mortar on in pointing.

The Brick Axe is for roughly cutting or axing bricks into shape, especially for gauged arches, to the lines marked with the scribe. Its appearance is shown in fig. 20. The solid iron head is 1½ in. wide, and permanently fixed to its short wooden handle.

The Scutch is a modification and improvement on the brick axe, and is illustrated in fig. 21. It consists of a wooden stock and steel blade about 10 in. by 1 in., sharpened at both ends and secured by means of a wedge. When the latter is knocked out the blade can be taken from the stock and readily sharpened, and the whole tool can then be conveniently packed away.

After cutting, the bricks are rubbed smooth with the float stone to remove the works of the axe and to ensure an uniform surface, and the more carefully they are axed the less labour will be required in rubbing them.

The Chisel, or plugging chisel, of the bricklayer is a cold chisel, very large and strong, in sizes of 12 in., 18 in., and 24 in. (fig. 22). It is handy for cutting chases and holes in walls. A short broad-edged chisel, or boaster, is used for cutting or slicing portions off bricks. Brick chisels are driven with the mash hammer.

The Crowbar, or setting bar, required by the bricklayer is only about 3 ft. long, with a spike as well as a chisel end, and is employed for cutting holes in walls, &c.

The Mash Hammer essentially belongs to the mason, but is chiefly used by the bricklayer to give blows to the chisels and crowbars. It is short and heavy, weighing about 5 lb., with a solid steel head, and handle 6 in. long. It is sometimes termed a club hammer (fig. 23).

The Bricklayer's Hammer is depicted in fig. 24, and has a long, slightly curved head, one end of which tapers off to a cutting edge, 1½ in. wide.

The Tin Saw is for running grooves about ½ in. deep along bricks where they have to be cut by the brick-axe, to prevent the latter from splitting them, the line for the groove being first marked with the scribe. The tin saw is only necessary where very accurate workmanship is desired, such as in gauged brickwork; also in cutting false joints of headers and stretchers (fig. 25).

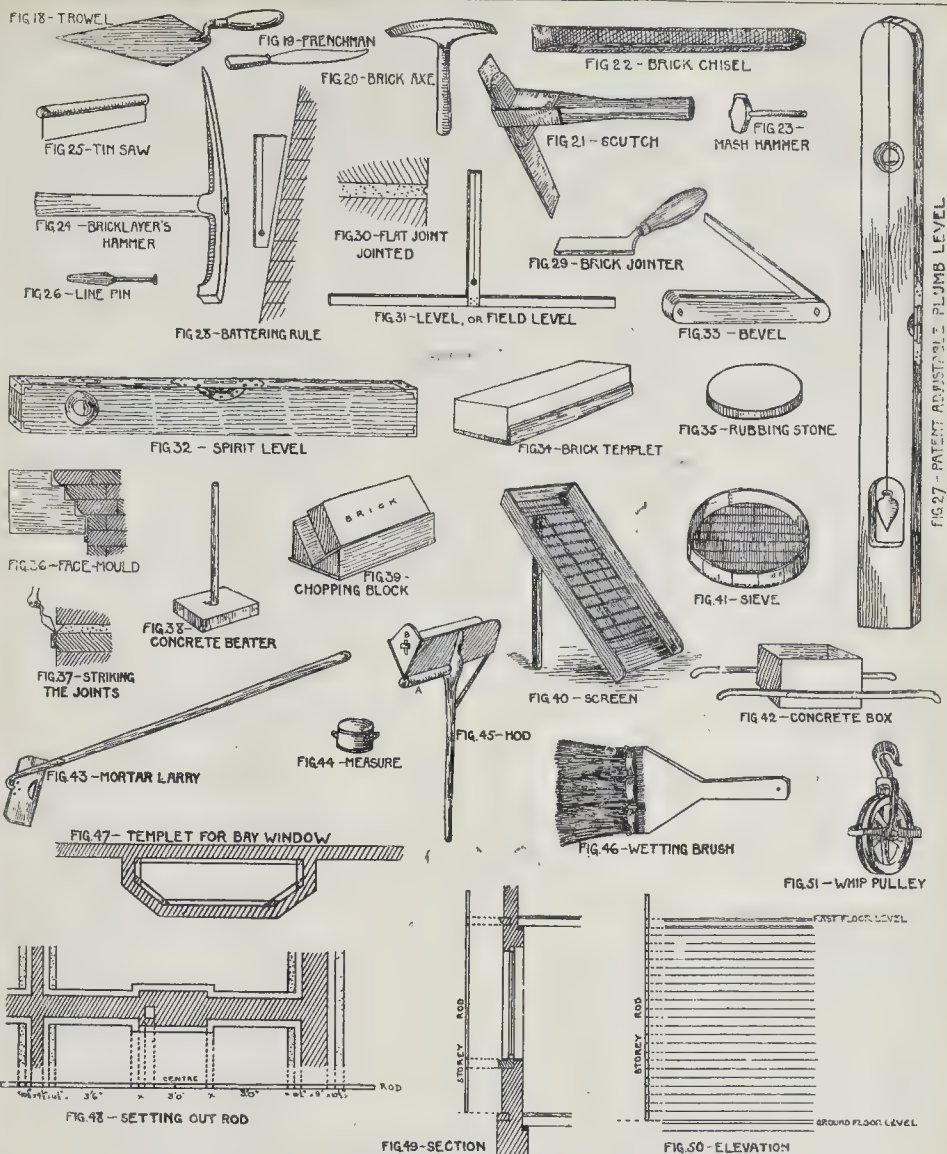
The Scribe is a spike or large nail with a sharp point to mark the lines for the grooves of the tin saw. The term is likewise applied to a pointed piece of steel employed for marking off the positions of bolt-holes, &c., in ironwork.

The Camber Slip is a piece of wood, usually about ½ in. thick, with at least one curved edge, rising about 1 in. in 6 ft. for drawing the soffit line of straight arches.

When the top edge is curved, it rises about half that of the other, that is about ½ in. in 6 ft. for the purpose of drawing the upper line of the arch with a slight rise, so as to prevent it becoming hollow by the settling of its weight. The upper edge is not always cambered, many preferring it straight. The slip being sufficiently long, it answers the width of many openings; and when the bricklayer has drawn his arch, he delivers it to the carpenter to prepare the centre for it."—Gwill.

Lines and Pins are necessary to guide the building up of the walls, so that each course may be kept straight in the face and level on the bed. The cord is usually three-strand, nine-thread, and about 60 ft. long, wound round the pins, and unrolled as may be required, and fastened and stretched at proper intervals of the wall, the brick courses being carefully adjusted between. The pins are used in pairs, and are of steel, 6 in. long, with flat spear points, and generally with flat





Illustrations to Student's Column.

circular heads, though these sometimes have eyes through which to strain the line accurately (fig. 26).

The *Plumb Level*, or plumb rule, is for ascertaining the perpendicularity of walls, i.e., whether the walls are carried up "plumb." It consists of a wooden batten or straight-edge, about 4 ft. 6 in. long and  $\frac{1}{4}$  in. wide, with a line and pear-shaped lead plummet attached to it, swinging down the centre. By the law of gravity the weighted cord always has a tendency to be vertical, and when so it coincides with a central line marked on the batten and the bob hangs in the hole at the bottom of the level. The plummet generally weighs about 1 lb. An improvement on the ordinary plumb rule is seen in fig. 27, where a patent adjustable plumb level is illustrated. This simply has the addition of two small spirit levels, one inserted towards the top and the other at the side, so as to obtain all the more accurately a perpendicular surface.

The *Battering Rule* is practically a plumb level with one side cut to the required batter,

and is needed for setting-out battering and curved work, the mode of application being shown in fig. 28. When the slope of the batter runs at an uniform inclination or angle it is termed a "straight batter."

The *Rule* used by the bricklayer is the ordinary boxwood one, 2 ft. long, and four-fold. Its appearance and use do not necessitate mention, beyond observing that it is advisable to have degrees marked on the brass joint, to facilitate the laying-off of angles, and that the inside edges should be bevelled, with architectural scales marked thereon, to assist in scaling-off dimensions from drawings.

The *Jointer* is an iron tool, generally shaped like the letter S, but sometimes of the form indicated in fig. 29, for marking lines in jointing brickwork, especially tuck-pointing in old work, but the point of a trowel is frequently employed instead. A "flat joint and jointed" is represented in fig. 30, the indent, or sham indication of a joint, being made with the jointer, which is guided by running it along a

jointing-rule—a strip of wood 8 ft. or 10 ft. long and 4 in. broad.

The *Level* is a straight edge of wood, about 10 ft. or 12 ft. long, and made in the form of an inverted T, the vertical arm being a plumb rule. This is also called a field level (fig. 31). It is required to test the level of the walls at various stages of the work, the long horizontal arm enabling a considerable reach being proven. Another kind of level consists of a long thin batten used for the purpose of levelling such work as concrete in foundations, in which bricks are first embedded and then their tops brought to one horizontal surface. The concrete being filled up flush with the upper edges of these bricks, the batten is applied, and its horizontality determined by laying a spirit level along the top and noting the position of the air bubble. Only a few bricks are used to act as gauges for the filling up of the intervening concrete, and are afterwards removed. The levelling of concrete in trenches is effected in another way; by driving in pegs and cutting them off to the required



SCHOOL BUILDINGS AT BEDWELTY.—At the monthly meeting of the Bedwelty School Board



**NATIONAL FEDERATION OF BUILDING TRADE EMPLOYERS.**—The annual meeting of the Midland Centre of the National Federation of Building Trade Employers of Great Britain and Ireland was held on the 9th inst. at the Acorn Hotel, Birmingham, under the presidency of Mr. W. Sapcote (Birmingham). There were present representatives from Birmingham, Nottingham, Leicester, Derby, Dudley, West Bromwich, Stourbridge, Nuneaton, Mansfield,



Worcester, Walsall, Wolverhampton, Kidderminster, Hinckley, &c. Reference was made to the strike of plasterers at Marie Hall, Llandudno, where the operatives demanded that, because the work was being carried out by a Birmingham firm the rate of wages current in Birmingham should be paid instead of the standard rate paid in Llandudno. Mr. W. Smithers (Birmingham) said the plasterers employed on the work came from Llandudno and the district. If the men had been taken from Birmingham the rate of wages in the city would be paid. The anomaly was that trade union plasterers would work for local employers at the local rates, but demanded the Birmingham rate because the employers came from Birmingham. The Chairman said that if such a principle were adopted it would be a disastrous thing for the building trade. He would like to know whether the trade-unionists who fought for this principle would work for an employer from Birmingham on work in London, and only ask for or expect the Birmingham rate of wages. It entirely upset the much-cherished "payment of the standard rate of wages for the district" which most public bodies insisted on. Several speakers took part in the discussion, and the opinion was expressed that the principle was one affecting every employer in the building trade.—The Chairman, in proposing the election of Mr. C. H. Barnsley as President for the ensuing year, said that the Federation were fortunate in obtaining the services of a gentleman so well known and honoured in the building trade to take upon himself the duties of the office. The motion was seconded by Mr. J. V. Porter and in supporting it County Alderman Bowen said that they were specially indebted to Mr. Barnsley for accepting the office, inasmuch as at very short notice Mr. J. Sharman Wood, of Worcester, had felt compelled to decline the position on account of advancing age. The proposition was cordially accepted. Mr. Barnsley, on taking the chair, said that he was certainly under a disadvantage, but they might rely upon him doing his best for the interests of the Federation and the welfare of the building trade. Mr. James V. Porter (Derby) and Mr. H. Willcock (Wolverhampton) were elected vice-presidents, County Alderman Bowen, J.P. (Birmingham), treasurer, Councillor F. G. Whittall (Birmingham), and County Councillor Dallow (Blackheath) auditors. In the course of the day the representatives were entertained to luncheon by the Birmingham members of the executive.

**LONDON BRIDGE WIDENING.**—The eastern footway on London Bridge was thrown open to the public on the 12th inst., and the bridge will soon be closed to pedestrians, who will cross and recross by means of the temporary footways. The work of widening the structure has already been begun, and it will be completed within two years.

### LEGAL.

#### EMPLOYERS' LIABILITY ACT:

##### QUESTION AS TO SAFETY OF SPLICED LADDERS.

At the Brompton County Court (London), Friday last week, before Judge Stonor and a jury, Charles Stephens, a builder's general labourer, 31, Harrow-road, Baiterssea, brought the action under the Employers' Liability Act, against Messrs. Wilkes Bros., builders and contractors, 164, Buckingham Palace-road, S.W., claiming maximum damages in respect of personal injuries, said to have been sustained owing to negligence on the part of the defendants or their servants.

Mr. J. W. Moysey, counsel, appeared for the plaintiff, and Mr. W. Colam, counsel, for the defendants.

The plaintiff stated that he was engaged by the defendants on October 6 last as a general labourer. Four days later he was working upon a ladder, which was spliced at the top of another. Suddenly the lower ladder broke, and he was precipitated some thirty feet to the ground. His injuries were so serious that he was at the present time quite unable to do any work at all. The ladders in question were spliced under the foreman's superintendence, he (plaintiff) having nothing whatever to do with the splicing.

Mr. Colam was putting, in cross-examination, some questions with regard to the plaintiff's opinion as to the precise cause of the accident, but

His Honour intimated that the learned counsel was wasting time by asking for the witness's opinion rather than questions of fact.

Mr. Colam strongly resented, and thereupon handed back his brief to the solicitor instructing him, and the solicitor from this point conducted the case for the defence.

George Henry Bruckland, who had been in the defendants' employment, stated that the foreman, Bettridge, and two of the other men spliced the ladders. After the accident one long ladder was used in place of the two which had been spliced.

Mr. Christopher Richard Griffiths, architect and surveyor, stated that on examining the ladders in question, he found that the one used at the top was much too heavy to be spliced to the lower one. The ladder which broke was weakened by having three holes close together in one side.

Three medical men gave evidence as to the plaintiff's injuries.

For the defence, Mr. James Kirby, manager to the defendants, maintained that the ladder which broke was a reasonably sound one. The men were working in an area, on all sides of which there were high walls, and it was safer to use two comparatively short ladders spliced together than to get a long one over the roofs of the adjoining premises.

In cross-examination, the witness admitted that after the accident one long ladder was used for the work in question. The only possible explanation he could offer as to the cause of the accident was that the lower end of the ladder was not sufficiently close to the wall.

George Bettridge, the foreman on the job, said that the ladders were spliced according to his orders, and he maintained that they were spliced in a proper way. It was usual in the building trade to splice two ladders together when difficulty might be experienced in getting a long ladder on the job, as in the present case.

Several workmen gave evidence to the effect that spliced ladders, such as those used upon this job, were frequently used in the building trade.

Mr. William Alfred Harris, a builder and contractor, expressed the opinion that two properly-spliced ladders were "ten times more safe" than one very long one.

John William Winter, foreman to a firm of ladder makers at Paddington Green, stated that, having examined the ladders in question, he came to the conclusion that they were perfectly sound, and had been properly spliced together.

Further medical evidence having been given.

The Judge said it was for the jury to say whether spliced ladders ought to have been used for the work in question, and whether the two ladders referred to were properly spliced. His Honour commented specially upon the evidence regarding a heavy ladder being spliced above another.

The jury answered the questions in the plaintiff's favour, and assessed the damages at 120*l*.

His Honour gave judgment accordingly, and allowed costs.

### PATENTS OF THE WEEK.

#### APPLICATIONS PUBLISHED.\*

486 of 1902.—J. FORBES and H. Y. DICKINSON: *Window Blinds or Screens*.

This relates to window blinds or screens, and its object is to enable the window when illuminated from the inside by artificial light, or from the outside by natural light, to be transformed at will into an apparently stained-glass or painted window having, for example, an antique architectural design, by which means the entire appearance of a house may be altered. The invention consists, in combination, of a body of flexible semi-transparent material, a device, such as a representation of a painted or stained-glass window, occupying the central field thereof, and an opaque blank surface or border, impervious to light, surrounding the representation, in the manner of a stained-glass window.

1,082 of 1902.—G. HINCHCLIFF: *Joining Bricks or Tiles*.

This relates to the method of joining bricks or tiles by filling in the small spaces left between such bricks or tiles with lead. The invention relates to the manufacture of bricks or tiles with recesses, and shoulders so formed as to leave dovetail-shaped spaces between such bricks or tiles.

1,086 of 1902.—J. A. RICHARDS: *Manufacture of Lock Escutcheons or Keyhole Liners*.

This relates to the manufacture or production of escutcheons or keyhole liners from a ring or annular blank of metal, or from a circular, elliptical, or similar blank produced from sheet or wrought metal, and whose walls are subjected to lateral pressure, or operated upon by tools acting laterally to fashion the same to the desired form.

1,599 of 1902.—C. H. THOMPSON and THE CRYSTAL-LINE CO., LTD.: *Manufacture of Glass Tiles and Bending of Sheet Glass to Form Bullnoses, Mouldings, Angles, Beadings, and the like*.

This relates to the manufacture of tiles, and consists in the employment of a mould, either plain or having a suitable pattern in relief or in intaglio; glass in a sheet or pieces, or particles placed within the mould and reduced by heat to a plastic condition, and a die in conjunction with the mould to impress the desired pattern thereon.

564 of 1902.—F. R. PEARSON: *Apparatus for Regulating Communication between Drains, Sewers, and such-like Conduits*.

This relates to a valve for preventing the return flow of liquid through drains, sewers, and other conduits by a casing at a low level furnished with a float and sealing, the rise of the valve in the casing effecting the close of the valve aperture.

1,604 of 1902.—T. W. EBDELL: *Device for Plugging or Stopping-up Drains, Water, or Gas Pipes, more particularly for Use in the Testing of Drains*.

This relates to a plug or stopper for drain, water,

\* All these applications are in the stage in which opposition to the grant of a Patent upon them can be made.

or other pipes, sewers, or the like, characterised by a hollow or solid conical or tapered bodypiece of circular, oval, or other suitable shape in cross section, provided with a rubber or other elastic or suitably extensible ring, for encircling and riding up the inclined or stepped face of such bodypiece, and with or without a plug or other connexion and screw or other cap.

1,720 of 1902.—A. & J. MAIN & Co., LTD. (J. A. Main): *Lifting Gates or Barriers*.

This relates to a lifting gate constituted of a counterbalanced swing barrier pivoted on supporting columns and having suspended from it a collapsible screen formed by vertical bars to which are pivoted horizontal bars.

1,707 of 1902.—R. H. SMITH: *Mills, Presses, or Machines for the Production of Earthenware, Drain, and Similar Pipes*.

This relates to mills, presses, or machines for the production of earthenware and similar pipes, and consists in the use of a horizontally, or approximately horizontally working cutting knife or wire, automatically operated from the up and down moving table, and by weights. The invention further consists in the combination with the forming die and an up and down moving table, of inclined and straight surfaces carried by the table, and which are provided with hinged portions, and a horizontally working knife-carrying frame, working in conjunction with the said surfaces and with weights, and which is automatically moved by the said surfaces and weights.

1,806 of 1902.—W. E. HEYS (F. B. GILBRETH): *Concrete Mixers*.

This relates to an apparatus for mixing concrete, and consists in the combination of a plurality of bins for holding the solid constituents, and having their controlled outlets in contact with a rotary drum or travelling band, with a pump or water measurer participating in the motion of the drum or band, and a device whereby the speed of the pump or water measurer can be varied.

2,292 of 1902.—G. WILTON: *Manufacture of Pitch Compounds or Substitutes*.

This relates to the manufacture of a pitch compound or substitute by mixing coal dust, bituminous coal dust, or bitumen with tar which has been distilled or not, or with tar oils, soft pitch, petroleum oils, or residues (the term "petroleum residue" including oil gas tar), and distilling the mixture or heating or digesting the same to the required extent.

3,261 of 1902.—R. ZELEENKA: *Construction of Fireproof Floors and the like*.

This relates to a process for the manufacture of non-warping and firmly-adhering xylolite covering for floors, the chief characteristic feature of which, is that the floor to be covered with xylolite is furnished with reticulated plates or gratings, fixed or not, by nailing upon the under floor or supporting portion, which is then entirely covered with an appropriate thickness of xylolite.

11,314 of 1902.—E. SCHWARZ: *Fireproof or Non-Conducting Walls or Ceilings for Buildings*.

This relates to a fireproof and non-conducting wall and ceiling for buildings of all kinds, in which slabs provided with mortises and tenons and composed of iron girders placed in rows at a given distance apart and enveloped in cement concrete, are fitted into one another, forming either single walls or (when placed in juxtaposition at a certain distance apart) double walls and ceilings which are insulating, fire-resisting, and very strong, without being of great weight.

22,944 of 1902.—F. W. KÜHN: *Concrete Ceilings*.

This relates to a process for making a concrete ceiling hung on the ceiling timbers by driving hanging-irons or the like into the sides of the ceiling timbers at the same level, inserting metal rods or bands in the said hanging-irons, and ramming a concrete layer around the rods or bands, which layer is applied by means of a scaffold placed from above, so that the concrete layer is directly suspended on the timbers.

23,841 of 1902.—J. E. BENNETT: *Apparatus for Warming Rooms, Offices, Conservatories, and the like, the same being also Applicable for Cooling Purposes*.

This relates to a portable heating or cooling apparatus, and consists in constructing the same of corrugated metal sheets so secured together and to standards as to form in effect a hot or cold wall with corrugated faces at each side.

1,246 of 1902.—C. BAUER (C. KESTER): *Floor Coverings*.

This relates to a floor covering made by applying linseed oil on a slab or table having a more or less undulating or waved upper surface, then sprinkling sawdust, powdered cork, or similarly suitable material thereon, drying this layer, and repeating the process until a block of sufficient thickness results, cutting the block into veneers and polishing the latter when quite dry, and applying piece after piece either direct to the floor or on a suitable backing.



1,616 of 1902.—H. ROBINSON: *Apparatus for Automatically varying the Direction of Flow and Point of Discharge of a Continuous Stream of Liquid.*

This relates to an apparatus consisting essentially of a rotary member arranged between the source of supply of the liquid to be dealt with and conduits for the discharge of the liquid at different points, which member is caused to rotate through the medium of mechanism directly actuated by a stream of the liquid, and by its rotation causes passage of the liquid to each of the several conduits in succession.

1,965 of 1902.—J. S. BRUCE: *Door Fasteners.*

This relates to doors of the double or folding type, and consists of means for automatically securing and releasing one of the door members by the closing and opening movement of the other door member, comprising catch levers and engaging pieces.

2,411 of 1902.—L. WEAVER and LOCKERIE & WILKINSON, LTD.: *Rim Lock Case and Staple.*

This relates to rim lock or staples, which are formed of an inferior metal, and consists in the combination of a recessed face and a panel of repousse or other ornamental work fixed into such recess. It further relates to the mode of and means for securing the panels in the recesses.

19,414 of 1902.—F. H. BURGART and J. PENN: *Safety Elevators.*

The purpose of this invention is to provide a novel form of safety appliance for elevators and hoisting appliances adapted to travel in a well or between vertical guides, the object being to arrest the descent of the car, platform, or the like, in the event of the hoisting rope breaking or slipping from the pulley, or other cause tending to permit the car or platform, under usual conditions, to descend rapidly and at a dangerous speed. In accordance with this invention a dog or arrester is pivotally and slidably mounted, and is normally held out of action by the lifting force exerted for holding the car or platform in suspension, the dog or arrester being acted upon by two springs of novel arrangement for throwing it into operative position for arresting the descent of the car under abnormal conditions, and producing a slack for severance of the hoisting-rope.

21,141 of 1902.—J. W. MOSELEY and T. P. MACKAY: *Wall Framing for Portable or Permanent Buildings.*

This relates to a skeleton framing (applicable to either inside or outside walls) of metal and wood, with bent metal staple-like bolts of special design, unscrewed and special metal pockets, for securing top and bottom of stanchion girders.

22,544 of 1902.—H. E. RATHBUN and W. H. LONERGAN: *Sash Balances.*

This relates to a sash balance comprising a shaft, a gear rotatable thereon, and consisting of two sheet-metal sections forming a gear case, each of said sections having a peripheral wall furnished with hollow teeth—the teeth of one section fitting within the teeth of the other section—a spring located between the sections and connected with the shaft and with one of the sections.

22,557 of 1902.—H. E. RATHBUN and W. H. LONERGAN: *Sash Balances.*

This relates to a geared sash balance, comprising a casing, a gear frame mounted for movement therein, a spring-actuated gear rotatably mounted in the frame, means for retracting the spring frame to carry the gear out of the operative position, and means for locking the gear frame from rotation when in the retracted position.

22,806 of 1902.—E. BUSCHER: *Device for Opening and Closing Fanlights.*

This relates to a device for opening and closing fanlights, comprising in its construction a vertically movable slide guided on the side of the fanlight frame, a spring connecting the said slide with the fanlight, a hand rod hinged to the said slide, a locking device fixed partly to the said rod and partly to the fanlight frame, and an inclined frame fixed to the fanlight.

22,940 of 1902.—J. S. STOKES: *Metallic Claw Clamp or Staple Strip.*

This relates to a staple strip comprising a plurality of connected staple strips, each consisting of a head and two prongs, a prong of one staple being joined at its point only to the head of an adjacent staple.

23,132 of 1902.—B. TURNER: *Bolts for Doors.*

This relates to panic bolts, consisting of two half bolts capable of moving in opposite directions and actuated through a lever from a transverse rod, and consists in the employment of a link connected to the arm of said lever, which projects into the bolt case, the opposite end of such link being connected to a double-armed lever, the arms of which respectively engage one of the inner ends of the two half bolts.

21,784 of 1902.—J. A. DONNELLY: *Hot-water Heating Systems.*

This relates to a hot-water heating system for buildings having more than one floor, consisting of

a hot-water riser or tube extending from floor to floor, and constituting a hot-water main—a series of hot-water circulating systems—radiators communicating with the said hot-water main at different points in its length, and a steam heating pipe extending longitudinally through the said hot-water main to heat the water, and cause it to circulate through the series of radiators.

## MEETINGS.

FRIDAY, JANUARY 16.

*Institution of Mechanical Engineers.*—Mr. H. F. Donaldson on "Cutting Angles of Tools for Metal Work, as Affecting Speed and Feed." 8 p.m.  
*Institution of Civil Engineers (Students' Meeting).*—The fifth annual lecture to the Students will be given by Professor W. C. Unwin on "The Measurement of Water." 8 p.m.

SATURDAY, JANUARY 17.

*Junior Institution of Engineers.*—Visit at 3 p.m. to the New Electricity Works of the Metropolitan Borough of Shoreditch, Whiston-street, Haggerston.

MONDAY, JANUARY 19.

*Royal Institute of British Architects.*—1. Election of candidates for membership. 2. To read deed of award of prizes and studentships for 1902-3, in accordance with By-law 66. 3. Professor H. E. Armstrong, F.R.S., on "Science Workshops for Schools and Colleges." 8 p.m.  
*London Institution.*—Mr. Hillaire Belloc on "The City of Paris," illustrated. 8 p.m.  
*Liverpool Architectural Society (Incorporated).*—Discussion, to be opened by Mr. W. Goldstraw, on "The Revised Corporation Building By-laws." 6 p.m.

TUESDAY, JANUARY 20.

*Society of Arts (Applied Art Section).*—Mr. G. F. Bodley, R.A., on "Principles which Should Guide All Applied Art." 8 p.m.  
*Royal Victoria Hall, Waterloo-road, S.E.*—Dr. James Leicester on "The Spectroscope and Starlight." 8.30 p.m.  
*Gloucester Architectural Association.*—Mr. J. D. Mills on "Architecture in North Staffordshire." 8 p.m.  
*Institution of Civil Engineers.*—Discussion on Mr. H. F. Joel's paper on "Electric Automobiles." 8 p.m.

WEDNESDAY, JANUARY 21.

*Society of Arts.*—Mr. A. Sonnenschein on "The Metric System." 8 p.m.  
*Builders' Foremen and Clerks of Works' Institution.*—Annual meeting of the members. 8 p.m.  
*Edinburgh Architectural Association.*—Mr. J. A. Gutch on "The Homes of Queen Elizabeth's Courtiers," illustrated. 8 p.m.  
*Institution of Civil Engineers.*—Students' Visit to the Works of Messrs. Yarrow & Co., Poplar. 2.30 p.m.

THURSDAY, JANUARY 22.

*Royal Institution.*—Dr. A. J. Evans on "Pre-Phoenician Writing in Crete, and its Bearings on the History of the Alphabet." 8 p.m.  
*Institution of Electrical Engineers.*—Discussion on the Metric System, to be opened by Mr. Alex. Siemens, Past President, in favour of the Metric System, and by Sir Frederick Bramwell, Bart., F.R.S., in favour of the British System. 8 p.m.

FRIDAY, JANUARY 23.

*Architectural Association.*—Mr. J. Dudley Forsyth on "The Attitude of the Young Architect towards the Crafts." 7.30 p.m.  
*Birmingham Architectural Association.*—Mr. A. T. Cooper on "The Application of Electric Light to Buildings." 8 p.m.

SATURDAY, JANUARY 24.

*The Craft School (137, Clive-road, Bethnal Green, E.)*—Mr. E. Cooke on "The Elements of Design," illustrated by the work of the Craft School. 8.30 p.m.

## SOME RECENT SALES OF PROPERTY:

## ESTATE EXCHANGE REPORT.

January 7.—By HOWELL, SON, & BONNIN.  
South Kensington—25, Emperor's Gate, f.1, e.r. 140l. £4,050

January 8.—By HARDS & BRADLY.  
Deptford—216, Grove-st., f.1, e.r. 26l. 450  
Lewisham—20, Whitburn-rd., f.1, e.r. 26l. 245  
Wandsworth—9, Wiseton-rd., f.1, y.r. 26l. 400  
36, Brodric-rd., f.1, y.r. 40l. 800

By J. J. HILL & WEAVER.  
Battersea—Winstanley-rd., The Clarence Tavern, freehold rental of 84l. reversion in 3½ yrs. 3,000  
Stamford Hill—47, Plevna-rd., u.t. 7½ yrs, g.r. 5l. 10s, w.r. 16l. 8s. 200

*Contractions used in these lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; g. for garden; yd. for yard; gr. for grove; b.h. for beer-house; p.h. for public-house; o. for offices; s. for shops. 11 11

## PRICES CURRENT OF MATERIALS.

\* Our aim in this list is to give, as far as possible, the average prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

## BRICKS, &amp;c.

	£ s. d.	
Hard Stocks	1 14 0	per 1,000 alongside, in river.
Rough Stocks and Grizzles	1 11 0	" " " "
Facing Stocks	2 12 0	" " " "
Shippers	2 5 0	" " " "
Flettons	1 7 6	at railway depot
Red Wire Cuts	1 12 0	" " " "
Best Fareham Red	3 12 0	" " " "
Best Red Pressed Ruabon Facing	5 0 0	" " " "
Best Blue Pressed Staffordshire	4 5 0	" " " "
Do. Bullnose	4 11 0	" " " "
Best Stourbridge Fire Bricks	4 8 0	" " " "
Glazed Bricks.		
Best White and Ivory		
Stretchers	13 0 0	" " " "
Headers	12 0 0	" " " "
Quoins, Bullnose, and Flats	17 0 0	" " " "
Double Stretchers	19 0 0	" " " "
Double Headers	16 0 0	" " " "
One Side and two Ends	19 0 0	" " " "
Two Sides and one End	20 0 0	" " " "
Splays, Chamfered, Squints	20 0 0	" " " "
Best Dipped Salt Glazed Stretchers and Headers	12 0 0	" " " "
Quoins, Bullnose, and Flats	14 0 0	" " " "
Double Stretchers	15 0 0	" " " "
Double Headers	14 0 0	" " " "
One Side and two Ends	15 0 0	" " " "
Two Sides and one End	15 0 0	" " " "
Splays, Chamfered, Squints	14 0 0	" " " "
Second Quality White and Dipped Salt Glazed	2 0 0	less than best.
Thames and Pit Sand	7 0 0	per yard, delivered.
Thames Ballast	6 0 0	" " " "
Best Portland Cement	30 0 0	per ton, delivered.
Best Ground Blue Lias Lime	22 0 0	" " " "

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.  
Grey Stone Lime ..... 20s. 6d. per yard, delivered.  
Stourbridge Fire-clay in sacks 27s. 6d. per ton at rly. dpt.

## STONE.

	s. d.	
Ancaster in blocks	11 11	per ft. cube, del. rly. depot.
Bath	1 7	" " " "
Farleigh Down Bath	1 8	" " " "
Beer in blocks	1 6	" " " "
Grinshill	1 10	" " " "
Brown Portland in blocks	2 2	" " " "
Darley Dale in blocks	2 4	" " " "
Red Corsehill	2 5	" " " "
Closworth Red Freestone	2 0	" " " "
Red Mansfield	2 4	" " " "
YORK STONE—Robin Hood Quality.		
Scrapped random blocks	2 10	" " " "
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 3	per foot super.
6 in. Rubbed two sides	2 6	" " " "
Ditto, Ditto	2 11	" " " "
3 in. Sawn two sides slabs (random sizes)	0 11	" " " "
2 in. to 2½ in. Sawn one side slabs (random sizes)	0 7½	" " " "
1½ in. to 2 in. ditto, ditto	0 6	" " " "
BEST HARL YORK—Scrapped random blocks	3 0	per ft. cube
6 in. sawn two sides, landings to sizes (under 40 ft. sup.)	2 8	per ft. super.
6 in. Rubbed two sides	—	" " " "
Ditto	—	" " " "
3 in. sawn two sides slabs (random sizes)	1 2	" " " "
2 in. self-faced random flags	0 5	" " " "
Hopton Wood (Hard Bed) in blocks	2 3	per ft. cube.
" " 6 in. sawn both sides landings	2 7	per ft. super.
" " 3 in. ditto	1 2½	" " " "

## SLATES.

	£ s. d.	
20 x 10 best blue Bangor	2 6	per 1000 of 1200 at rly. dep.
20 x 12 " "	13 17 6	" " " "
20 x 10 best seconds	12 15 0	" " " "
20 x 12 " "	13 10 0	" " " "
16 x 8 best	7 0 0	" " " "
20 x 10 best blue Portmadoc	—	" " " "
do	12 5 0	" " " "
16 x 8 best blue Portmadoc	6 0 0	" " " "
20 x 10 best Eureka un-fading green	15 0 0	" " " "
20 x 12 " "	16 10 0	" " " "
18 x 10 " "	11 10 0	" " " "
16 x 8 " "	8 7 6	" " " "
20 x 10 permanent green	10 10 0	" " " "
18 x 10 " "	9 0 0	" " " "
16 x 8 " "	6 5 0	" " " "

[See also page 77.]



## COMPETITIONS, CONTRACTS AND PUBLIC APPOINTMENTS.

(For some Contracts, &amp;c., still open, but not included in this List, see previous issues.)

## COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered
Designs for University Buildings, Cape of Good Hope	Agnt.-Gen. for Cape of Good Hope	400 l. 20 s. 10 d.	Jan. 31
Laying-out Piece of Land for Recreation Ground	Winchester Corporation	750 l. and 250 s.	Feb. 10

## CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c., supplied by	Tenders to be delivered		
Albitments to Workhouse	Lancaster & Gharthaus	Newcombe & Co., Architects, 80, Pilgrim-street, Newcastle	Jan. 20		
Sewage Outfall Works	Wendstone U.D.C.	N. Lacey, Civil Engineer, 6, The Sanctuary, Westminster, S.W.	do.		
Bridge	Coventry & L. U.D.C.	J. W. Webster, Engineer, 1, High-street, Coventry	do.		
Public Conveniences, Trooper Lane	Radliff Corporation	J. Lord, Town Engineer, Town Hall, Radliff	do.		
Business Premises, &c., special	Lonsderry Co.-op. Society	The Secretary, 57, Strand, London E.C.4.	do.		
Additions to School, Madamsley, Durham		G. T. Wilson, Architect, 25, Durham-road, Blackhill	do.		
Atbitments, Hawesfield, B. and S. Sals		J. Parkinson, Architect, 67, Church-street, Lancaster	do.		
House, 11, 12, 13, Bank T. p. Bealton		A. Sharp, Architect, Market-street, Bradford	do.		
* Abutments, &c. Shrewsbury Station	L. & N.W. and G.W. Joint Railways	Joint Engineer, Shrewsbury Station	do.		
Sewerage Works, near Wakefield	Altofts U.D.C.	F. Massey, Civil Engineer, Tetley House, Wakefield	Jan. 21		
Offices, Warehouse, &c., Attercliffe, Sheffield	Messrs. P. T. Turner & Co., Ltd.	A. Foreatt, Civil Engineer, King-street, Wakefield	do.		
Manse, Carragh Camp, Co. Kildare		S. H. Bolton, Civil Engineer, 2, Hume-street, Dublin	do.		
Chapel, &c., Bolognato, Limes		L. Harvey, Master-plaster, Spalding	do.		
Two Houses, Shop, &c., Stanley, Durham	Castleford U.D.C.	W. Green, Surveyor, Carlton-street, Castleford	Jan. 22		
Caseyway, Carlisle street	Mr. C. G. Lamb	D. W. S. Architect, 1, Abchurch-lane, London	do.		
Residence, Harlyn Bay, Cornwall	London County Council	F. A. D. Phipps, 11, Regent-street, S.W.	Jan. 23		
* Supply of Cocker-shells for Parks, &c.	Leeds Corporation	R. M. Townley, Gas Officer, Leeds	do.		
Church and Schools, Monkwearmouth, Sunderland		J. Potts & Son, Architects, 37, John-street, Sunderland	Jan. 24		
Club Buildings, Langley Park, Durham		F. R. Livesay, Architect, Bishop Auckland	do.		
Restoration, St. Mary's Church, Burgh, Norfolk		J. H. Cox, Civil Engineer, Town Hall, Bradford	do.		
Steel Train Bridge	Bradford Corporation	City Surveyors, Birmingham	do.		
Granite and Metal, &c., &c.	Brinsford & Co., Ltd.	—, Carfrae, Architect, 3, Queen-street, Edinburgh	do.		
School, Bognor-ton	Brinsford & Co., Ltd.	E. Dillway, General Office, Bognor-ton	do.		
Lifting Machine	Burton & Co., Ltd.	R. L. Morrow, Union Offices, Downpatrick	do.		
Alterations, &c., to Workhouse, B. and S. Sals	D. J. Has (Walc.) School Board	Morgan & Eford, Architects, Mountain Ash	do.		
Steam Laundry, Mountain Ash, Glam.		J. C. Rice, Architect, St. Thomas' Chambers, North	Jan. 25		
Alterations to Schools, Onllwyn, near Neath		R. Horsfall & Son, Architects, 22A, Commercial street, Halifax	Jan. 26		
Boundary Wall, &c., Seven Sisters School, nr. Neath		Willcox & Raikes, Civil Engineers, 63, Temple-row, Birmingham	do.		
Five Houses, Manor Royal Estate, Huddersfield	Castle B. and S. R.D.C.	L. and S. Architects, 22, Newport, Mon.	do.		
Sewerage Work, Aldworth (Contract 2), Sewers, &c.		G. T. Hine, Architect, 35, Parliament-street, S.W.	do.		
Minworth (Contract 1)	Messrs. Griffiths Bros. Ltd.	—, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000			
Supply of Cement, &c., for the above	Wandsworth Borough Council	—, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000			
Supply of Cement, &c., for the above	Wandsworth Borough Council	—, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181,			

## PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Required.	Salary.	Application to be in
* Architectural Assistant	Woolwich Borough Council	182 l.	Feb. 2

Those marked with an asterisk (\*) are advertised in this Number. Competition, iv. Contracts, iv. vi. viii. x. &amp; xx. Public Appointments, xvii.



PRICES CURRENT (Continued).

TILES.		s. d.	
Best plain red roofing tiles, 42	0 per 1,000, at 1ly. depdt.		
Hip and valley tiles, 3	7 per doz.		
Best Broseley tiles, 50	0 per 1,000		
Do. Ornamental Tiles, 54	6 " "		
Hip and valley tiles, 4	0 per doz.		
Best Rubion Red, brown or			
brindled Do. (Edwards)	57 6 per 1,000		
Do. Ornamental Do., 60	0 " "		
Hip tiles, 4	0 per doz.		
Valley tiles, 3	0 " "		
Best Red & Mottled Staf-			
fordshire Do. (Peaks), 51	0 per 1,000		
Do. Ornamental Do., 54	6 " "		
Hip tiles, 4	1 per doz.		
Valley tiles, 3	8 " "		
Best "Rosemary" brand			
plain tiles, 48	0 per 1,000		
Do. Ornamental Do., 50	0 " "		
Hip tiles, 4	0 per doz.		
Valley tiles, 3	8 " "		

WOOD.

BUILDING WOOD.—YELLOW.

At per standard.		s. d.	
Deals: best 3 in. by 11 in. and 4 in.			
by 9 in. and 11 in.	15 10 0	16 10 0	
Deals: best 3 in. by 9 in. and 8 in.	14 10 0	15 10 0	
Battens: best 2 1/2 in. by 7 in. and 8 in.	10 0 0	12 10 0	
and 3 in. by 7 in. and 8 in.	10 0 0	12 10 0	
Battens: best 2 1/2 by 6 and 3 by 6	10 0 0	12 10 0	
Deals: seconds	10 0 0	12 10 0	
Battens: seconds	10 0 0	12 10 0	
3 in. by 4 in. and 2 in. by 6 in.	9 0 0	9 10 0	
3 in. by 4 in. and 2 in. by 5 in.	8 10 0	9 10 0	
Foreign Sawed Boards—			
1 in. and 1 1/2 in. by 7 in.	10 0 0	more than	battens.
3 in.	10 0 0		
fir timber: Best midding Danzig			
or Memel (average specification)	4 10 0	5 0 0	
Seconds	4 5 0	4 10 0	
Small timber (6 in. to 10 in.)	3 12 6	3 15 0	
Small timber (6 in. to 8 in.)	3 0 0	3 10 0	
Swedish balks	2 15 0	3 0 0	
Pitch-pine timber (30 ft. average).	3 5 0	3 15 0	

JOINERS' WOOD.

At per standard.		s. d.	
White Sea: First yellow deals,			
3 in. by 11 in.	23 0 0	24 0 0	
3 in. by 9 in.	21 0 0	22 10 0	
Battens, 2 1/2 in. and 3 in. by 7 in.	17 0 0	18 10 0	
Second yellow deals, 3 in. by 11 in.	17 10 0	19 0 0	
3 in. by 9 in.	13 10 0	14 10 0	
Battens, 2 1/2 in. and 3 in. by 7 in.	13 10 0	14 10 0	
Third yellow deals, 3 in. by 11 in.	15 10 0	16 10 0	
Battens, 2 1/2 in. and 3 in. by 7 in.	11 10 0	12 10 0	
Petersburg: first yellow deals, 3 in.			
by 11 in.	21 0 0	22 10 0	
Do. 3 in. by 9 in.	18 0 0	19 10 0	
Second yellow deals, 3 in. by 11 in.	13 10 0	15 0 0	
3 in. by 9 in.	16 0 0	17 0 0	
Battens, 2 1/2 in. and 3 in. by 7 in.	14 10 0	16 0 0	
Third yellow deals, 3 in. by 11 in.	11 10 0	12 10 0	
Do. 3 in. by 9 in.	13 0 0	14 0 0	
Battens, 2 1/2 in. and 3 in. by 7 in.	13 0 0	14 0 0	
White Sea and Petersburg:			
First white deals, 3 in. by 11 in.	14 10 0	15 10 0	
3 in. by 9 in.	13 10 0	14 10 0	
Battens, 2 1/2 in. and 3 in. by 7 in.	11 0 0	12 0 0	
Second white deals, 3 in. by 11 in.	13 10 0	14 10 0	
3 in. by 9 in.	12 10 0	13 10 0	
Battens, 2 1/2 in. and 3 in. by 7 in.	9 10 0	10 10 0	
Pitch-pine: deals	16 0 0	18 0 0	
Under a in. thick extra	10 0 0	11 0 0	
Yellow Pine—First, regular sizes	33 0 0	upwards.	
Seconds	22 0 0	24 0 0	
Seconds, regular sizes	24 10 0	26 10 0	
Yellow Pine Oddments	20 0 0	22 0 0	
Kauri Pine—Planks, per ft. cube.	0 3 6	0 4 6	
Danzig and Stettin Oak Logs—			
Large, per ft. cube	0 2 6	0 3 6	
Small	0 2 3	0 2 6	
Wainscot Oak Logs, per ft. cube	0 5 0	0 5 6	
Dry Wainscot Oak, per ft. sup.	0 7 0	0 8 0	
2 in. do.	0 6 1	0 7 0	
Dry Mahogany—			
Honduras, Tabasco, per ft. sup.	0 9 0	0 11 0	
Selected, 7 in. by 7 in. per ft. sup.	0 1 6	0 2 0	
Do. 1 in. do.	0 1 6	0 2 0	
Dry Walnut, American, per ft. sup.	0 10 0	0 11 0	
Do. 1 in. do.	0 10 0	0 11 0	
Teak, per load	16 10 0	20 0 0	
American Whitewood Planks—			
Per ft. cube	0 4 0	0 5 0	
Prepared Flooring—			
1 in. by 7 in. yellow, planed and			
shot	0 13 6	0 17 6	
1 in. by 7 in. yellow, planed and			
matched	0 14 0	0 18 0	
1 1/2 in. by 7 in. yellow, planed and			
matched	0 16 0	0 21 6	
1 in. by 7 in. white, planed and			
shot	0 11 6	0 13 6	
1 in. by 7 in. white, planed and			
matched	0 12 0	0 14 0	
2 in. by 7 in. white, planed and			
matched	0 14 6	0 16 6	
2 in. by 7 in. yellow, planed and			
matched	0 11 0	0 13 6	
1 in. by 7 in. do. do.	0 10 0	0 12 0	
1 in. by 7 in. white do. do.	0 10 0	0 11 6	
1 in. by 7 in. do. do.	0 11 6	0 13 6	
6 in. at 6 d. to 9 d. per square	less than 7 in.		

PRICES CURRENT (Continued).

JOISTS, GIRDERS, &c.		In London, or delivered.	
Railway Vans, per ton.		s. d.	s. d.
Roller Steel Joists, ordinary sections	6 5 0	7 5 0	
Compound Girders	8 2 6	9 5 0	
Angles, Tees and Channels, ordi-			
nary sections	7 17 6	8 17 6	
Flitch Plates	8 5 0	8 15 0	
Cast Iron Columns and Stanchions,			
including ordinary patterns	7 2 6	8 5 6	
METALS.		Per ton, in London	
IRON—		s. d.	s. d.
Common Bars	7 15 0	8 5 0	
Staffordshire Crown Bars, good			
merchant quality	8 5 0	8 15 0	
Staffordshire "Marked Bars"	10 10 0	- - -	
Mild Steel Bars	9 0 0	9 10 0	
Hoop Iron, basis price	9 5 0	9 10 0	
" galvanised	15 0 0	- - -	
(* And upwards, according to size and gauge.)			
Sheet Iron, Black—			
Ordinary sizes to 20 g.	10 0 0	- - -	
" " to 24 g.	11 0 0	- - -	
" " to 26 g.	12 10 0	- - -	
Sheet Iron, Galvanised, flat, ordi-			
nary quality—			
Ordinary sizes 6 ft. by 2 ft. to			
3 ft. to 20 g.	12 15 0	- - -	
" " 22 g. and 24 g.	13 5 0	- - -	
" " 26 g.	14 5 0	- - -	
Sheet Iron, Galvanised, flat, best			
quality—			
Ordinary sizes to 20 g.	16 0 0	- - -	
" " 22 g. and 24 g.	16 10 0	- - -	
" " 26 g.	18 0 0	- - -	
Galvanised Corrugated Sheets:—			
Ordinary sizes, 6 ft. to 8 ft. 20 g.	13 15 0	- - -	
" " 22 g.	14 5 0	- - -	
" " 26 g.	15 5 0	- - -	
Best Soft Steel Sheets, 6 ft. by 2 ft.			
to 3 ft. by 20 g.	13 0 0	- - -	
" " 22 g. and 24 g.	13 0 0	- - -	
" " 26 g.	14 5 0	- - -	
Cut nails, 3 in. to 6 in.	9 5 0	9 15 0	
(Under 3 in. usual trade extras.)			

LEAD, &c.

Per ton, in London.		s. d.	
LEAD—Sheet, English, 3 lbs. & up.	13 10 0	- - -	
Pipe in coils	14 0 0	- - -	
Soft pipe	16 10 0	- - -	
Compo Pipe	16 10 0	- - -	
ZINC—Sheet—			
Vicille Montagne	25 0 0	- - -	
Silesian	24 15 0	- - -	
COPPER—			
Strong Sheet	0 10 0	- - -	
Thin	0 11 0	- - -	
Copper nails	0 11 0	- - -	
BRASS—			
Strong Sheet	0 0 0	- - -	
Thin	0 10 0	- - -	
TIN English Ingots	0 1 2 1/2	- - -	
SOLDER—Plumbers'	0 0 6 1/2	- - -	
Timen's	0 0 8 1/2	- - -	
Blowpipe	0 0 9 1/2	- - -	

ENGLISH SHEET GLASS IN CRATES.

25 d. per ft. delivered.		s. d.	
15 oz. thirds	14 d.	- - -	
" fourths	14 d.	- - -	
21 oz. thirds	34 d.	- - -	
" fourths	24 d.	- - -	
26 oz. thirds	44 d.	- - -	
" fourths	34 d.	- - -	
32 oz. thirds	54 d.	- - -	
" fourths	44 d.	- - -	
Fluted sheet, 15 oz.	34 d.	- - -	
" 21 oz.	44 d.	- - -	
1 Hartley's Rolled Plate	14 d.	- - -	
" "	24 d.	- - -	
" "	24 d.	- - -	

OILS, &c.

Per gallon		s. d.	
Raw Linseed Oil in pipes or barrels	0 2 0	- - -	
" " in drums	0 2 0	- - -	
" " in pipes or barrels	0 2 0	- - -	
Turpentine, in barrels	0 2 8	- - -	
" " in drums	0 3 4	- - -	
" " in drums	0 3 4	- - -	
Genuine Ground English White Lead	per ton	20 10 0	
Red Lead, Dry	per ton	20 0 0	
Best Linseed Oil Paint	per cw.	12 0 0	
Stockholm Tar	per barrel	12 0 0	

VARNISHES, &c.

Per gallon.		s. d.	
Fine Pale Oak Varnish	0 8 0	- - -	
Pale Copal Oak	0 10 0	- - -	
Superfine Pale Elastic Oak	0 12 6	- - -	
Fine Extra Hard Church Oak	0 10 6	- - -	
Superfine Hard-drying Oak, for Seats of			
Churches	0 14 0	- - -	
Fine Elastic Carriage	0 12 6	- - -	
Superfine Pale Elastic Carriage	0 16 0	- - -	
Fine Pale Maple	0 16 0	- - -	
Finest Pale Durable Copal	0 18 0	- - -	
Extra Pale French Oil	0 18 0	- - -	
Eggshell Flattening Varnish	0 18 0	- - -	
White Copal Enamel	0 18 0	- - -	
Extra Pale Paper	0 18 0	- - -	
Best Japan Gold Size	0 10 6	- - -	
Best Black Japan	0 16 0	- - -	
Oak and Mahogany Stain	0 0 0	- - -	
Brunswick Black	0 12 6	- - -	
Berlin Black	0 16 0	- - -	
Knottin	0 10 0	- - -	
French and Brush Polish	0 10 0	- - -	

TO CORRESPONDENTS.

F. W. R. (Amount should have been stated.)

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us not later than 10 a.m. on Thursdays. N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under 100, unless in some exceptional cases and for special reasons.]

\* Denotes accepted. † Denotes provisionally accepted.

ASHTON-UNDER-LYNE.—For the erection of a pair of houses, Taunton-road. Messrs. Thos. George & Son, architects, Old-square, Ashton-under-Lyne:—  
J. Hodgson.....£945 0  
Chas. Evans.....945 0  
E. Marshall.....927 0  
J. Wooley.....920 0  
Gibson & Son.....925 0  
Shuttleworth Bros.....921 0  
J. Rydard.....920 0  
T. Dean.....£914 0  
F. G. Minner.....904 0  
E. Kirby.....900 0  
Swallow & Taylor, Ashton-under-Lyne.....888 10

CARSHALTON.—For the erection of the proposed Southern Convalescent Hospital at Carshalton, Surrey, for the Managers of the Metropolitan Asylums Board. Messrs. Treadwell & Martin, architects, 2, Waterloo-place, S.W. Quantities by Messrs. H. S. Northcroft, Son & Nephew:—  
F. & H. F. Higgs.....£21,000 0  
C. Wall.....20,328 0  
K. & Son.....20,124 17  
W. Wallis.....20,139 10  
Lorden & Sons.....198,888 0  
Wilcocks & Co.....198,873 0  
Patman & Fotheringham.....197,723 0  
J. & M. Patrick.....197,499 0  
Kirk & Randall.....£193,203 0  
Shillitoe & Co.....193,000 0  
F. G. Minner.....191,000 0  
Holiday & Greenwood.....184,444 0  
McCormick & Sons.....179,777 0  
Johnson & Co., Ltd.....174,750 0

CLEETHORPES (Lincs).—For the erection of sea wall, &c., for the Urban District Council. Mr. Egbert Sushon, engineer, Poplar-road, Cleethorpes:—  
Brathwaite.....£46,000 0  
Langton.....24,620 14  
Robinson.....24,241 18  
Brehmer.....73,441 17  
Starkey.....19,593 7  
Dixon.....17,760 0  
Bell.....17,616 0  
Leggatt.....17,350 15  
Brusten.....16,953 2  
Hewins & Goodhand.....16,877 0  
Hewwood & Co.....15,753 13  
Hunn.....£16,527 3  
Thompson.....16,347 0  
Sangwin.....16,257 5  
Clark.....16,201 7  
Cook & Co.....16,193 0  
Fasey.....16,093 7  
Gladwell.....14,800 0  
H. B. W. Trimm.....13,850 2  
J. & M. Patrick, London.....12,278 0  
Cliff Ford.....£5,826 0  
G. G. Rayner.....5,564 5  
Streeter & Todhunter.....5,503 0  
G. R. Mann.....5,323 15  
F. W. Trimm.....4,512 10  
E. Wisleigh, Hants.....4,995 0  
J. & E. Bloomfield.....5,523 0

DORKING.—For the execution of drainage works, North and Mid Holmwood, for the Rural District Council. Mr. W. Rapley, jun., surveyor, Cleevely, Tower Hill, Dorking:—

G. Cummins & Sons.....£8,148 0  
A. C. Soan.....7,789 18  
W. Coker.....7,175 18  
Free & Sons.....6,760 14  
J. & T. Bions.....6,332 19  
Cooke & Co.....6,220 7  
Graham & Sons.....6,152 13  
J. & E. Bloomfield.....5,523 0  
Cliff Ford.....£5,826 0  
G. G. Rayner.....5,564 5  
Streeter & Todhunter.....5,503 0  
G. R. Mann.....5,323 15  
F. W. Trimm.....4,512 10  
E. Wisleigh, Hants.....4,995 0  
J. & E. Bloomfield.....5,523 0

ECLES (Lancs).—For the execution of road works, Matheroad, &c., for the Corporation. Mr. T. S. Picken, Borough Surveyor, Town Hall, Eccles:—  
Matheroad.  
Snake & Sons, Eccles.....£259 5 6  
Back Church-street.  
W. H. Johnson, Eccles.....£55 3 10  
Tipping-street.  
W. H. Johnson, Eccles.....£255 10 10

FARINGDON.—For rebuilding the Bakers Arms Inn Union-street, for Messrs. P. & J. Arkell. Messrs. W. Drew & Sons, architects, Regent-circus, Swindon:—  
J. Harris.....£928  
Cadel Bros.....898  
J. Williams, Swindon.....797  
J. Colborne.....846

[See also next page.]



**KING'S LYNN (Norfolk).**—For alterations to operating theatre and laundry at the West Norfolk and Lynn Hospital. Mr. Herbert J. Green, architect, 37, Castle Meadow, Norwich:—  
 Read & Willhear £1,448 0 R. Dye ..... £1,255 0  
 Renaut Bros. .... 1,233 0 Bardoll Bros. .... 1,235 0  
 Youngs & Son .. 1,122 0 J. W. Collins .. 1,218 0  
 J. Cracknell .... 1,273 0 W. H. Brown .. 1,197 18  
 Pash, Langley, A. F. Foreman, King's Lynn\* .. 1,286 18  
 J. Medwell. .... 1,262 0 R. Shanks ..... 1,150 0

**LYDIARD MILLICENT.**—For sanitary works at The Grove, for Mr. H. F. W. Marson. Messrs. William Drew & Sons, architects, Swindon:—  
 Tydeman Bros. .... £465 0 J. Lay\* ..... £443 8  
 A. J. Colborne .... 243 11 [All of Swindon.]

**NANTWICH.**—For the erection of a residence, with stabling, cottage, &c., at Willaston, near Nantwich, for Mrs. Salisbury. Mr. Henry Busbell, architect, 31, New Bridge-street, E.C. Quantities by the architect:—  
 S. Redhouse .... £4,460 0 J. T. Gresty, J. Harding .. 4,455 13 7 Willaston\* .. £4,468 15 0  
 J. Morrey .... 4,285 4 6

**STRATTON ST. MARGARET.**—For erecting a cloak-room at the Girls' School, for the School Board. Messrs. William Drew & Sons, architects, Swindon:—  
 Henry Looker, Stratton\* ..... £158 10

**SWANSEA.**—For new out-patients' department, Swansea General and Eye Hospital. Mr. Glendinning Moxham, architect, Swansea:—  
 Lloyd Bros. .... £1,340 4 6 J. & F. Walters & Johns. .... 1,307 0 0 Weaver .... £1,251 0 0  
 Thomas Rich. .... 1,252 0 0 Bennett Bros. 1,252 0 0  
 ards ..... 1,304 0 0 Griffith Davies 1,243 10 0  
 David Jenkins 1,297 0 0 H. Binings ..... 1,220 10 0  
 Marles & Son 1,277 10 0

**SWANSEA.**—For erection of new house, Richmond-road, Swansea. Mr. Glendinning Moxham, architect, Swansea:—  
 David Jenkins .... £1,820 0 J. & F. Weaver £1,765 0  
 Henry Edings .... 1,750 0 John Davies\* .... 1,745 10  
 Bennett Bros. .. 1,710 0

**SWINDON.**—For alterations to the Prince of Wales Inn, Union-street, for Messrs. Horsell & Marson. Messrs. William Drew & Sons, architects, Swindon:—  
 John Lay, Swindon\* ..... £493 13 0

**SWINDON.**—For shop front, Victoria-street, for Mr. Geo. Whitehead. Messrs. William Drew & Sons, architects, Swindon:—  
 A. J. Colborne, Swindon\* ..... £127 15 0

**SWINDON.**—For erecting two cottages at Liddington Wick Farm, near Swindon, for Mr. W. B. Waldron. Messrs. William Drew & Sons, architects, Regent-circus, Swindon:—  
 C. Huxson .... £465 0 0 J. Lay ..... £440 0 0  
 R. Payne ..... 458 10 0 J. Williams, Tydeman Bros. 450 0 0 J. Swindon\* .... 425 0 0  
 A. J. Colborne 445 17 6

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**SWINDON.**—For converting five houses into a workmen's club, and building a skittle alley in Andover-street. Messrs. William Drew & Sons, architects, Swindon:—  
 J. Ponting, Swindon\* ..... £455 10 0  
 [Five tenders received.]

**TOOTING.**—For the erection of a receiving home for children and stabling at the Tooting Bec Asylum, for the Metropolitan Asylums Board. Messrs. A. & C. Harston, architects, 15, Leadenhall-street, E.C. Quantities by Messrs. Fowler & Hugman:—  
 Foster & Sons, £17,265 0 0 Johnson & Co., Ltd., £13,790 0 0  
 Leslie & Co., J. & M. Ltd. .... 16,561 0 0 Patrick .. 12,799 0 0  
 Wm. Downs 15,463 0 0 Copley Bros., Appleby & Sons .. 14,120 0 0 Ltd., Epsom\* 15,500 0 0  
 Miskin & Sons 13,058 0 0 Banyard\* .. 12,545 10 8  
 † Errors discovered in calculations.

**WIGAN.**—For the erection of fourteen cottages, Ellis street, and eleven cottages, Eckerley-street, Whalley, for the Corporation:—

	Contract No. 1.	Contract No. 2.
Darbyshire & Collett ..	£2,156 0 0	£1,765 0 0
John Dickinson ..	2,170 0 0	1,790 0 0
Albert Sharples ..	2,280 0 0	—
Birch & Clayton ..	2,370 0 0	1,870 0 0
John Pyle ..	2,060 10 0	1,790 10 0
Wilson & Son, Wigan ..	2,163 0 0	1,993 10 0

**WROUGHTON.**—For skittle-alley at the Three Horse Shoes Inn, for Messrs. Horsell & Marson. Messrs. William Drew & Sons, architects, Swindon:—  
 G. Porter, Wroughton\* ..... £103

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# The Builder.

VOL. LXXXIV.—No. 329.

JANUARY 24, 1903.

## ILLUSTRATIONS.

Business Premises, 83, Fleet-street .....	Mr. John Belcher, A.R.A., Architect.
Houghton Hall, Norfolk .....	Drawn by Mr. Stanley Towse.
Addition to "Hopedene," Surrey .....	Mr. P. N. Ginhams, Architect.
Soup Kitchen for Jewish Poor, Butler-street, E. ....	Mr. Lewis Solomon, F.R.I.B.A., Architect.

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### Students' Drawings at the Institute.



THE designs sent in for the various prizes offered by the Institute of Architects, and now on view at the Alpine Club, are on the whole not quite up to the usual standard,

though there are some fine drawings among them, and the competition for the Soane Medallion and for the Grissell Medal has been more numerous than usual: twenty-one competitors for the Soane, and eleven for the Grissell Medal. On the other hand the medal and prize for measured drawings, usually rather a popular one, has this year only attracted three competitors.

The subject given for the Soane Medallion was a very good one; a design for a town church as a corner site, with only two free frontages. This latter condition has been criticised as unnecessarily fettering the competitors; but inasmuch as it is a practical condition which must often exist in regard to the site of a city church, it was a reasonable and a useful one to make. In another respect the directions to competitors were not so happy. They were recommended to read Sir W. Emerson's remarks on church planning in a Presidential address delivered two or three years ago. These remarks, which were rather vague in their tendency, referred to the ancient position of the altar on the chord of the apse, and the position of the seats for the clergy in the rear of it and around the apse. This hint seems to have been interpreted by a number of the competitors into a recommendation to place the choir seats behind the altar, with results which, from a practical point of view, are perfectly absurd. In several of the plans we find not only an altar but a large baldacchino placed in front of the chancel, and the choir behind it, so that they could not properly be heard by the congregation or lead, when required, the congregational singing; one competitor has actually almost shut out the choir entirely from the church by a screen wall like the

iconostasis of the Greek Church; and two or three others plan the choir so as practically to shut them out, and call this part of the church the "choir chapel," as if the choir were a separate body who had nothing to do with the congregation; but this is a very natural result from their attention having been directed to a misleading piece of advice. On the other hand, the present Council, or whoever set the programme, seem to have been entirely oblivious of the fact that some years ago a joint Committee of architects and musicians, formed under the auspices of the Institute, fully discussed the question of the position of choir and organ, and came to conclusions almost exactly the reverse of those which the competitors, rightly or wrongly, have extracted from the Presidential address in question. The opinion formulated by that Committee was that the "organ-chamber" was in any case an absolute mistake, ruinous to the effect of the instrument; and that the best position for the choir was on each side of the nave, so as to be near the congregation. That the proceedings and the conclusions of that important Committee should have been entirely ignored seems to show that the Council have very little knowledge of their own archives. If the competitors had been directed to consult the conclusions of the Committee, or if an outline of the said conclusions had been furnished to them, they would have had some good practical advice before them in regard to the arrangement of choir and organ, of which, as it is, none of them seem to know anything; and they would have been encouraged to try some experiments, which might have been of considerable interest, in adapting the plan and architectural design of the church to the suggestions above referred to.

The medal has been awarded to the design signed *Ixobug*, by Mr. E. F. Reynolds; and as far as evidence of architectural ability goes it has been rightly awarded. Whether a design so distinctly Byzantine, so exotic in appearance, is the most suitable for an English city church, is a question; but the style has been well studied, and the perspective drawing is a fine production, showing

exceptional ability both of design and drawing. The plan shows a large open area, partly covered by a dome, and a semi-octagon apse with the choir seated round it, the altar in front, and clergy stalls immediately behind the altar. As there is no baldacchino, the choir are not quite so shut off as in some of the plans, but they are too far from the congregation for any practical purpose, and are occupying a position for which there is no precedent whatever. The organ, as in most of the plans, is boxed up in organ chambers, in this case still worse by being situated high aloft. The author might have done better in these respects if he had been directed to the proper source for advice on the subject.

The medal of merit has been adjudged to "Como" (Mr. F. C. Mears) for a peculiar but bold and striking design of Lombard type, showing a large area on plan with a dome over part of it, and a very shallow sacrum in front of which the antiphonal choir occupy the more usual position, but with rather small space considering the size of the church. The organ is not cooped up as in most of the designs, though, as it does not appear on the ground plan (being high up), there is nothing to show what area is given to it, a point in regard to which most of the competitors—one may add, most architects—have very inadequate ideas. The main point in the design is that the dome is piled up into a kind of two-storied domed tower, rising high above the main roof line; a creditably bold architectural conception, and which would have a fine effect both externally and internally; though as far as architectural effect and treatment are concerned a medal of merit would seem as well earned by "New Era," also a design of somewhat Lombardic character, with twin towers in red brick which break out into picturesque stone lantern terminations of more Renaissance style, diversified with bronze figures of angels blowing trumpets. The plan shows a wide open area with a dome over it. The choir and organ are as badly placed as can be, but this objection applies equally to the prize design; and as a piece of architectural design and grouping the perspective view is very effective,



and perhaps on the whole superior to "Como."

Among the other designs are some which are highly creditable; others whose authors have suffered shipwreck in a quest after originality. One indeed, who in questionable French signs "*Ne oubliez*," seems to have cast a loving eye backward at the possibilities of Late Gothic detail; a neighbour, on the other hand, exhorts us to "*Advance*," but not we fear quite in the right direction. "*E Natura Architectura*" is a dangerous motto, and only true in a metaphysical sense; but in this design the treatment of the ceiling in bands or successions of panels painted with figures and decorative trees, rising off plain square piers, is clever and effective. "*Xerxes*" is worth a word for its extremity of ugliness and bad taste in the exterior design; the author had better give up architecture. A comparison of this with the perspective of the prize set tempts one to an application of an old nursery rhyme to students' designs:—

"When they are good, they are very very good;  
But when they are bad they are horrid."

"X" shows a nice series of pencil drawings of very imitative Gothic based on Pearson's work; "*Xb*" a very clever set reminiscent of Sedding; the drawings are admirably executed and contain a good deal of cleverly designed detail. "*Lauda Finem*" is a meritorious Late Renaissance design, displaying a good deal of vigour and freedom, though some of the details are rather crudely drawn, e.g., the bases of the columns at the east end. The position of the choir, in a "choir chapel" behind a baldacchino, and of the organ, cornered in a kind of loft, are both as bad as they can be; but the exterior architectural treatment deserves recognition. "*Neni*" is another Late Renaissance design with the same kind of merit. "*Sanctus*" is a very severe quasi-Byzantine design, with a dome over the eastern portion of the area; the elevations and perspective are very beautifully drawn in pencil, and the design generally, which depends entirely on line and mass and not on ornament, has decided merit: the author shows also a practical arrangement of the choir in seats arranged in a segment of a circle in front of, not behind the altar, and facing the congregation; a position suitable at all events in an acoustic, if not in a ritual sense.

The subject for the Tite Prize was "*A Pavilion in a Public Garden*," a very good subject for a prize which is for Italian architecture, since this type of architecture never looks better than in combination with a park or garden. Some details as to the practical accommodation required were added, but in a case of this kind the architectural treatment is almost everything. The prize has been awarded to the design by Mr. David Smith, a choice which the Committee cannot have found it difficult to arrive at, as there is no other which has any pretence to compete with it. The Tite designs are not as good as usual this year, and one reason is that most of the competitors have been too ambitious, and have forgotten what is the real nature of a garden pavilion, and that it is not a thing to be treated with a great dome, like a town hall or cathedral. Now this is where Mr. Smith has been exactly right; he has given us a low-proportioned Classic building, which could hardly be taken for

anything else than what it is; there is a wide internal hall and exterior loggias; the angles are accentuated by pavilions which are internally octagonal and treated as receptacles for sculpture—they are hardly to be called "sculpture galleries," as they only provide for sculpture in four niches on the alternate sides. A point not to be passed over is that the retiring-rooms for men and women are very well placed and arranged in regard to separation and privacy of access; a point often entirely overlooked (as in "*Le Nord*" where the men's and women's rooms face each other at opposite sides of a central hall, and in "*Archivolt*," where—still worse—the two doors are side by side). The main entrance does not seem quite sufficiently emphasised, and the provision of an apse with solid stone walls as the exterior bandstand is not satisfactory, as the players at the back would hardly be much heard. But in the main this is an admirable design for the purpose described, and has little of the immaturity of a student's work about it; it would do credit to any architect. The only other among the other designs that is worth special mention is "*Queen of Hearts*," a prettily grouped design with two towers flanking a centre pavilion, and a quadrant colonnade on each hand. The exterior bandstand is placed in the colonnaded upper story of the semicircular centre pavilion; a much better position than in an apse with solid walls. The general design, however, is not so much the pure Classic Italian which the prize is intended for, and it has a practical defect in want of internal floor space. The other designs hardly call for special comment.

The Grissell Medal, as already observed, has attracted more competitors than usual this year, but we fear this is not because of the main object of the prize—constructional drawing, but because the subject—"A Stone Dome for a *Porte-Cochère* to a Public Hall," seemed to promise an opportunity for architectural effect. But that is not what the Grissell was founded for; it was to encourage the study of construction, and most of the designs sent in are quite wide of the mark: some of them do not even show the jointing of the stones. We do not call it satisfactory construction of a dome only 30 ft. in diameter, either, to depend on metal ties, as two at least of the competitors have done. "*Golden Horn*" is a very pretty and original design, but absolutely devoid of any constructional detail. On the other hand "*H. I. M.*," who has sent a clever and effective study shaded in Indian ink, has at least one too many joints, for the small semicircular windows in his dome must either have feather-edges at the top of the arch, or there must be a sham joint drawn across for symmetry; it is difficult to say which is the worse fault. The design of intercepting arches shown by "*Sepia*," is much more suited to the Gothic than the Classic type of work; the intersections of these groin-ribs do not present at all a satisfactory effect. The medal has been awarded to "*White Rose*," by Mr. J. B. Fulton, whose talent seems to break out in all kinds of unexpected directions. His design is dignified though perhaps a little too pompous, and he has shown all the jointing of his stonework most conscientiously. But we do not feel quite sure that the medal ought not rather to have gone to "*Duomo*" for a plain and unambitious design which gives a

distinct predominance to the constructive problem, and is rather novel in its constructive treatment.

It must be admitted that the majority of the Grissell drawings this year elude the real object of the prize; and we think that in future, subjects should be set which cannot well be treated otherwise than constructively, or at all events that if competitors persist in offering showy drawings instead of constructional drawings, the medal should be withheld.

The Owen Jones Studentship is deservedly won by Mr. Percy E. Nobbs. We think most of the drawings have been submitted before in this competition; the only one, in fact, which we do not remember is the design for an apsidal vault in glass mosaic. The design shows a very large figure of Christ holding a copy of—and evidently expounding—the Gospel; supported by a choir of cherubim, and accompanied by an adoring angel on either hand; over the figure is a small view of the heavenly city, similar in treatment to the view of St. Mark's in the thirteenth-century mosaic over one of the doorways to the atrium of that church. We do not like the border, which is too much like the noted Della Robbia pattern to be converted into glass mosaic. Another design is for the decoration of a church of the form and scale of S. Fosca, Torcello; the colouring is pleasant, but the drawings are too small in scale and too pulled about to get effects. The marble wall facing of the west transept, St. Mark's, Venice, is a useful drawing of the effect of marble in juxtaposition; the value would have been tenfold had the names of the different marbles been added. Of the sketches, that of one side of the Baptistry, Florence, is very nice, the subject being a difficult one. A medal of merit is awarded to Mr. L. R. Guthrie for his excellent set of drawings, the weakest feature of this set being the design for a domed chamber. It was a good idea to measure the wagon vaulting of the beautiful little church of S. Maria dei Miracoli, Venice. We should like some day to see a complete set of measurement drawings of this exquisite aisleless cinque-cento church. Two other good measured drawings in colour are—one of part of the arcading between the great piers supporting the domes of St. Mark's, Venice, the other the plan of the mosaic decoration in the flat dome of San Vitale, Ravenna. The careful drawings of Mr. James McLachlan are valuable records of the subjects measured, particularly the Ambone and pavement at S. Lorenzo, Rome, the longitudinal section of the Capella Palatina, Palermo, is good, but we remember that this has been done before, and much better done, by Mr. J. J. Joass, who won this studentship some years ago. Mr. McLachlan's drawings suffer from being a little crude in colour and mechanical in execution.

The "*Pugin*" drawings this year are rather disappointing. Mr. J. Harold Gibbons has won this very popular prize with a set of drawings that impress one with the sense of the immense labour taken compared with results. This set consists almost entirely of measured drawings, the principal feature of which is the quarter full-size drawing of the sedilia in St. Andrew's Church, Heckington. The amount of detail and finish expended upon this does not, in our opinion, add to the value of the drawing. A drawing of the



south porch, Leverington Church, is insufficiently described, though plans, sections, and elevations are all there. More interesting is the detail drawing of the tile pavement in Prior Crauden's Chapel, Ely; Chetham Hospital, Manchester, is also measured up very completely; and a fine oak font cover at St. Peter's, Walpole, Norfolk.

For picturesque choice of subjects, by far the most interesting set submitted is that by Mr. F. C. Mears. Most of the subjects chosen are worthy of more careful delineation. The drawings are mostly tinted in colour, and are very able as far as they go; the measurement drawings include parts of the Lady Chapel Ely, coloured; a screen from Trunch Church, Norfolk—from which church also is shown a rough sketch of a beautiful font cover of unusual form; St. Mary the Virgin, Oxford, a large drawing of the complete tower and spire; and the Pastoral staff from New College, Oxford. Mr. A. Muir sends a careful and well-chosen series of measured drawings which receive a medal of merit; the outline drawing are the best of these, such as that of the Percy shrine, Beverley, the fine door at Salisbury, the Galilee Porch, Ely; some arched at Winchester; the Bridport tomb, Salisbury; where larger pieces of detail are shown the method of representation is too theatrical and pretty. Mr. O. P. Milne's pencil drawings are very direct and straightforward. If the prize-winners have erred on the side of over-elaborating their measured drawings, Mr. Stanley H. Hamp has spoilt an otherwise charming set of strainers by the very poorly drawn and chosen subjects for measurement. His pencil and colour sketches are from France, Italy, and England, and very charming indeed they are, both in touch and in feeling for colour; the subjects as light sketches are exceedingly well chosen, but they are rather mementoes of travel than serious studies of architecture.

Three competitors only submit measured drawings for the Institute silver medal, and these are below the average merit for this prize. "Iago" sends five strainers of a house called Balls Park, at Hertford; not an inspiring subject, and, indeed, unworthy of the labour of measuring. The choice of subject is of the first importance; it is improbable that a student can find time to make complete measured drawings of more than one or two extensive architectural subjects, and the educational training thus received is immense; the work undertaken should, therefore, be of the finest type within the student's reach. A well chosen subject is St. Martin's-in-the-Fields, by "Nix," but the drawing, though careful, is poor and uninteresting, due partly to the inadequate drawing of the ornament. The prize has been awarded to Mr. Andrew Rollo for his drawings of Craigievar Castle, Aberdeenshire.

The subject is an interesting one in itself, and shows in detail the right use of simple stone mouldings and ornament. The drawings are a business-like set, more particularly the plans and sections. The ornament is badly drawn, and there is no attempt to give a feeling of the texture of the materials employed, one of the charming features of the Scotch baronial style. The perspective drawings are so poor that the set would have been better without them.

#### ORDNANCE SURVEY MAPS.

**S**PECIMENS of the Ordnance Survey Maps of the United Kingdom were exhibited last week at the Royal Geographical Society's house in Savile-row. They were, we believe, mounted and framed a year ago for exhibition at Antwerp in a representative collection of the Government maps of different countries. All British architects, surveyors, and engineers know that our Ordnance Survey maps are far from perfect, but, on the whole, they are among the best published by the Governments of Europe, and when we remember the history of the Ordnance Survey, the wonder is, not that the maps are imperfect, but that the defects are not more numerous and important. It is a far cry to Culloden and the days of the Young Pretender, but we must hark back to this period to find the inception of the survey which now includes the whole of the British Isles. The same difficulty with which General Buller had to contend in his advance through Natal to the Eastern Transvaal, was encountered by the Duke of Cumberland's forces in the Highlands of Scotland before and after the battle of Culloden. There were no maps. As soon as some sort of order had been attained, Lieutenant-General Watson (in 1747) began to survey the turbulent Highlands for military purposes; the work extended gradually to the Lowlands, but was interrupted in 1755 by one of our many wars with France, and was not resumed till 1783, when the French Government asked the British Government to lay down a system of triangulation between London and Dover for the purpose of connecting it with the French system. The first base-line of this, the first English Ordnance Survey, was measured in 1784 by General Roy, an officer who had been associated with Lieutenant-General Watson in the survey of the Highlands of Scotland thirty years before. The line was measured on Hounslow Heath, and was rather over five miles long. By 1787 the triangulation was completed down to the Kentish coast. Then followed the French Revolution, and work was not resumed till 1791. First in a south-westerly direction, and then to the east and north, the primary triangulation was continued, until in 1809 Scotland was reached. The scale of 1 in. to the mile was adopted for the English maps, but progress was slow; indeed, the primary triangulation of the United Kingdom was not completed till 1852—sixty-eight years after General Roy measured his base-line on Hounslow Heath.

Ireland led the way to a new departure. In 1824 a Committee of the House of Commons recommended that the whole of the country should be surveyed and plotted to a scale of 6 in. to the mile, and in 1842 this survey was completed. Meanwhile, in 1838, the survey of Scotland was resumed, and two years later it was decided that the scale of 6 in. to the mile should be adopted for those parts of Great Britain which had not then been surveyed, Lancashire and Yorkshire and some counties of Scotland received the benefit of this decision.

But the battle of the scales was not yet at an end. In 1851 a Select Committee of the House of Commons abandoned the 6-in. scale for Scotland in favour of the 1-in., but local opposition secured a reversal of this

decision in certain districts. Matters were complicated in 1854 by the adoption of a "natural" scale; this was the now familiar scale of  $\frac{1}{25344}$ , or 25'344 in. to the mile (often known as the 25-in. scale). In the following year a scale of  $\frac{1}{25344}$  was approved for towns containing more than 4,000 inhabitants, instead of the oppidan scale of 5 ft. to the mile which had previously been in use. It was also decided—wisely, we think—not to publish  $\frac{1}{25344}$ -th-scale maps of uncultivated and thinly-populated rural areas.

Opposition was still maintained, and a Royal Commission (1858) and a Select Committee (1861) were required to settle the matters in dispute. The natural scale won the day, and has been in use to the present time. Opinions still differ as to the utility of the natural scale in a country whose measures are non-natural, but the balance of opinion is decidedly in favour of it. Certainly it brings us into line with the nations of Europe and the United States of America.

This brief historical sketch of the Ordnance Survey shows some of the struggles which have attended it, and may lead us to moderate the vigour of our grumbling when we find a map not wholly to our liking. But grumble we may, provided that we do it as gently as Bottom did his roaring.

The four principal scales of our English Ordnance maps are:—

1.  $\frac{1}{25344}$ , or 1 in. to a mile.
2.  $\frac{1}{12672}$ , or 6 in. to a mile.
3.  $\frac{1}{25344}$ , or 25'344 in. to a mile.
4.  $\frac{1}{25344}$ , or 10'56 ft. to a mile.

In addition to these, there are old town maps drawn to a scale of  $\frac{1}{25344}$  or 5 ft. to a mile, and what may be termed road maps to a scale of  $\frac{1}{12672}$  or 1 in. to four miles. There are also still smaller index maps. Specimens of all these, with the exception of the last, were exhibited at the Royal Geographical Society's house last week. The specimens were carefully selected, both as regards subject and manner of execution, and would undoubtedly compare favourably with the foreign maps with which they were originally exhibited at Antwerp.

Three examples to the scale of 4 miles to 1 in. were shown. They were reduced from the 1-in. maps, revised between 1893 and 1897, and published between 1900 and 1902. The first was an uncoloured map of Berkshire, Wiltshire, Hampshire, &c., without contours or hill-shading; the second had Glasgow in the centre, and differed from the last only in having the water coloured blue; the third showed Durham and parts of the neighbouring counties, the water being coloured blue, parks green, and the hills distinguished by brown stumping. These are extremely useful road maps, the third being the best for pedestrians, cyclists, and motorists. There are no contour lines, but a general idea of the elevation of any hill can be obtained from the depth of the shading. These three specimens are single-sheet maps, and contain at the foot full particulars of the dates of revision and publication, and the usual notes. In all the other examples the descriptive matter has unfortunately been cut off by the moulder.

The scale of one inch to the mile was well represented by nine four-sheet maps—excellent examples of the cartographer's art. In three the hills were shaded with vertical hachures in black. The shading is admirably done, but in hilly districts it is so dark



as to obscure the details and the lettering. Two examples of a more recent type have black contour lines and vertical hachures in brown; these are much clearer than the original type, but the black contours are somewhat confusing. Only one example of the latest style is shown; this has brown hachures and red contour lines, and is undoubtedly the most satisfactory. The other maps of this scale are without hill-shading. Of course, in all these small-scale maps, the width of roads, canals, &c., is exaggerated for the sake of clearness.

The two examples of the 6-in. maps represent Southampton and Salisbury with their environs. Each map consists of one and a half sheets mounted together. The Southampton map is admirably engraved, the mud banks and parks being distinguished by very fine horizontal shading; public buildings, black; other buildings, hatched, and water coloured blue. The Salisbury map is without colour, and the public buildings are shown by darker hatching. The elevations are shown by contour lines.

Two cathedral cities—Winchester and Hereford—are selected as examples of the 12½-in. scale, each map consisting of one and a half sheets mounted together. The Winchester map has the buildings hatched, water blue, and city boundary yellow. In the Hereford map, workshops are coloured neutral tint, other buildings pink, water blue, and the roads brown; the city boundary is not coloured. Of the two, we certainly think the Winchester example (with the buildings hatched) the more satisfactory; when architects, surveyors, and engineers use maps of this scale, they prefer the hatching, as it does not interfere with any colouring which they wish to apply. Of course, maps may be obtained without any colour at all, but, unless the buildings are hatched, there is a difficulty in distinguishing between buildings and small closes of land, and this is often a serious inconvenience.

The next maps in order of scale are the 1½-in. or 5 ft. to a mile. These are the old town maps, published before the introduction of the 12½-in. scale. Two examples are given—one showing part of the City of York, and the other part of Westminster. Each map consists of a sheet and a half mounted together. The York map is very finely engraved, and shows a large amount of detail; the internal details of the plans of the minster, and of churches, chapels, and public buildings are carefully delineated, but no colour is used. In the Westminster plan the water is coloured blue, and the internal details of the Abbey and of the various churches are given, but not those of public buildings, such as the Houses of Parliament.

The last two maps are to the 12½-in. scale, and represent Edinburgh Castle with part of Princes-street, and part of Cambridge with Trinity College in the centre. These, like the 12½-in. sheets, are heliograph, and are inferior to the older maps engraved on copper. The specimens selected are, however, better drawn and reproduced than most sheets of this scale, and the subjects are decidedly interesting. With the exception of outbuildings coloured neutral tint, the buildings on the Cambridge plan are coloured pink, and the walls of all colleges and churches are shown and coloured red; the windows, stairs, and other details of the

colleges and churches are also delineated; the roads are coloured brown, and the water blue. In the Edinburgh plan the water only is coloured, the buildings being distinguished by half-tone shading. The latter style, although less pleasing to the eye, is, in some respects, more useful for the architect and engineer for the reason already given.

It will be seen that the exhibition included maps drawn to six different scales and in different styles for each scale. The scales ranged from 12½-in. to 1 in., and in no other country can this range be matched. According to a pamphlet by Colonel Sir John Farquharson on "Foreign Topographic Maps," the largest town-maps of France are to a scale of 12½-in., and the general maps are 12½-in. (about 2½ in. to a mile), or rough photozinc enlargements of these to 12½-in.; smaller scales, down to 12½-in. (about 9½ miles to an inch), are also used. In Belgium and Denmark the largest maps are 12½-in., and the "Topographic" maps 12½-in.; in Germany, Switzerland, and Italy 12½-in. and 12½-in.; in Sweden 12½-in. and 12½-in.; in Austria-Hungary there are a few special maps of towns to scales of 12½-in. and 12½-in., and the general maps are 12½-in. In other European countries there do not appear to be any government maps larger than 12½-in. (about 2½ mile to an inch). In the United States the greater part of the country is drawn out to a scale of 12½-in., more populous areas to 12½-in. (almost exactly 1 in. to a mile), and less populous or desert areas to 12½-in. In no country, therefore, is there anything approaching our survey of 12½-in. and our 12½-in. town-maps are quite unique. That these large-scale maps have been of great service to county, borough, and other councils, and also to engineers in the preparation of schemes for railways, sewerage, &c., no one can deny; on the other hand, land-surveyors naturally object to such maps as interfering with their occupation.

But while, in the matter of variety and range of scale, little fault can be found with our Ordnance Survey Department, there is, in other respects, legitimate ground for criticism. The draughtsmanship displayed in many of the recent sheets is far below the standard formerly attained, but we need not labour this point; copper-plate engraving is too slow a process for modern requirements, and if it had been exclusively used, many of the maps would have been out of date on the day of publication; a more rapid process was necessary, and this was incompatible with the finest draughtsmanship. A much more important point is that of accuracy, and it is in this that we find the principal ground for criticism. Every professional man who has used the modern Ordnance sheets has found in them numerous errors. Many features are omitted, and others are wrongly delineated. In the coloured maps, some buildings are left blank, while small closes of land are coloured as buildings. Any one well acquainted with a particular locality can, at the first glance, detect many errors in some of the sheets. In confirmation of his previous experience, the writer examined the plans of three old buildings—and only three—as shown on a recent sheet, and in every case the plan was wrong. We have heard of a man who wrote to the department complaining that his house, which had been in the occupation of his family for 300 years, was not shown at all, but whether his complaint was well

founded or not, we do not know. Certain it is that some of the surveyors have scamped their work, and have trusted too much to sketching and pacing, and too little to tape and chain. More frequent revision of rapidly-developing areas is also desirable. Clearness is another essential of a good map, and in this respect the new small-scale maps with brown hill-shading and red contours are better than the old. There is still room for improvement, however, in the distinguishing of certain features, such as fences and small watercourses, &c. Two other criticisms and we have done. In the large-scale maps showing the levels, the benchmarks are not sufficiently numerous. Nearly all Councils now require the levels of new streets and sewers to be plotted from the Ordnance datum, and frequent bench-marks are therefore desirable, particularly in suburban districts. The index maps do not contain sufficient details in many cases to enable any one to order the sheet required; this is often a source of annoyance in places where stocks of Ordnance sheets are not kept.

On the whole, our Ordnance Survey is a work of which the nation may be proud. It is not perfect, but new and improved methods are being adopted, and when this is the case there is hope for the future. We went to the exhibition prepared to curse, but, like Balaam, remained to bless.

#### WATER SUPPLY FOR "DOMESTIC PURPOSES."



HERE is really no end to the ingenuity which may be expended on some Acts of Parliament. No one who has read the case of the Barnard Castle Urban Council *v.* Wilson, which recently came before the Court of Appeal, can fail to appreciate the pleasurable occupation which may be given to judges by a modern statute. The case in question turned upon the interpretation of Section 53 of the Waterworks Clauses Act, 1847: "Every owner and occupier of any dwelling-house . . . within the limits of the special Act shall . . . be entitled to demand and receive from the undertakers a sufficient supply of water for his domestic purposes." This statute has to be read with Section 12 of the Waterworks Act, 1863, which says that a supply of water for domestic purposes shall not include "a supply for any trade, manufacture, or business." The question of the interpretation of these sections becomes more and more important as the area of supply of water by public companies or municipal bodies is enlarged, a process which the last two dry summers has distinctly hastened.

Dealing first of all with the case in question the main facts were that the Governors of the North-Eastern County School, Barnard Castle, erected on their premises a swimming-bath, with a cubic capacity of 35,000 gallons, in a building outside the main building of the school, but connected with it by a corridor. The prospectus of the school stated that a swimming-bath was provided, and that the swimming-bath fee was 3s. 6d. a term, payable by every boarder. A swimming master was kept to instruct the boys, and a fee was paid by such day boys as used the bath. The Urban District Council contended that they were entitled to make a special charge for the water supplied to this bath, on the



## NOTES.

A LETTER by Mr. Spielmann in the *Times* a few days ago, in regard to a rumour that the Dean and Chapter of St. Paul's were taking steps to complete the Wellington Monument by the addition of the equestrian statue intended by Stevens, has led to a correspondence which has brought out the fact that a private Committee has been at work raising subscriptions and selecting a sculptor to complete the monument, in ignorance of the fact that the President of the Royal Academy has been endeavouring all this while to impress on the Government the duty of doing so. The Bishop of Stepney, who was concerned in getting up the private Committee and subscriptions, expresses his regret that he did not know of Sir E. Poynter's efforts with the Government; but his reply does not meet the case. As Sir E. Poynter says, the Wellington Monument is a matter of national interest; and we do not see that the Dean and Chapter of St. Paul's had the slightest right to consider it as their concern, and to appoint *sub rosa* a sculptor of their own choosing, without any appeal to public opinion. Stevens's work is one of the greatest productions of modern English art, almost unique in its artistic character; and the selection of a sculptor to complete it is not a thing to be done in a corner. It is a matter of the greatest importance that the sculptor selected should be one of the foremost artists of the day, and one whose work would be likely to be in harmony with the grand style of Stevens's design. We have no assurance of this in the present case; and the action taken by the Dean and Chapter in initiating such a work on their own responsibility and without inviting public opinion, is a serious mistake. The Wellington monument is not a mere ornament of their Cathedral; it is a work of national interest, placed in the Cathedral, and for which they are responsible to the nation. They had no right to make their own private arrangements for its completion, and select their own artist; and the strongest practical protest ought to be made against such a procedure.

The Wellington Monument.

Trades Unions and the Workmen's Compensation Act.

At the recent meeting of the Parliamentary Committee of the Trades Unions Congress, which was held in private, it appears the subject of discussion was the amendment of the Workmen's Compensation Act, 1897. Before these proposed amendments are made known, and hence speaking with strict impartiality, we wish to point out the effects which this measure—passed solely in the interest of workmen, and amounting practically to an insurance against death or injury in certain employments—has had on the labour market. Owing to the scale of compensation being fixed with reference to the "dependants" whom a workman leaves in case of death, viz., wife, parent, or child, employers of labour are already giving a preference to unmarried workmen who, unless they have a parent dependent upon them, only involve a liability in case of death of a sum not exceeding 10*l*. for medical or funeral expenses. In the second place, owing to the increased liability to accident of older men, and, moreover, to the fact that, if injured, the incapacity

of older men is more likely to be prolonged or even to become permanent, it is becoming more difficult for men who have passed a certain age to procure employment. These causes, owing to the short time the Act has been in force, have hardly at present made themselves sufficiently apparent to obtain general recognition; but each year, as contracts are renewed, their effects on the labour market become more obvious, and we submit that a system of insurance chargeable on the employer will, in the long run, work to the injury of those classes of labourers who most require some assistance.

Elementary School Buildings.

MR. LLOYD GEORGE has issued a kind of manifesto to the Welsh County Councils on the subject of the Education Act. With most of this we are not concerned; but it contains one point which is worth the attention of the new Education Authorities throughout the country. Mr. Lloyd George advises the County Councils, before they take over any elementary school, to have it surveyed by a surveyor or an architect, and to insist that the building shall be in proper condition before it is taken over. This advice is obviously sound, for it will be impossible for the Education Authorities to know how much they ought to pay for fair wear and tear of the premises unless their actual condition is clearly ascertained by a skilled person before the Authority becomes liable. On the whole, we should say that the buildings of the Voluntary Schools are in a better state of repair than their opponents assert; nevertheless, it is highly desirable that their actual condition should be ascertained.

Chipping Wycombe Municipal Buildings Competition. In reference to this competition we have received the following letter from the Secretary of the Institute of Architects:—

"DEAR SIR,—The conditions for the Chipping Wycombe Municipal Buildings Competition contain the following clause:—

"The President of the Royal Institute of British Architects, or some architect to be nominated by him, will be asked to make these awards according to his judgment; but the Corporation do not undertake to carry out any designs, and reserve the right to select for erection any set of designs—whether awarded a premium or not—they may themselves prefer."

The President of the Royal Institute of British Architects requests that you will kindly allow him through your columns to inform those concerned in the competition that, as he understands the promoters decline to modify this clause, he has been unable to nominate an assessor.—I am, yours faithfully, W. J. LOCKE, Secretary.

9, Conduit-street, January 20."

The President was quite right in declining to nominate under the circumstances. We have always held that a Committee may reasonably prefer to carry out a second premiated design instead of a first, if it suits their own wishes better; but they should undertake to carry out one of the premiated designs, otherwise the whole thing is a farce. In this case the Committee have shown their hand openly, and intimated pretty plainly that they are prepared to disregard entirely the assessor's judgment except in respect of the mere payment of the premiums; and architects who respect themselves will be wise to have nothing to do with this competition.

ground that it was not used for domestic purposes, but for the purposes of a business. It was held by Mr. Justice Buckley that this supply was for domestic purposes. The Court of Appeal, however, came to a different conclusion. They endeavoured to limit the effect of this decision by stating that the section had to be interpreted in reference to the particular facts of the case, but in English law precedence has so much weight that this decision can scarcely fail to govern similar and, of course, identical cases.

The definition of the phrase given by Lord Justice Vaughan Williams was that "the use of water for the more convenient occupation of a house, or for increasing its amenities to the owner or occupier, is *prima facie* a use for domestic purposes"; and, testing the case in this way, he came to the conclusion that a swimming-bath outside the house, under the circumstances of this case, did not fall within the section. It is perhaps more easy to say that such a use is not a domestic one than that it is for the purposes of a trade or business, and the real difficulty of the case—and of others in some degree like it which will no doubt arise from time to time—is that they occupy a kind of position between domestic and trade purposes which was probably never considered by those who drafted the Act of Parliament. Lord Justice Romer pointed out the difficulty of the case by some rather amusing illustrations. It might be reasonable, he thought, to regard water for a small tank for goldfish as used for a domestic purpose, but if an occupier desired to keep a private aquarium, he thought he could not require a water company to furnish him with a supply for it; but it is difficult to see how, if an individual chose to amuse himself with a private aquarium, the water could be said to be applied for the purpose of a business, though it might perhaps come within the term "ornamental purpose."

The truth seems to be that these statutes require to be amended. It has been held that a supply of water to a workhouse was a supply for domestic purposes, as the inmates were to be treated as one family. This very patriarchal idea of a workhouse *ménage* must be regarded as an ingenious judicial invention for the purpose of bringing the case within the Act of 1847. Another case, in which it was held that an occupier who carries on the business of a boarding-house keeper could demand the supply of water for the ordinary purposes of his house as one for domestic purposes, appears to be adverse to what must now be called the decision in the swimming-bath case. Another point which may be suggested is in regard to the supply of water for hydraulic lifts; and, indeed, the number of instances which any one can suggest on the border-line between the two statutes is endless. In the present case we cannot but think that the Court rather unduly narrowed the application of the statute, since, though swimming may be taught in a bath, this is *prima facie* a thing which is required for domestic use, whether it be large or small; and we suspect that at the North-Eastern County School the boys who use the swimming-bath did without the domestic tub. As already observed, however, the only true way to put an end to the litigation which is beginning to crop up more and more on this question is by an amendment of the statute.



#### Flanged Pipe Joints.

A QUESTION which frequently arises is the determination of the most suitable method of joining pipes used for high-pressure steam, and in some cases the answer must be deferred until inquiry has been made into certain structural conditions of the pipes themselves. In wrought iron or steel pipes it is always important to see that the flanges are properly secured, that they are of adequate thickness, that their faces are of ample width and provided with an adequate number of bolts properly spaced, and that the flange faces are exactly parallel, so that they cannot be improperly strained when the bolts are tightened up. Undoubtedly the best joint is made with metal to metal, but cost is against it in all but exceptional cases. For the higher temperatures employed in the present day, ordinary india-rubber joint rings are unsuitable, but rings of asbestos material have been used with considerable success where the steam is perfectly dry, and in positions where water of condensation cannot collect. Asbestos suffers from the disadvantage that it is softened and gradually washed away by water, hence various forms of metallic joint rings have been introduced, sometimes with rubber and sometimes without. A form of "gasket" that gives general satisfaction consists of a soft metal ring with a reinforcing wire of copper; this ring being very easy to apply, and also having the advantage that no cementing material is necessary. Therefore, joints may be made, broken, and remade, with a minimum expenditure of time. For permanent work, a cement of red and white lead and iron filings, applied between two pieces of wire gauze, makes an excellent joint. As a general rule it should be remembered that no gasket should be used before it has been treated with plumbago, alone or mixed with tallow, to facilitate breaking of the joint when required. All steam pipes must be run so that water cannot collect along the line, and provision must be made for draining at predetermined points if leakage is to be avoided. Due attention to these points will frequently save much trouble and unpleasantness in connexion with an installation where steam-pipes are employed.

#### Electric Motor-cars.

THE paper on "Electric Automobiles," by Mr. H. F. Joel, read to the Institution of Civil Engineers last week is an important one, as the author's great experience with the management of accumulators has enabled him to test electric vehicles under favourable conditions. He states that perfectly trustworthy motor-cars can now be constructed, and that single journeys of more than a hundred miles can be made with one charge. In the earlier forms of electric vehicle far too small a battery was used. In an electric omnibus tried some years ago on muddy macadamised roads in London the battery was only 18 per cent. of the weight, and the wheels were only a little over 2 ft. in diameter. Under these circumstances it was not surprising that it stuck in the mud and the batteries were destroyed. In the electric cabs seen in the streets two years ago the battery weight was even a smaller fraction of the total weight than in the case of the omnibus. Modern cars have much larger battery power and their wheels are larger. Dr. Luxenberg has

shown that the resistance to traction is practically halved by doubling the size of the wheels. Taking the cost of electric energy as 1½d. per unit, at which price it can be obtained at several stations in and around London, the cost of the energy consumed per ton-mile is only one-tenth of a penny. This cost compares favourably with any other system of self-propelled carriages. Going down hill also, the batteries can be charged by the motors, which then act as dynamos. The charge given going down a slope at 7½ miles per hour would be sufficient to carry the motor-car at least an equal distance on a level road. Mr. Joel proves that as the load is increased the cost per ton-mile rapidly diminishes. Hence, theoretically, for economical working every car ought to carry its maximum load. The difficulties in connexion with the wear and tear of rubber tyres are now being got over. The average distance traversed by the solid rubber tyres used in the old electric cabs before they became useless was under 500 miles. Recent trials by the Automobile Club have shown that pneumatic tyres can now be had which will last for more than 4,000 miles.

#### Cutting Angles of Tools for Metal.

IN a paper on this subject recently read before the Institution of Mechanical Engineers the author devotes special consideration to the influence of the cutting angle upon speed and feed. The factors controlling speed and feed are recognised as being of considerable importance by all who are concerned in engineering manufacture, and the paper to which we now refer possesses distinct value. In shops where hand-grinding prevails only the best workmen know what combination of tool angles will be most suitable for the work in hand, and even then the knowledge possessed is merely approximate, while it is rarely the case that such a workman can name the angles at which he aims, or check the accuracy of his grinding. For this reason the author very properly thinks that machine grinding should be adopted, to the entire exclusion of hand grinding. The results of some of the tests made by the author lead to deductions of great utility in dealing with tool steels of ordinary and special brands, and they also throw valuable light upon questions affecting the shapes and points of tools. Further, the information now afforded presents a reasonable basis for determining the cutting speeds with which those in authority may be satisfied, and it can be employed for the guidance of workmen in the shop. Rule-of-thumb methods still prevail to a certain extent in all engineering works, in spite of the general opinion that workshop administration in these enlightened days ought to be based upon a more defined foundation. Investigations of the kind to which we refer are calculated to bring about the desired reform.

#### Armoured Glass.

UP to the present time the employment of glass reinforced, or armoured, by metallic network has been more general in the United States than in any other country. On the Continent this combination is largely used in Germany, and to a smaller extent in France, Austria, Belgium, and Switzerland. A paper on the subject recently read before the Société des Ingénieurs-Civils, in Paris, presents a convenient summary of facts

relating to the manufacture, strength, and uses of this material of construction. In the production of armoured glass, or *verre armé* as it is more elegantly termed in the French language, advantage is taken of the property possessed by glass of welding, so to speak, to metals, and the combination results in a product having characteristics which are of distinct value in constructive architectural work. The reinforcement is employed in the form of a network of fine wire, only slightly modifying the appearance and transparency of the glass in which it is embedded; the properties given by the incorporation being cohesion and tenacity. From the first of these it results that if a pane of armoured glass be broken or cut the fragments remain joined one to the other, and cannot be separated unless the iron network be cut by a suitable tool or broken by repeated bendings. From the second property it follows that a relatively high resistance to flexure is imparted, a result similarly obtained by the reinforcement of cement and concrete. Moreover, while ordinary glass breaks suddenly without giving any indication of impending failure, reinforced glass cracks or splits, but the pieces remain always joined together by the metal network. The resistance of the combination when rapidly heated is not less remarkable. Instead of suddenly "flying," the new material merely cracks, and the continuity of the sheet or pane is not destroyed. It will, therefore, be seen that reinforced glass is of great value in fire-resisting construction. It is quite suitable for employment as a substitute for sheet iron, or sheet iron with a filling of timber, in the construction of doors and shutters intended to prevent the spread of fire, and it really affords greater security than either of the materials mentioned. By reason of its tenacity, it offers a safeguard of another kind which may be utilised as a protection against burglary or theft from the windows of shops.

#### Pittencrief, and Dunfermline.

It is stated that Mr. Andrew Carnegie has purchased the estate of Pittencrief, near Dunfermline, the place of his birth. Pittencrief House, built in 1610 by Sir Alexander Clerk, of Edinburgh, stands within beautiful grounds wherein is also situated Malcolm Canmore's Tower, a relic of the castle which that sovereign erected upon an eminence rising out of the glen of Pittencrief. The locality formed a favourite residence of the Kings of Scotland. Malcolm III., surnamed Cean Mohr, gave asylum there to Margaret, grand-daughter of Edmund Ironside and sister of Edgar Atheling, when seeking refuge in a bay of the Firth of Forth, since called St. Margaret's Hope; the cave which also bears her name lies to the north of Canmore's Tower. Malcolm married her in his castle at Dunfermline in 1070. Close by, and to the south-west of the Abbey, are the remains of the later palace in which were born King Charles I. and his sister Elizabeth, Queen of Bohemia. The palace occupies elevated ground overlooking the Firth burn. The principal portion of the ruins consist of the south-west wall, 205 ft. long and 60 ft. on the outer buttressed side towards the ravine, whereof the lower part is considered to have been built during the reigns of Robert Bruce and his successor, David II. It is conjectured that a curious group of underground passages beneath some of the buildings afforded a pro-



ected communication between the palace and the abbey. There are openings to the surface for light and air, and from a middle vaulted chamber radiate three passages—one towards the abbey, and two leading to the storerooms and the western parts of the palace. The eastern portions of the ruins include the kitchen, which was vaulted and has two fireplaces. Beneath the kitchen is a spacious vaulted chamber, 44 ft. by 24 ft., and 14 ft. high. That part of the palace presents features of the eleventh century and twelfth century periods. On his marriage morning, King James VI. conferred the lordship of Dunfermline upon Anne of Denmark. The house he built for her there was pulled down in 1797, having been used latterly as a school and afterwards as a woollen factory. On the removal in 1819 of the soil in the eastern part of the abbey, founded by Malcolm III., for the building of a new church, were found remains of some Scottish kings, and amongst them the skeleton of Robert Bruce wrapped in lead, which was reinterred in the ancient choir beneath the tower of the present church. With the skeleton, of which the breast-bone had been sawn asunder for the removal of the heart, was found a copper plate, inscribed "Robertus Scottorum Rex." Malcolm and St. Margaret were buried on the east side of the Abbey, which their sons, Alexander I. and David I., completed, and Bruce restored after it had been burned by Edward I. The early reformers converted the nave into a Presbyterian place of worship, and zealously pulled down the rest. A tower with an archway, joining the palace to the abbey buildings, stands across the road to the Pend and St. Catherine's-wynd.

UNDER the provisions of the Ancient Monuments Act, the Board of Works, Dublin, have taken into their care the French Huguenot church at Waterford. The church has its origin in the Franciscan monastery of Friars Minor, established in the town by Hugh Purcell in the earlier half of the thirteenth century, of which a portion was given to the Huguenots who sought refuge in Waterford. At the dissolution, Henry Walsh had purchased the buildings and founded therein the Holy Ghost Hospital for the poor, incorporated by an Act of 36 Henry VIII. The ruins comprise the choir, converted into a burial ground for the French church, the tower and nave, and one transept. Some curious pieces of ancient sculpture have been preserved, together with many sepulchral monuments bearing inscriptions which now, for the most part, are illegible.

AT the London Institution, on January 15, the Rev. Walter Marshall lectured on "The Romance of Architecture." Although the title was rather a misnomer, Mr. Marshall told much that was of the greatest interest to lovers of parish churches, and showed a series of excellent lantern-slides illustrating some of the best examples. His reference to the almost entire destruction of the Rood loft was illustrated by a few well-selected slides, including an interesting example of the later substitution of the Royal Arms in the magnificent seventeenth-century Jacobean interior at Croscombe. The examples of sanctuary knockers from St. Gregory's, Nor-

wich, St. Nicholas, Gloucester, and the well-known Durham knocker illustrated three distinct and beautiful types of mediæval ironwork.

Pure Air Without Draughts.  
AN interesting lecture under this heading was given by Dr. Glover Lyon at the Camera Club, on January 12, when he also practically and successfully demonstrated his methods of ventilation. Members of the club appeared to be much impressed by the greater purity and pleasantness of the atmosphere of their room, which on most lecture nights was declared to be almost unbearable. A more detailed description, accompanied by illustrations, will appear shortly.

A French Opinion on the Builder.  
OUR contemporary *L'Architecture* is kind enough to reproduce, in its issue of the 17th inst., the elevation and details and a photograph of our little front in Catherine-street, and adds some remarks which we quote not so much from vanity as for another reason mentioned below. *L'Architecture* observes:—

"Le *Boulevard (le Constructeur)* est certainement la plus ancienne publication périodique d'architecture existant actuellement dans le monde entier. Créé deux ans après la *Revue Générale de l'Architecture et des Travaux Publics* de César Daly, aujourd'hui disparue, ce journal est dans sa soixante-et-unième année d'existence. Sa prospérité a été très rapide, elle s'est toujours maintenue; tout porte à croire, et nous le souhaitons, qu'elle se maintienne encore durant des années et des années.

Nous comprenons difficilement, en France, un journal hebdomadaire d'architecture conçu selon le plan du *Builder*. Chaque numéro de celui-ci contient, en effet, soixante colonnes de texte en petit caractère, parsemé de quelques illustrations, non compris plusieurs colonnes de renseignements divers, et une moyenne de huit pages hors texte de dessins."

Some months ago, an American architectural publication, which makes it a special object to praise everything French in connexion with architecture, and belittle everything English, had the assurance to inform its readers that the English architectural journals seemed hardly worth notice to those accustomed to the excellences of the French and German architectural papers—especially (strange to say) in respect of their illustrations. Perhaps it may be instructive to the gentleman who penned this remarkable opinion to see what a French journal itself thinks on the subject. And we make the remark not only on our own account, but on that of English architectural journalism generally, which, as far as weekly papers are concerned, is easily ahead of any other country. Such monthly publications as the *Rundschau*, and as our old friend César Daly's *Revue Générale* (the best architectural periodical ever issued), are of course on a different footing, and are published under different conditions, from a weekly paper.

#### THE SIGNS IN LOMBARD-STREET.

ONE of the most successful schemes of outdoor decoration made in readiness for the Coronation festivities last year was the revival, at the instance of a local committee, of some of the bankers' and traders' hanging signs in Lombard-street. All of them had been taken down as "dangerous and obstructive" in the interval 1763-6. Most of the signs lately set up are authentic copies of their originals, and are hung with their own separate electrical lights upon ornamental iron brackets and frames designed, we are informed, by Mr. Starkie Gardner. Besides giving a most

pleasing relief to the lines of a narrow and somewhat sombre thoroughfare with their variety of shape, device, and colour, the signs recall many incidents of local and historical interest. They are worthy of a few words of passing notice, inasmuch as their removal is decreed by the Public Health Department of the Corporation of the City.

What Addison calls "a certain street of the greatest credit in Europe" has retained its name and its association with banking-houses since the Jewish merchants, and after them the Longobards, made it their resort, or exchange, early in the thirteenth century. Stow records that

"Edward II., in the twelfth of his reign, confirmed a message . . . abutting on Lombard-street towards the south and towards Cornhill on the north, for the merchants of Florence. . . . The meeting of which merchants and others there continued until the 22nd day of December in the year 1568; on the which day the said merchants began to make their meetings at the Royal Exchange."

In 1379 Richard II. grants William Salisburys, goldsmith, to hold the Exchange in Lombard-street (see Lloyds' Bank); and in 1537 Sir Richard Gresham proposes to Cromwell, the Lord Privy Seal, "to make a goodly Bourse in Lombert-streete for merchants to repayre untoe," after the manner of the Bourse at Antwerp. His son, Sir Thomas Gresham, kept his "shop" or counting-house during the latter thirty years of his life at the sign of the Golden Grashopper (his family crest) where is now Martin's Bank; in his correspondence he often cites "how the Exchange passeth in Lombard-street" at a time when, as Hentzner repeats, it was considered to be the handsomest street in London. Hentzner writes, 1593, that he saw there all sorts of gold and silver vessels, coins, &c., exposed for sale. Most of the goods were forfeited pledges: much of Sir Thomas Gresham's effects consisted of gold chains. The public office of No. 68, Martin's Bank, Ltd., occupies the site of Gresham's counting-house; a tradition obtains that on that same spot had stood the house of Wm. (or Matt.) Shore, goldsmith, whose wife was Jane, a daughter of Thomas Wainstead, of Chapside, mercer. Alderman Richard Shore died in 1510, and endowed a chauntry in the neighbouring church of his sepulture, St. Mary Woolchurch Haw—its site is now that of the Venetian and Long Parlours in the Mansion House. But the *Morning Post* of November 10, 1818, avers it could be proved by old leases that William Shore's house had been at No. 43, by the corner, north-east, of Gracechurch-street, which a conveyance of 1667 cites as "a message knowne by the sign of the Three Crowns in the parish of Alhallowes in Lumbor-streete."

Pope's Head-alley, still marked with a carved stone sign of a head wearing a papal tiara, and the former tavern by that sign which is cited in the record of a wager made between two goldsmiths in 1464, commemorate the time when "merchants" from Rome chaffered in the street with their wafer-cakes and pardons. Sir Martin Bowes, the wealthy goldsmith (temp. Queen Elizabeth) lived in a house—where is now No. 67—at the sign of the White Lion, afterwards the Anchor, which he devised to the Goldsmiths' Company. The sites of No. 65—which was formerly the Salutation Tavern, and in our day Overend, Gurney, & Co.'s—of the Black Bull, and of No. 67, the Anchor, have been absorbed by Messrs. Glyn, Mills, Currie, & Co.'s premises as enlarged since that firm removed in 1827 to the Anchor from Birchin—or, more correctly, Birchover-lane.

The *Little London Directory* of 1677, the earliest known book after its kind, contains a nominal list of goldsmiths "who keep running cashes." Twenty-seven of them have their places of business, with signs, in Lombard-street. Some fifteen years ago Mr. F. G. Hilton Price succeeded in determining the later postal numbers of seventeen out of those twenty-seven houses, and it is mainly to his researches that we owe the identification, as to number with site in each instance, of nearly seventy out of the one hundred and four signs which are known to have once existed in that street. The ascertained number is great, and there were many more of which all record is

\* Sir Thomas Gresham's Bourse on Cornhill, designed by Henrycke, the Fleming, was begun on June 6, 1566, and finished on December 22, 1568; Queen Elizabeth used it the Royal Exchange at her visit on January 23, 1571. See Bargon's "Life of Gresham."



lost; yet we should remember that until W. Mountague, the City Architect, laid out King William-street in 1824-30, Lombard-street extended as far as the Mansion House, and that the present space in front of St. Mary Woolnoth Church was covered by the former Nos. 1-10, as well as by Dove-court and Little Lombard-street.

Crossing over to the north side we see at No. 81 the sign of the Seven Stars, which marks a boundary of St. Mary Woolnoth parish. No. 81, latterly Brooks & Co.'s banking-house, and No. 82, were rebuilt by the late E. T. Anson, who was the architect also of No. 74. At No. 78, until very recently the Provident Life Office, the handsome sign of the Cardinal's Hat (or Cap) commemorates a tavern cited by Stow, and which in the seventeenth century was called the Cock. The device of the Vine, or Grapes, marks No. 77, Parr's Bank; at No. 68, the Golden Grasshopper marks the banking-house of Martin's Bank, of which the south and main front portion was rebuilt in 1793-4, and the rear portion in Change-alley in 1874 after Mr. R. Norman Shaw's designs on the site of the old Garraway's Coffee House burned, together with Jonathan's and Robin's on March 24, 1748. There was a Martin, goldsmith, *temp.* Elizabeth. The bank is one of the oldest in London. In, or about, 1672, Charles, afterwards Sir Charles, Duncombe and Richard Kent, who had been clerks of Alderman Backwell, began business in co-partnership as goldsmiths at the Golden Grasshopper standing between the Plough (now Glyn's) and the Unicorn, the house of Backwell, who built Change-alley in 1668-9. Sir Charles Duncombe, the "Euclid," it is supposed, of Pope's satire, retired in 1695, and bought "at near 90,000l." Evelyn says, Helmsley, since Duncombe Park, Yorkshire, from George Villiers, second Duke of Buckingham. His niece and heir, Mary, became ancestress of the Lords Faversham. Duncombe House, designed by Vanbrugh, has been rebuilt, after the fire of January 11, 1879, from Mr. Young's plans and designs. In 1703 the banking business had passed to Stone & Martin; in 1801 Martin & Co. registered themselves as Martin's Bank, Ltd. Messrs. Glyn, Mills, Currie, & Co. choose—out of several—for No. 67, the Anchor, which we have already noticed, and a very fine piece of work it is. From No. 62, Commercial Bank of Scotland, hangs the Cat and Fiddle—a sign which many interpret in many ways. The simplest solution seems to be the most probable, a combination of two incongruous badges is not infrequent, and was often adopted when an apprentice, starting for himself, joined his former master's device to his own. No. 60, formerly Barnetts, Hoares, Hanburys, and Lloyds, and now the Canadian Bank of Commerce, displays the King's Head (Charles II.), of which there is record, on that spot, in 1677; the Ram, equally old, appears again at No. 58, where before the Great Fire had been the George Inn, whence the name of George-yard. On the south side is, as the east end, the block Nos. 39-40, built after designs by Messrs. Francis in 1866-7, and distinguished with the Blackamoors, or Morocco's Head—a striking device on a red ground; at No. 28, Royal Insurance—buildings, having a Renaissance elevation by Mr. John Belcher, hangs the Artichoke, which is repeated at No. 24, Alexanders & Co.'s, of which building (formerly Nos. 24-5) Mr. John Whichcord the younger was architect; No. 27, at one time the Queen and Sun, carries its later sign of the Queen's Head. The Phoenix is appropriately restored to No. 19 (formerly Nos. 18-20), the offices of the Phoenix Fire Assurance Co. No. 28 is illustrated in our number of June 6, 1887.

In view of Mr. Hilton Price's valuable and illustrated work published in 1887, we need not enumerate the multitudinous other signs which might, and with due regard to their authenticity, have been replaced on the eighty-four houses in Lombard-street. As, however, some of the postal numbers have been altered since, and many of the premises have been rebuilt in recent years, we may here add that P. C. Hardwick was the architect of No. 15, Roberts, Lubbock, & Co.'s (1864), on the site of the house built for Roberts & Curtis by Thomas Leverton in 1796, where had been the White Bear, afterwards Pontack's (or Puntack's) Head, and then Lloyd's Coffee House at the corner of Abchurch-lane; he was architect also of No. 54, Barclays & Co.'s Bank, at the

corner of George-yard. No. 21 (formerly Nos. 21-3), the London and County Banking Co.'s, in the Tuscan style, is by C. J. Parnell, and was built in 1860-1, with it, said, stones of old Westminster Bridge; the premises have since been enlarged on the site of No. 20; the London and County Bank removed in 1846 from No. 71 (see Lloyds). Nos. 60 and 62, formerly Barnetts, Hoares, Hanburys, and Lloyd's, were altered and enlarged in 1838 by Sampson Kempthorne, of Gloucester; the house by Byng (1823) at the corner of St. Clement's-lane gave place to the Royal Insurance-buildings. No. 26 is by Edmund Wood, the elder (died 1887). Lloyds, Barnetts, and Bosanquets', the Black Horse, as rebuilt in 1886-7 on the sites of Nos. 71-3, has absorbed the Exchange (afterwards the Acorn), the Union, the Fox, and the Bunch of Grapes, together with Nos. 26-7, Change-alley and Nos. 7-8, Pope's Head-court. The block now numbered 1-6, near the Mansion House, was designed by Sir Robert Smirke, R.A. No. 1 stands on the site of Harley & Co.'s, at the Cock; Smith, Payne, & Smiths removed thither in about 1840, their London house having been established in 1758 at No. 18, The Hare, since absorbed by the Phoenix Fire Office. In July last the firm was amalgamated with the Union Bank of London. Through these and other changes it has come about that perhaps the oldest commercial building of importance in Lombard-street is the offices of the Pelican Life Insurance Co., designed for Sir Charles Asgill by Sir Robert Taylor in or about 1756. On the front is a sculptured group executed by the Coades, of Lambeth, from designs by Lady Diana Beauclerk. Until the building of Lloyds Bank, No. 71 marked the position of the original Exchange and of a house by that sign. "Baker's" chop-house, with its old front, has been the last survivor in Change-alley, where the central block—formerly "Sam's"—is supplanted with premises designed by Messrs. Davis & Emanuel. The "Swan" and "Jonathan's" formed the east and west sides of the central block. Mr. J. H. Rowley was architect of the New City Club in George-yard, illustrated in the *Builder* of September 3, 1864. Pope's birthplace, No. 2, Plough-court, was demolished in 1872.

#### SURBITON CLOCK TOWER COMPETITION.

WE cannot congratulate Surbiton on the result of its Clock Tower Competition. No less than 116 designs were sent in to compete for this memorial, and, after several inspections by the committee, their choice has fallen upon the design by Mr. John Johnson, submitted under the title, "Experience." The committee have only themselves to thank that they have got such a comparatively poor design; had they gone to the expense of appointing a competent assessor and publisher his name many good designs would have been submitted to them. Without an assessor artists will not compete, experience showing that when the choice is left in the hands of a lay committee, designs of real excellence are passed over for popular travesties of architectural design. The present instance is no exception, many designs submitted being preferable in every way to that chosen.

The winning design is a dull Gothic erection of good proportions, showing a great deal of carved ornament and sculpture which will have to be omitted, even where it be of the worst description, if the tower is to be built for the specified sum of 700l.

One of the best designs submitted is that distinguished by an hour glass, the author of which must be of a sanguine temperament to expect a committee of laymen to notice a design so inadequately depicted. A nice little design is that by Mr. H. M. Fletcher, showing a twelve-sided stalk with an hexagonal drum for the clock surmounted with a copper-domed roof and gilded vane. A design better in intention than in execution is shown by Mr. Gerald Warren, based on a colour treatment obtained by contrast of red brick. Portland stone and richly decorated panels, and clock face in mosaic and enamel. "Dum Spiro, Spero" shows a plain stock brick tower with angle buttresses, hipped roof, behind a brick and stone parapet, with the clock under a stone pediment; the lines of the design are good. It needs much refining and more cheerful means of representing it. A dainty Renaissance design shown by good

drawings is submitted by "Patriot," and a severe but excellent design in Portland stone is shown by "Edward VII.," perhaps considering the historic occasion the memorial is to commemorate, this would have been the most suitable to carry out of all those submitted. A design based upon the use of red brick as the principal material, by "Fleetwood," is quiet and restrained; we think it would have been better without the lions and shields at the angles. This is another design that would be infinitely preferable to that selected. "Aibilins" submit a free Renaissance design dwarfed by a most enormous metal crown on the summit, the clock forming a mere incident in the design; this set is well drawn. Alternative designs with a claim to originality are shown by "L. N. Z.," a stone tower, windowless, with a certain monumental character. Of original designs that one can contemplate without exhaustion is that by "Iseth," which shows thin projecting angle buttresses pierced with a species of tracery carrying a monumental clock on top; we suggest that this would look well, executed in Doulton ware. "Surrey Comet" exhibits a workmanlike design of unpleasant proportions, due perhaps to the over emphasis of the different stages. The design by "G. E. R." shows an ingenious treatment, which we fear looks better on paper than it would in stone.

A triangular plan has been adopted by "Crown" with not very happy results. "South Barton" sends a good design, well drawn in a pencil manner; the point of view of the perspective we do not understand. "Finis Coronat Opus" is a smooth little design illustrated by a good water-colour drawing.

#### ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE usual fortnightly meeting of the Royal Institute of British Architects was held on Monday evening, at the Rooms of the Institute, 9, Conduit-street, Mr. Aston Webb (President) in the chair.

##### Deceased Members.

Mr. Alexander Graham (Hon. Secretary) announced with regret the deaths of Mr. W. Wimble, who was elected a Fellow in 1888; Mr. Jas. F. Wadmore, Associate, elected in 1865; and Mr. Albert Charles Breden, Associate, elected 1892.

##### Donations to the Library.

Mr. Graham further announced the receipt of books for the library, a list of which was published in the last number of the "Journal," and said that Mr. Sydney Smirke had made a fourteenth donation of 5l. to the library fund. He moved in a formal way that a vote of thanks be accorded to the donors of the books, and especially to Mr. Sydney Smirke for his kind donation.

##### Elections.

The meeting proceeded to the election of candidates for membership under by-laws 7, 8, and 9. The following applicants were elected, viz.:—Fellows: Mr. Thomas Edgar Eccles, Liverpool, elected an Associate in 1890; and Mr. William Chasen Ralph, of Wigan. As Associates: Mr. Archibald Lawrence Holder, of London; Mr. Horace Moger, of London; and Mr. James Maclaren Ross, of London.

##### Prizes and Studentships.

The Secretary read the Deed of Award of prizes and studentships for 1902-3, made by the Council in writing under the common seal, in accordance with by-law 66.

The Essay Medal and Twenty-five Guineas.—Three Essays entitled "A Comparative Review of the Various Past and Present Systems of Architectural Training at Home and Abroad," were received for the Silver Medal under the following mottoes:—1. "All British." 2. "Ars quatuor coronatur." 3. "Lindis." The Council regret that they are unable to award the Medal, but they have granted a Certificate of Honourable Mention to the author of the Essay bearing the motto "Ars quatuor coronatur" [M. T. A. Griffith, Malvern].

The Measured Drawings Medal and 10l. 10s.—Three sets of drawings were sent in of the several buildings indicated, and under motto, as follows:—1. Iago—5 strainers (Balls Park, Hertford); 2. Nix—6 strainers (St. Martin-in-the-Fields); 3. Philabeg—5 strainers (Craigievar Castle, Aberdeenshire). The Council awards the silver medal and ten guineas to the delineator of Craigievar Castle submitted under



the motto of "Philabeg" [Mr. Andrew Rollo, Glasgow].

*The Soane Medallion and 100l.*—Twenty-one designs for a town church were submitted, under the following mottoes:—1. Advance—4 strainers; 2. Bee—7 strainers; 3. "Como"—4 strainers; 4. E Natura Architectura—6 strainers; 5. "Fides"—5 strainers; 6. Fioretto—4 strainers; 7. Ich Dien—7 strainers; 8. Xbuc—6 strainers; 9. Lauda Finem—7 strainers; 10. Medici—6 strainers; 11. "Neni"—7 strainers; 12. "Ne Obliviz"—7 strainers; 13. "New Era"—7 strainers; 14. Φοινιζ—6 strainers; 15. Perseverando—6 strainers; 16. Rodari—7 strainers; 17. Sanctus—8 strainers; 18. Xerxes—6 strainers; 19. X—5 strainers; 20. "X"—5 strainers; 21. evic of a Patriarchal Cross—8 strainers. He Council have awarded the medallion and subject to the specified conditions) the sum of 100l. to the author of the design bearing the motto of "Ich Dien" [Mr. E. F. Reynolds, Birchfield], and a medal of merit to the author of "Como" [Mr. F. C. Mears, South Kensington, W.], and "X" on grey strainers [Mr. C. W. Smith, Finchley, N.].

*The Owen Jones Studentship and 100l.*—Three applications were received for the Owen Jones Studentship from the following gentlemen:—1. L. R. Guthrie—6 strainers; 2. James Lachlan—6 strainers; 3. Percy E. Nobbs—6 strainers. The Council have awarded the certificate and (subject to the specified conditions) the sum of 100l. to Mr. P. E. Nobbs, A. Edin, Chelsea, S.W.; and a medal of merit and 10l. 10s. to Mr. L. R. Guthrie.

*The Pugin Studentship and 40l.*—Eight applications were received for the Pugin Studentship from the following gentlemen:—1. J. Harold Hobbs—6 strainers; 2. W. S. A. Gordon—6 strainers; 3. Stanley H. Hamp—7 strainers; 4. O. P. Milne—5 strainers; 5. F. C. Mears—6 strainers; 6. A. Muir—6 strainers; 7. J. R. Smith—6 strainers; 8. P. J. Westwood—6 strainers. The Council have awarded the medal and (subject to the specified conditions) the sum of 40l. to Mr. J. H. Gibbons, Manchester, and a medal of merit and 10l. 10s. to A. Muir, Hammersmith, W.

*The Godwin Medal and 65l.*—Four applications were received for the Godwin Bursary from the following gentlemen:—1. H. B. Besswell; 2. H. Phillips Fletcher; 3. A. N. Smith; 4. A. Maryon Watson. The Council have awarded the medal and (subject to the specified conditions) the sum of 65l. to Mr. A. Dunbar Smith.

*The Title Certificate and 30l.*—Fourteen designs for a pavilion in a public garden were submitted under the following mottoes:—1. Iora—6 strainers; 2. Archivolt—8 strainers; 3. Ariel—5 strainers; 4. Caber-feidh—5 strainers; 5. Forum—7 strainers; 6. "Leird"—8 strainers; 7. Lindisfarne—4 strainers; 8. "Lux"—4 strainers; 9. Mime—8 strainers; 10. Mulciber—4 strainers; 11. Pax—7 strainers; 12. Phoenix—4 strainers; 13. Queen of Hearts—5 strainers; 14. St. Winifred—5 strainers.

The Council have awarded the certificate (subject to the specified conditions) a sum of 30l. to the author of the design bearing the motto of "Caber-feidh" [Mr. D. Smith, Streatham Hill, S.W.].

*The Cates Prize.*—Two applications for the Cates Prize were received from the following gentlemen:—1. Baxter Greig—11 strainers; 2. A. Halcrow Verstage—22 strainers. The Council have awarded the Cates Prize of 40l. to Mr. A. Halcrow Verstage, Meadowdale, Surrey.

*The Grissell Gold Medal and 10l. 10s.*—Even designs for a stone dome over a portico to a large public hall were submitted under the following mottoes:—1. Blunderbuss—3 strainers; 2. Civic—3 strainers; 3. Duomo—2 strainers; 4. Golden Horn—3 strainers; 5. H.I.M.—2 strainers; 6. Notts—3 strainers; 7. Quercus—4 strainers; 8. Red Rose—2 strainers; 9. "Sepia"—4 strainers; 10. White Rose—4 strainers; 11. "Z"—4 strainers. The Council have awarded the medal and 10l. 10s. to the author of the design bearing the motto "White Rose" [Mr. J. B. Wilson, Gordon-street, W.C.].

*The Asphit Prize, 1902.*—The Council have, on the recommendation of the Board of Examiners (Architecture), awarded the Asphit Prize (which is a prize of books value 10l., awarded to the candidate who has most highly distinguished himself among the candidates in the final examination of the year) to Mr. W. Greenwood, of Blackburn.

*Owen Jones Studentship, 1901.*—The Council have approved the drawings and design of Mr. J. Hervey Rutherford, who was awarded the Studentship in 1901, and who travelled in Italy, Sicily, and Spain.

*Owen Jones Studentship, 1902.*—The Council have approved the drawings and design of Mr. E. H. Bennett, who was awarded the Studentship in 1902, and who travelled in Italy and Spain.

*Godwin Bursary, 1902.*—The Council have approved the Report of Mr. Chas. A. Daubney, who was awarded the Godwin Bursary in 1902, and who visited the United States of America to study fire escapes in American commercial buildings.

*Pugin Studentship, 1902.*—The Council have approved the work of Mr. C. Wontner Smith, who was elected Pugin Student for 1902, and who travelled in Gloucestershire.

*Title Prize, 1901.*—The Council have approved the work of Mr. Walter Fairbairn, who was awarded the Title Prize for 1901, and who travelled in Italy.

#### Science Workshops for Schools and Colleges.

Professor Armstrong then read a paper on "Science Workshops for Schools and Colleges," of which the following is an abstract:—

Professor Armstrong said that the importance of experimental studies carried on with the object of affording training in scientific method, as a necessary part of the ordinary course in schools generally, whatever their grade, was already so widely recognised that ere long every school would need its workshops as well as its classrooms; it was therefore desirable that the general character of the requirements should be understood, in order that buildings may be properly designed to accommodate all necessary fittings and appurtenances—and more particularly to afford the necessary working space. The whole question of school design might assume a very different aspect in years to come; indeed, the architect might play a by no means unimportant part in helping on reforms which many thought to be very necessary if practical work was to take its proper place in the ordinary curriculum of every school.

Professor Armstrong illustrated his arguments largely by reference to the new buildings at Horsham for Christ's Hospital School,\* erected to accommodate 800 boys, from the designs of the President and Mr. Ingress Bell. When the position and size of the science block with reference to the other school buildings was noted, it would be obvious that extraordinary importance would be attached to experimental studies in the school. The science block occupied practically one side of a quadrangle, the opposite side of which was occupied by the chapel, the classrooms and school hall filling the third, the dining-hall the fourth side. The floor area of the ordinary classrooms was 15,482 sq. ft., that of the rooms in the science block was 10,326 sq. ft.

But the provision which would be made at Horsham for work such as he was contemplating would not be confined to the science block. At no distant date, he trusted, there would be distinct workshops for manual training in wood and metal; and the engineering appliances generally would afford opportunities for the instruction of the more advanced boys in the use of machinery. Moreover, surveying and map making would be practised in the country round and there would be abundant opportunity for other out-of-door studies; besides school gardens, a set of experimental plots were now being laid down on the lines of those at the Rothamsted Agricultural Station which had so world-wide a renown. Christ's Hospital School, in fact, ere many years, should be a model school; its buildings marked an extraordinary advance—far greater, perhaps, than most of those connected with them realised. As one of the Governing Body, Professor Armstrong asked to be allowed to say how much he appreciated the great work which Mr. Aston Webb and his colleague had carried out, in watching the progress of the buildings he realised how many things the architect must be to all men.

In designing science workshops the architect and his technical advisers should have three S's in mind—sense, simplicity, and space. There should be due knowledge and understanding of the requirements to be met—mere copying should be impossible. The provision

made should be of the simplest character possible, because simplicity of provision conduces to simplicity of practice; and the space should be ample, for, given sufficient space, almost anything may be done, and to grant proper space is to show proper respect.

Money spent on judicious ornamentation would always be well spent in the case of a school. Far too little heed was paid to the influence which surroundings exercised on young people; if we are ever to recover the sense of artistic feeling, we must do far more to make our schools attractive. The disregard of property which seemed to be so characteristic of boys at the present day was probably a consequence of the fact that at school they were not placed under conditions which would lead them to be mindful of their surroundings. "Thinking in shape," to quote Thring at Uppingham, was one of the most powerful means of stimulating the imagination and the aesthetic faculties; it was easy to carry out the idea in these days, as magnificent photographic reproductions of the masterpieces of nature and of art were to be had at comparatively small cost; hence neither classroom nor corridor should be without its picture-rail. He would also plead for a more liberal use of colour in our schools.

The fittings at Christ's Hospital were not thought of until long after the building was designed; but, to secure the best result, the building should be designed to the fittings. The science workshops at Christ's Hospital differed in an important manner from the laboratories hitherto provided for schools—there were four main rooms in which classes were held, and to each of these was attached a number of subsidiary rooms. No lecture-room was provided—an omission of set purpose, as it was purposely to discourage didactic teaching. Full provision was made in each room for such didactic teaching as might be necessary; there was a demonstration bench, in front of which sufficient space was left free where seats could be placed; or uprights could be fixed, provided with small desk tops, where students could stand and take notes. No special balance-room was provided. A novel fitting, the balance-bench, had been introduced; this was merely a long narrow table (3 ft. by 12 ft. by 3 ft. 6 in. high) covered by a glazed case for the protection of the balances. Instead of having a number of balances within separate glazed cases, one large glazed case had been provided to contain a number of separate uncased balances. The balances placed in such a case are those required for all ordinary work. The more delicate balances required for advanced work were always provided with a case; and, as the sensitive working parts were of agate, there was no need to keep them in a separate room; they were conveniently placed on brackets against the wall.

A third special feature of importance was the store or stock room attached to each of the four workshops. This was intended not only for the ordinary stores, but also and especially as a room in which the apparatus for experiments left unfinished at the end of a lesson might be set aside until the next attendance.

Professor Armstrong followed with a detailed description of the more important fittings required—viz., working-benches, cupboards, sinks and drains, ventilation hoods, and various special appliances. Referring to the regulations of the science branch of the Education Department which specify a water-tap and sink for every two students, the lecturer stated that such a provision was quite unnecessary. The class of work now advocated for schools required the use of water but seldom. Architects must harden their hearts on this point; there was no more reason why sinks should be everywhere in a laboratory than there was to have one in every room in a dwelling-house. The economy involved in localising the water-supply, sinks, and drains was very great. At Horsham, in the rooms on the upper floor, all sinks were placed near to the walls, and the waste was carried down to the floor below in pipes fixed in chases in the walls. On the basement floor cross-channels were avoided as much as possible. In the lecturer's experience wooden sinks are far the best, provided that they are built up solidly without dovetailed joints, and that they are always kept partly full of water by arranging the waste so that it projects several inches (about four) above the bottom of the sink. American white wood seems to be one of the best to use. Sides and bottom should be well jointed. All surfaces should

\* See our issue for January 3 for illustrations of this building.



be well painted with thin coal tar before they are butted; and the whole surface inside and out should be similarly coated. The waste-pipe should either be somewhat expanded or should have a flange burnt on by means of which it may be held in position by two blocks, one of which—fixed by screws to the under side of the bottom—serves to carry bolts by means of which a second block is caused to clamp the pipe and the flange. The space between the pipe and the side of the hole through which the pipe passes is filled in with pitch. The sink is wedged up against the bench top. Such sinks may be made of any size that may be desired, and no plumber is needed to fix them. As regards benches, the lecturer advocated some such arrangement as had been carried out at the Christ's Hospital Girl's School, Hertford, in the new science room (of which a plan was shown) designed by Mr. Stenning—about the simplest and most common-sense plan, he said, that could well be adopted.

The author thought that in future it would be possible to improve considerably upon the arrangements which had been made in the Christ's Hospital Schools, especially in the direction of simplification, by taking carefully into account the character of the fittings to be introduced at the time of designing the building. The ideal to be aimed at was to have the whole of the room, both floor and wall space, available for the work to be done in it. Wall space was invaluable for many mechanical and physical experiments, for blackboards, for shelving, &c. Benches, therefore, should not be fixed permanently against the walls, but should be placed out in the room. Projections into the room should be avoided, and windows be inserted at least 6 ft. above the floor.

Whenever possible, steam or hot-water pipes for heating the room should be carried under gratings in channels in the floor. Radiators, &c., take up much space, and interfere with and damage fittings in their neighbourhood.

The lecturer questioned the need of the elaborate provision hitherto made for benches. If sufficient shelving, racks, &c., be provided, and cupboards for general use where necessary, there is little need for cupboards under the benches. He favoured steady, heavy benches of the kitchen-table type. For such benches it was unnecessary to use hard wood; all difficulties of staining, disfigurement, and cracks would be overcome by the use of lead-covered benches—a long experience had led the lecturer to prefer these to all others.

With reference to girls' schools, briefly touched upon by Professor Armstrong, he advised that provision should be made, even in the case of girls, for some use of tools. Men had long been victims of academic prejudices, but were seeking to throw them off; the disease was now being contracted by women, and we had to deplore the all too literary bent of the curriculum in girls' schools, whether primary or secondary. By making liberal provision of space for domestic workshops, the architect might do much to turn the tide.

With regard to the treatment of wall space, as much as can be spared here and there should be properly prepared, so that it may serve as a blackboard; or the special black canvas, so much used in America, should be fixed against it by battens. Wherever there is spare space, stout battens should be fixed to the wall a few feet apart—when these are provided brackets may be fixed up at any time.

With reference to the science workshops in colleges as distinct from those for schools, in minor matters these differ considerably, but in principle they are very much alike. The lecturer observed that if he were called on again to design a laboratory, he should greatly simplify the fittings and follow as nearly as possible the model of the well-arranged factory.

The rules with regard to planning and fitting public elementary schools recently issued by the Board of Education, undoubtedly tend to favour over-provision. It is not merely that much more money is spent than necessary, but a false complexion is put upon the work—it becomes drawing-room practice and not workshop practice, and when scholars go out into the world, they find themselves placed under altogether strange conditions, unable to use the ordinary tools, and unable either to fit into or to follow the ways of ordinary life. The outcome is most serious; some action must be taken to put the schools on a simpler footing and to bring their work into harmony with

ordinary requirements. In conclusion, Professor Armstrong urged that some attempt should now be made to standardise the requirements, both for elementary and secondary schools.

Sir Wm. Abney, in proposing a vote of thanks to Professor Armstrong, said he felt very diffident in an assembly such as that in saying anything regarding science fittings. He must, however, take credit in one way, for he believed he was the first one who ever thought out any fittings at all for the laboratory. More than thirty years ago it was his duty to teach chemistry and physics at Chatham, and when he went there there was no laboratory of any description except a rough shanty kind of place, and he had to get out a plan of fittings. With the help of Mr. Valentine he got out designs of laboratory fittings. He could not say that they were perfect by any means, but, at all events, they were good of their kind at that day, and it must be recollected that at that time there was a great deal of chemical analysis taught, but very little of the other part of chemistry which was now found to be absolutely necessary. The pupils he had to deal with were of a very varied description. They began with the bugler and ended with the Colonel; so that one had to provide laboratory accommodation which would suit all classes of men, and one had to guard, for instance, against the possibility of the bugler squirting nitric acid into the Colonel's eye from the opposite side of the bench. In connection with that point he could not help feeling that the position taken up by Professor Armstrong as to what he called the "top hamper" bench was somewhat severe. He considered that they were necessary to avoid danger, for he knew that accidents had occurred on several occasions. Thirty years ago no laboratories existed except in large towns, and when he came into office in the Science and Art Department, they had only a few laboratories which he had to inspect; but he had lived to see at least a thousand laboratories all over the country. His first duty when he came into office in the Science and Art Department was to get out some kind of working drawings by which people might make plans for the fitting-up of the laboratories, and they took as a model those he put up at Chatham, with the modifications afterwards introduced. Professor Armstrong had recognised that where they had advanced work to do, they required a certain amount of water to be available close to the benches. In a secondary school such as Christ's Hospital, of course it was perfectly possible to have two or three sets of laboratories—one for the elementary, one for the intermediate, and one for the more advanced—but in the laboratories which he had to inspect, and with regard to which they came to the Department for advice, it was impossible to have more than one laboratory, and so they had to make the best of both worlds. They had to provide for advanced instruction and for elementary instruction, and at the time it was thought better that there should be this supply of water to the benches. Those abominable two sinks, which had been so well condemned, were developed at a time when, like all things in ancient history, they seemed to have their value in the eyes of modern science, as they did in the days when he was young. With regard to the science branch, the Department of which he happened to be the head was not so stringent with their rules regarding the equipment of laboratories as they used to be. All they wanted to see was that they had a little more than the rough kitchen tables spoken of. They preferred to see something for their money. In the old days the Government used to give grants in aid of laboratories, and, of course, they always liked to see something tangible. Now the days of giving grants were passed, and therefore they gave much greater freedom than in the old days. He was not responsible for the elementary education, but he did think that Professor Armstrong had been a little too severe upon the Board of Education. He knew that Professor Armstrong was not imbued with a great liking for the Board or its ways, but at the same time let them give the Devil his due. The rules said that the science room was to be a room suitably fitted for elementary practical work, and might be provided for the use of one large or several preparatory schools. It was not to contain more than 600 ft. of floor-

space and was to be fitted with strong and plain tables, sinks, closets, &c., and, in addition to the science room, one ordinary classroom was to be fitted with a demonstration table, gas and water supply, &c. Those were the whole of the conditions which were required for the public elementary school. When they came to the higher elementary school the conditions were that higher elementary schools should be provided with suitable laboratories. He thought it was a good thing that higher elementary schools must be provided with laboratories of some kind. At the same time he would say that the word laboratory was a very much misplaced word, for it really appeared to mean more than was intended, and he preferred Dr. Armstrong's expression, "workshop." That meant the same thing, but, of course, it sounded more pedantic and pretty to call it laboratory. Then with regard to the rules which had been criticised, one was that laboratory accommodation was to be provided at one time for the largest class in the school, and he did not think that was bad. [Next it was laid down that generally there should be one laboratory of chemistry and one of physics, and he did not think badly of that. Then there was to be thirty square feet of floor space for each scholar, which appeared to him to be an ordinary essential. Another rule was that the laboratory was to be fitted with suitable tables—they did not say what tables. Then it was said the laboratory was to be well lighted and properly supplied with gas and water, and that there should be a small balance-room if desired. Further, the room was to be fitted with a demonstration table and so on. He thought these requirements perfectly carried out Dr. Armstrong's idea as to what a workshop should be. He was not responsible for the rules, but he did say that the utmost freedom was given to architects for anything they liked to propose, and he was quite certain that the Board of Education would not object to anything in reason. He had already mentioned the benches, and what Professor Armstrong called the top hampers, and he demurred at doing away with the top hamper. He had dealt with all kinds of students, and had had thirty-seven years of teaching, and would only say, personally, that he would not have been without protection for the eyes on any account. He knew from experience that had work been done at the tables without that protection very serious accidents would have taken place. He felt that one of the people whom Dr. Armstrong had to include in his crusade was the apparatus maker, for he believed that he was responsible for a great deal of the defects of present fittings. If Professor Armstrong would only make a crusade against the apparatus maker he would do a good work for science. He wanted to ask one question: Could the sinks Dr. Armstrong had shown be emptied, and was there always standing water in them?

Professor Armstrong: There is always standing water in them. That is the purpose. Sir Wm. Abney thought that sometimes the sinks would be overcharged with noxious matter, which would be very disagreeable. Otherwise he thought the wooden sink was admirable, for it was a good plan to collect the heavy sediment at the bottom rather than sending it down the drain pipes. He quite agreed with the reader of the paper as regarded the fumes. In conclusion Sir Wm. Abney congratulated Professor Armstrong on his address and thanked him for the admirable pictures shown on the screen relating to Christ's Hospital, with which the President was so intimately connected.

Mr. W. D. Caröe, in seconding the vote of thanks, said he was sure it was a very great pleasure to have been able to see on the screen some of the inner workings of that very fine block of buildings which had been erected at Horsham. It had been his privilege, under the guidance of their President, to have had explained on the spot and to see there the fittings about which they had had so very clear and explicit a statement that evening. What struck one most in regard to those fittings was their great simplicity, and they would certainly owe a debt to Professor Armstrong if he could in any way induce others in the same position as himself to lighten the burdens of architect who had to cater for the extraordinary elaboration of modern science-room fittings. In fact he could conceive nothing that could be better received amongst architects as a body. At the same time he was bound to congratulate the President very heartily on hearing from Pro-



fessor Armstrong that he was in a position to design the building without consideration of the fittings in the first instance, and it was a great triumph to his foresight and prescience that everything had turned out in the admirable and appropriate way in which it had. He (the speaker) was in the rather invidious position of having to criticise the buildings designed by others, and in order to qualify himself to do that he had consulted many science teachers and visited a great many laboratories with a view of finding out the best thing to be done in the various fittings, and the great difficulty he had been confronted with constantly was that every science teacher had always told him that the way the other science teacher was doing the thing was not the way he liked. In criticising other people's fittings, he nearly always found they came before him in a very different form to attain the same result, and when he ventured to make some suggestion he was generally told that South Kensington had recommended the course taken, and therefore he presumed that the recommendations at South Kensington were not so standardised as Professor Armstrong thought they ought to be. Professor Armstrong had set the subject before them in a most admirable manner. He had recently been studying from time to time, and had been much interested in, what might be called the politics of modern education. They had had a series of letters in the *Times* on the advantage or otherwise of learning Greek in their schools and universities, and he had a sort of fellow feeling for the more literary methods. On reading the first page of Professor Armstrong's paper he felt a little alarmed, but he was conciliated on the second page, because here Professor Armstrong treated the subject purely from the point of view of education, and was not treated with a view of those who were studying these various scientific requirements, so that they might become technical experts at an early age. However, that was rather dangerous ground for him to enter upon, but he could not help calling attention to the benefit of what Professor Armstrong himself called the literary side. He had already referred to Professor Armstrong's proposals to introduce simplicity, and he had no doubt in his own mind that space was a matter of very great importance, and they as architects, he was sure, would gladly provide far more space than they usually did in buildings of that kind; but Professor Armstrong must remember that, to a certain extent in regard to that, funds were limited. He would like to ask a few questions, because he hardly felt in a position to throw any special light on that subject. Professor Armstrong had referred to the balances being in the centre of the room. He had been told by science teachers that the balance-room should be so placed that the fumes from the laboratory could not reach it. Again, with regard to sinks, he was sure Professor Armstrong was right about the use of wooden sinks. He had examined various classes of sinks—earthenware and lead sinks, and had even seen enamelled iron sinks, which would, of course, lead to disastrous results. But he believed that at Cambridge Professor Living had preferred to use earthenware sinks, and he believed it would be found there that in good many instances they had lost their glaze, but Professor Living said it did not matter—he only wanted a substance which was quite impervious. The question of respect also suggested itself to him, and there was one which they as architects, who were not chemists, should be enlightened upon. He noticed, for instance, in one of the drawings that some of the girls faced one way, some another, and others a third way. Now there were only four points to the compass, and one of those ways must be a way which might not suit all technical teaching, and therefore he would venture to question the arrangement which they saw before them in several respects, although he did so with bated breath, as one of the plans, he believed, had been passed through his hands. The question of ventilating was again one for deep attention. They would probably remember the unfortunate accident which happened at Cambridge a year or two ago, where a professor was doing an experiment and was killed. It was suggested that the accident occurred from the fact that the fume closets had a little gas jet at the outlet, and the fumes from the experiment he was doing ignited and blew the whole front of the fume closet into his face, that suggested at once that the use of gas

in such a position was one to be avoided. At the same time, when they came to consider electricity as a substitute for gas, they met with difficulties, because any one who was acquainted with an electric motor driven by the alternating current knew the noise it made. That was a strong reason against the use of the alternating current altogether, because there was no doubt about it that the electric motor would come more and more into use, but the use of the direct current was unfortunately more expensive. He would like to ask Professor Armstrong one more question, which was as to his view of placing the fume closets in the windows, which ten or twelve years ago was a very favourite arrangement, and one of which he had heard spoken very highly. Of course, there was the great advantage that there was no lack of light to see everything going on in connexion with the experiments, and it certainly was a very convenient way of disposing of the fumes if the windows could be brought within 2 ft. of the floor. On the other hand, of course, they lost a large amount of wall space which was very valuable. One of the inferences which Professor Armstrong had suggested was the obliteration of the sink from the working table. He could quite conceive that was a matter which might be very suitable in the elementary classes, but he could not help feeling that in the colleges there might be another aspect of the question. One of the most interesting laboratories he knew was one erected by Mr. Waterhouse at Liverpool. He believed it was called the Practical chemistry laboratory. It was in the form of a theatre, where there was a working-table for the demonstrator, and every row of the theatre was occupied also by working-tables for the students, and the same experiment could be carried out by every one in the room at the same time. Of course, in cases of that kind, and also in cases of examination where moving about to a large extent might be awkward, it seemed that the provision of water in the working-table was one that could hardly be avoided. If Professor Armstrong could show how it could be avoided under such circumstances he for one would be extremely gratified, for the difficulty of dealing with the water and getting it away, and providing sinks and so on which would not be acted upon by the chemical fumes was a very great difficulty.

Mr. J. Slater said he thought the paper went to show the necessity for scientific and technical education being given at a very much earlier age than used to be the case. There was one remark not altogether germane to the subject of technical education which fell from Professor Armstrong, which he would like to refer to. Professor Armstrong said that although it was not his province to consider ornamentation, yet he would venture to urge that money spent on ornamentation would be always well spent. He considered that a remark which could not be too widely set forth. As they all knew, in London and in all large provincial towns they had a number of Board Schools, admirably built in all respects, and yet the interior aspect of the classrooms was of the barest possible character. In the same towns they had art-schools doing admirable work, and why should not the municipalities endeavour to get these art-schools to do something for the ornamentation of the Board Schools. That would be of the greatest advantage to the Board School, and of equal advantage to the art school. With regard to the many technical details which had been touched upon by Professor Armstrong, the question of sinks was a very important one. It was a curious thing that, although for centuries the ordinary washing-tubs were made of wood and nothing else, yet, until quite recently, no one seemed to think of using wood and wood only for sinks. There was no possible doubt but that it was the best material. Another matter which Professor Armstrong mentioned was that of blackboards, and there, again, there was no doubt he was right in saying that the ordinary small blackboard was practically useless in any classroom for teaching purposes. In a large school with which he had something to do he had the whole of one end of the room covered with cement with a very fine face, and had it blacked, so that the whole end of the room could be used as a blackboard, and that answered very admirably. There was one other question, viz., that of warming classrooms and schools. There could be no possible doubt that radiators were a great mistake,

and the only possible course to warm the classrooms or school was to have the underground passages with gratings over them. The question of ventilation had, of course, been enormously affected by the use of fans driven by electric motors, and the question of alternating currents would not come in, he imagined, where a school had its own installation. It was only where companies supplied alternating currents that the difficulty occurred, and even then there was no great difficulty in transforming the alternating currents into continuous currents.

Mr. J. J. Stevenson said perhaps he might give a little experience he had had of building laboratories. It was a good many years ago now since he was appointed to build Professor Living's laboratory at Cambridge, and his experience with him and in other cases would be to recommend any architect who had such work to do not to go to it with any preconceived notions. Professor Living had been a long time waiting for his laboratory, and he had accumulated a mass of data as to what he wanted. He showed him a plan and rough elevation, and amongst other things he wanted a factory chimney 100 ft. high. He (Mr. Stevenson) asked if he minded the chimney being square, and he did not. At first he thought of making it like a tower, but afterwards thought it would be best to make it a good honest chimney somewhat ornamental. Professor Living also wanted the door at one side, but when asked if he minded having it in the centre, he had no objection. He considered his function was to carry out what Professor Living wanted, and put it in proper architectural form. They had little difference as to what should be done. Professor Living wanted the great squares in the windows to be filled in with sheets of plate glass, but the design had been for small panes, more like an ordinary workshop. They went into the matter, but it did not seem worth while to take out the panes. With regard to the ventilators in the chimney, he did not know how far it worked. Professor Living found no fault with it, but he had no doubt that a new professor coming would wish to make a great many changes and improvements. They had a pretty elaborate system which worked very well, which carried the ventilation along the ceilings of the room to the great chimney. Professor Living insisted as far as possible in getting big rooms with windows opening on two sides, so that they could have a draught across the room. With regard to the use of wood for troughs, in the Morphological laboratory at Oxford, where small dissections were made, Professor Ray Lankester suggested, and there had been carried out, a continuous trough in front of the benches, with slight slopes, which were intended to carry and clear out the remnants from dissections. He believed that system had worked very well. He would like to make a remark with reference to the observation Professor Armstrong made to the effect that it was extremely unlikely that women would have anything to do with what was called jobbing work. He knew a young lady who was with Miss Dove at High Wycombe, where the girls were taught all sorts of useful handiwork, and they did not need to go outside the school to get a window mended or anything of that kind, and many of the girls who passed through the school were most useful in doing little jobs of that kind.

Miss Walter remarked that she had brought the architect's plan of the new buildings of the Colston Girls' School, Cheltenham, which had been passed by the Board of Education. There were two large laboratories—one designed for physical work and the other for chemical work—and they were both identically the same in construction. There were four long benches 14 ft. long with a gangway between them of 4 ft., and a demonstration bench at the end. The room was 32 ft. by 26 ft., and was to accommodate about twenty girls, which was the largest number of girls she held as teacher, would be able to see properly and who would at the same time be able to see the teacher. In this room there was a set of benches, and the balances were put along the benches and covered in. There was a small extra room, which was partly to be used for a preparation-room, and also was to be fitted with a carpenter's bench and so on. In the old days students who did scientific work were not younger usually than sixteen, but nowadays they were taken at twelve, and sometimes younger, and these young students required to be well looked after. In that room she

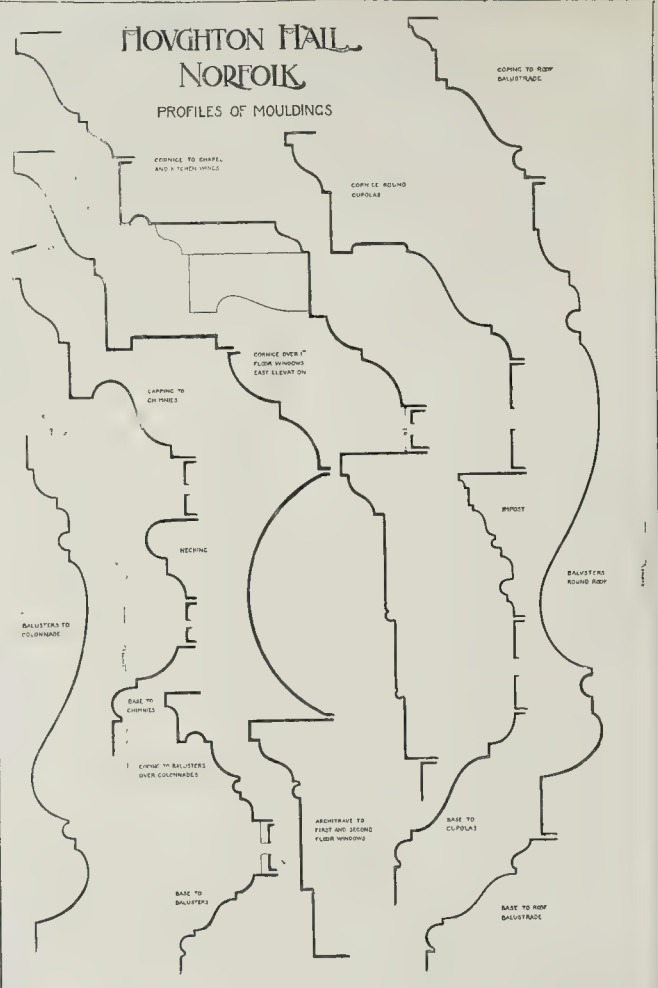


had spoken of, the girls worked only from one side of the bench, and that was also carried out in the girls' school at Hertford; and in the plan she had, every girl would face one way, and that got over the difficulty and danger of squirting things into another's face. Really the main point about the laboratory was that the benches were only half as wide as usual and only faced one way.

The Chairman said he felt he ought to say for himself personally that when Professor Armstrong undertook to read a paper on the subject he did not know he was going to make the schools at Horsham the principal illustration of the lecture. With regard to the laboratories, it was quite true that they were not built to suit Dr. Armstrong's arrangements in the first instance, because there was at that time a science teacher there who had different views. When the building was nearly up to the first floor, very fortunately the Royal Society appointed Dr. Armstrong as one of the governing body of the Hospital, and they then altered the internal arrangements of the buildings completely, to meet the views of Dr. Armstrong, and he was quite sure that the Hospital owed a very deep debt of gratitude to him for what he did in modelling those rooms. Of course in a case of that sort the architect really had but a small work to do. The architects were responsible for the position of the science school, and gave it an importance in the general block which, as Dr. Armstrong had said, had not generally been given, for, as a rule, a scienceschool was stowed away in the least noticeable part of the building. But after that was done the work almost entirely fell into the hands of Dr. Armstrong. All the fittings shown there were, of course, carried out entirely from Dr. Armstrong's instructions, and the architects merely acted as draughtsmen to carry them out. The great change which was made was that the class-room and lecture-room previously provided were swept away, and the large laboratories took their place. As a matter of fact, in this particular school there was no lecture-room. It was all class-rooms and workshops. With regard to the fittings, and especially the sinks, he happened to have had a good many fittings to do under different professors at other places, and he had been much impressed with the enormous use that was made of tar. The great thing in these science fittings seemed to be tar. They liked to tar the sinks inside and out, and the drains also. There were cases where they tried to make the joints of drain pipes a mixture of tar and sand, and it seemed to be less affected by acids thrown down them, and it was extremely simple and inexpensive, and the plumber had nothing to do with it. With regard to the heating of these laboratories, he did not agree with Mr. Slater that pipes under the floor were best. He thought they should be brought above the floor, and he was inclined to think that a system of warm air admitted under slight pressure was the best means of heating, because it disposed of the difficulty of hot and cold iron, which, in science laboratories especially, was a great difficulty. Therefore, they were obliged to have copper, which became expensive. At Horsham, where the buildings were of an extended character, and so scattered, it would have been impossible for them to have successfully adopted the plenum system.

The vote of thanks having been heartily agreed to,

Professor Armstrong, in reply, said that it was to him a peculiar pleasure that Sir William Abney had spoken on the matter because one knew what extraordinary services Sir William had rendered to the cause of practical work in the country. If he criticised the regulations of the Board of Education at all it was with the object of leading to some stopper being put on the enthusiasm of some of those who had to look after those fittings. Although, as the rules were interpreted by Sir W. Abney, there seemed nothing to object to, yet there was no doubt they had led to great expense. With regard to the balance-room they were told it should be so placed that the fumes could not enter it, but he would point out that however valuable the balance was the health of young people was as valuable, and he would not put young people into a place where the balance could not be put. The fume closets in the windows worked admirably in many places, but it was not required for the ordinary school work. As for sinks being required in colleges more than in schools, it was a question of



fashion, and many of those points were entirely a question of fashion. He thought that if they had to have sinks at all they should be at the ends of the benches, and if any one wanted to see how simple and at what slight cost ordinary rooms could be adapted for this class of work, he would advise them to go the Central Foundation Girls' School at Spital-square.

The Chairman announced that the students' drawings would be on view in the Alpine Club-room up to the 31st of the month, and it was open to any members to go and see them. The next meeting would be held on February 2, when he would deliver his annual address to the students, and there would be a presentation of prizes. At that meeting also Mr. Millard would deliver a criticism of the designs and drawings submitted for the year's prizes and studentships.

### Illustrations.

#### BUSINESS PREMISES, FLEET-STREET.

**H**IS building has been specially designed to meet the requirements of the London premises of the *Birmingham Daily Post* and *Birmingham Mail*, together with a certain amount of extra accommodation, which has been arranged for letting. A quiet but strong type of Renaissance architecture has been adopted in the design in order to

harmonise with and lead up to the beautiful spire of St. Bride's Church, at the end of the court, and at the same time to preserve the character of the better elements of the architecture of Fleet-street. For the same reason the materials are Portland stone in the upper part of the building and the lower story of granite.

The staircase is arranged in the centre of the block, and is lit both from St. Bride's-avenue and from an internal area which divides the building in the centre. There are well-lighted and convenient offices entering from the landings on each floor on either side of this area, together with suitable lavatories; and on the upper floor special accommodation is arranged for the telegraphic work of the paper.

Mr. J. Belcher, A.R.A., is the architect. The drawing was exhibited at last year's Royal Academy.

#### HOUGHTON HALL, NORFOLK.

The measured drawings of this rather celebrated house were made by Mr. Stanley Towse, in competition for the Institute's prize for measured drawings last year.

The house was designed by Campbell for Sir Robert Walpole, in the early part of the eighteenth century, but is said to have been carried out by Ripley, who appears to have played some tricks with the design, in regard to which, however, we have only rather vague information.

The angle cupolas are rather commonplace in design, but the façade generally is a good



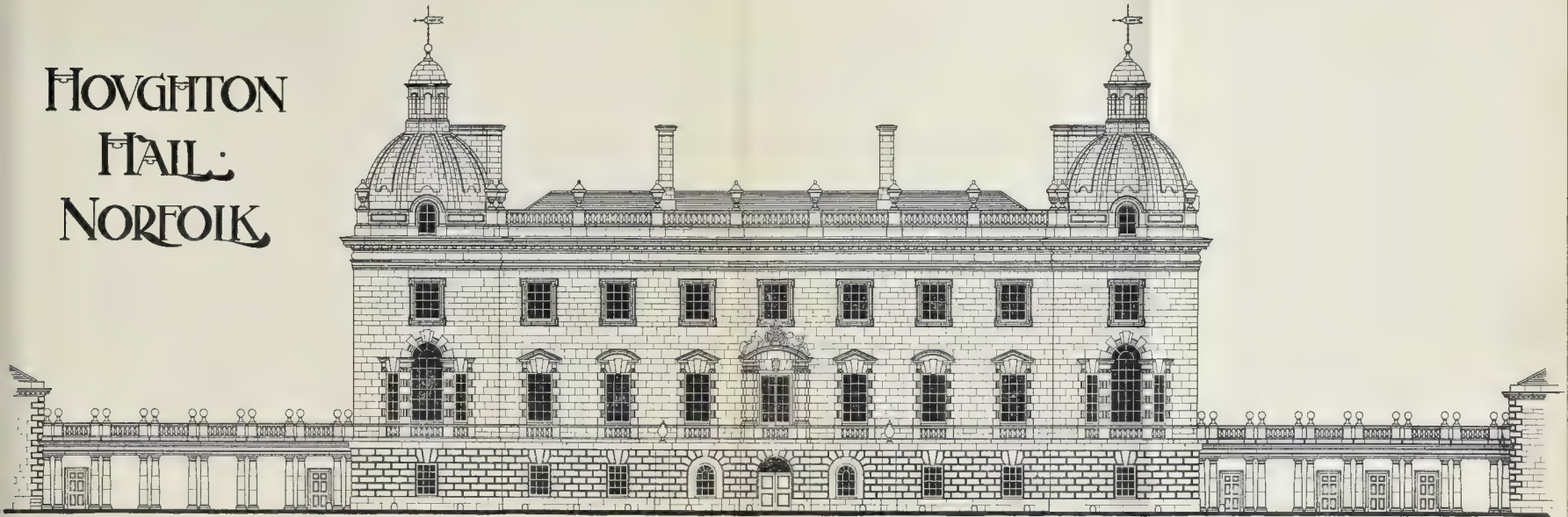






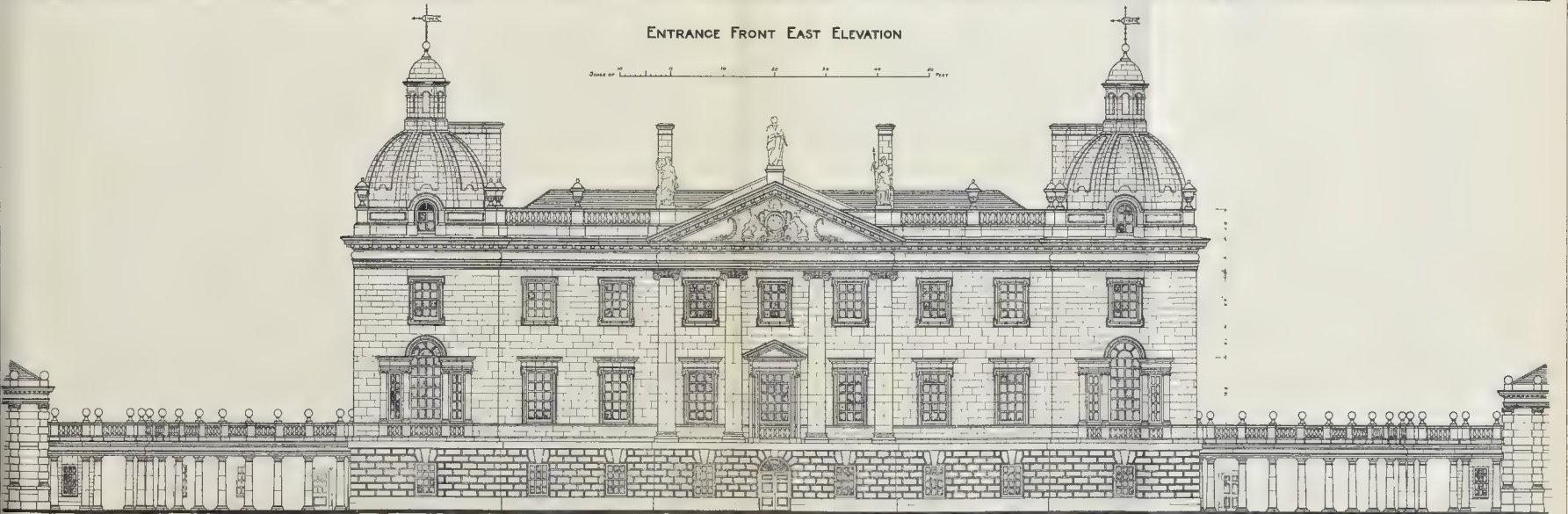


# HOUGHTON HALL NORFOLK



ENTRANCE FRONT EAST ELEVATION

Scale of Feet 0 10 20 30 40 50



GARDEN FRONT WEST ELEVATION

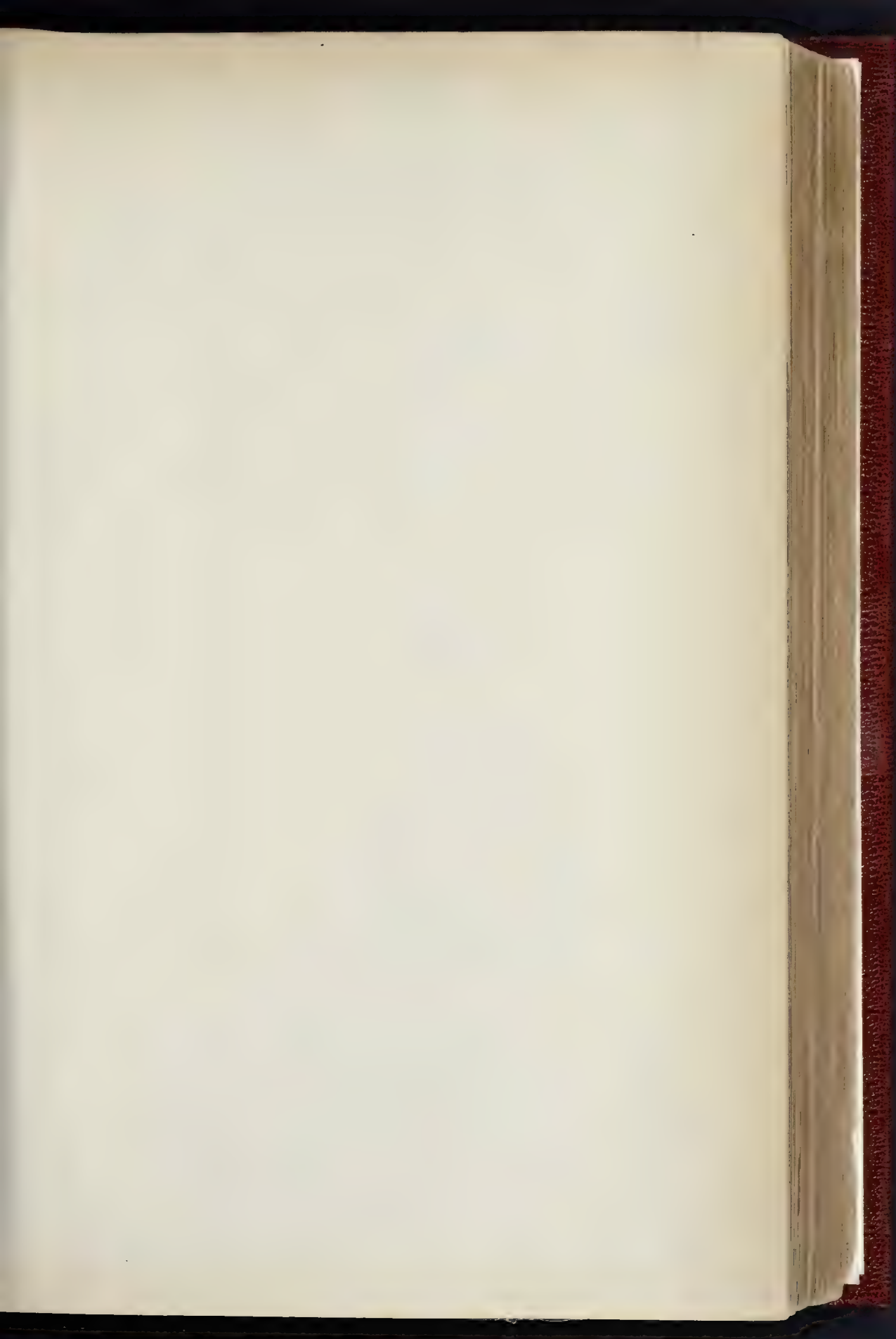
Handy House

PHOTO. LIND. SPRAGUE & CO. 179 & 181 EAST HARDING STREET FETTER LANE E.C.



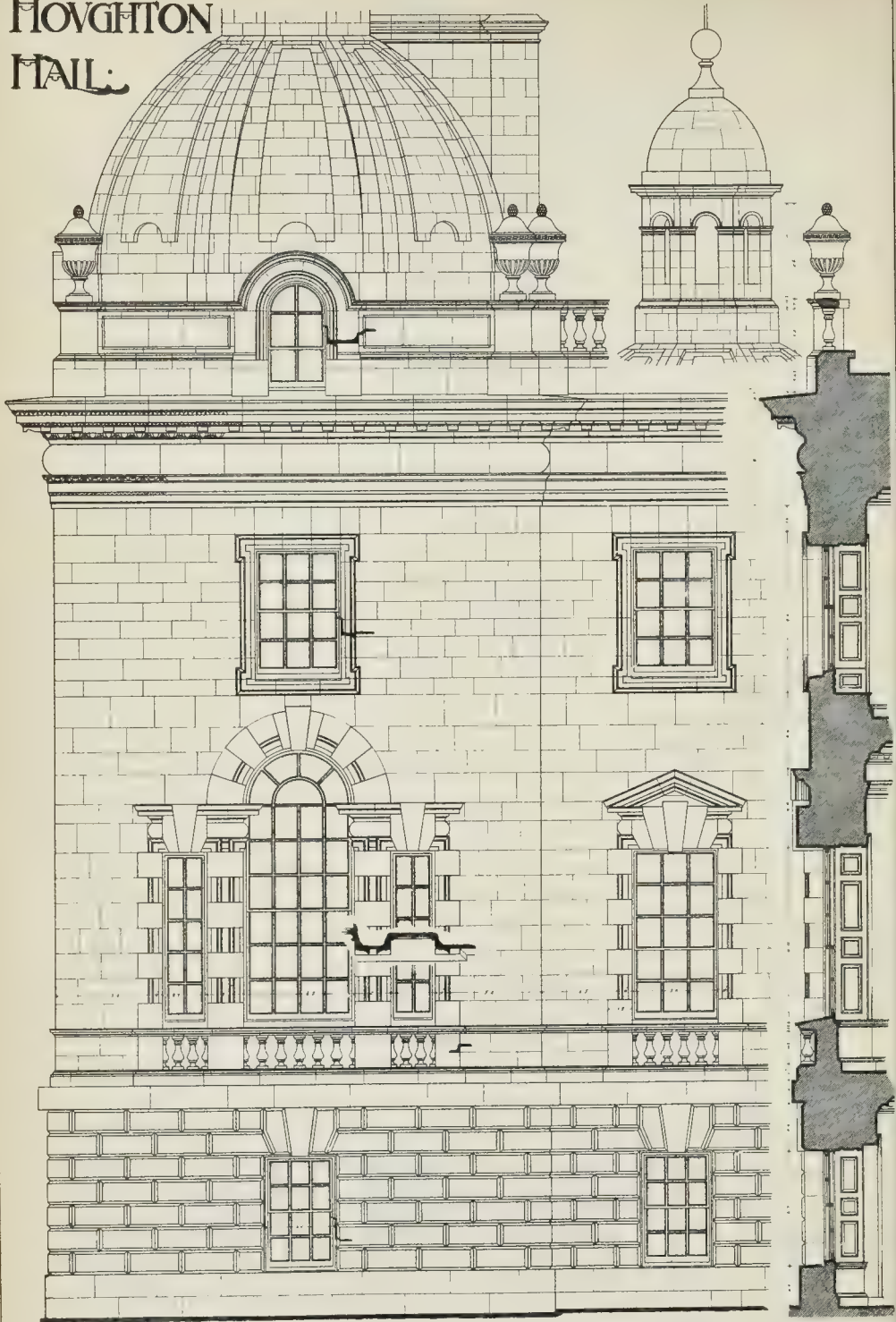








# HOUGHTON MAIL



SOUTH EAST TOWER OF ENTRANCE FRONT

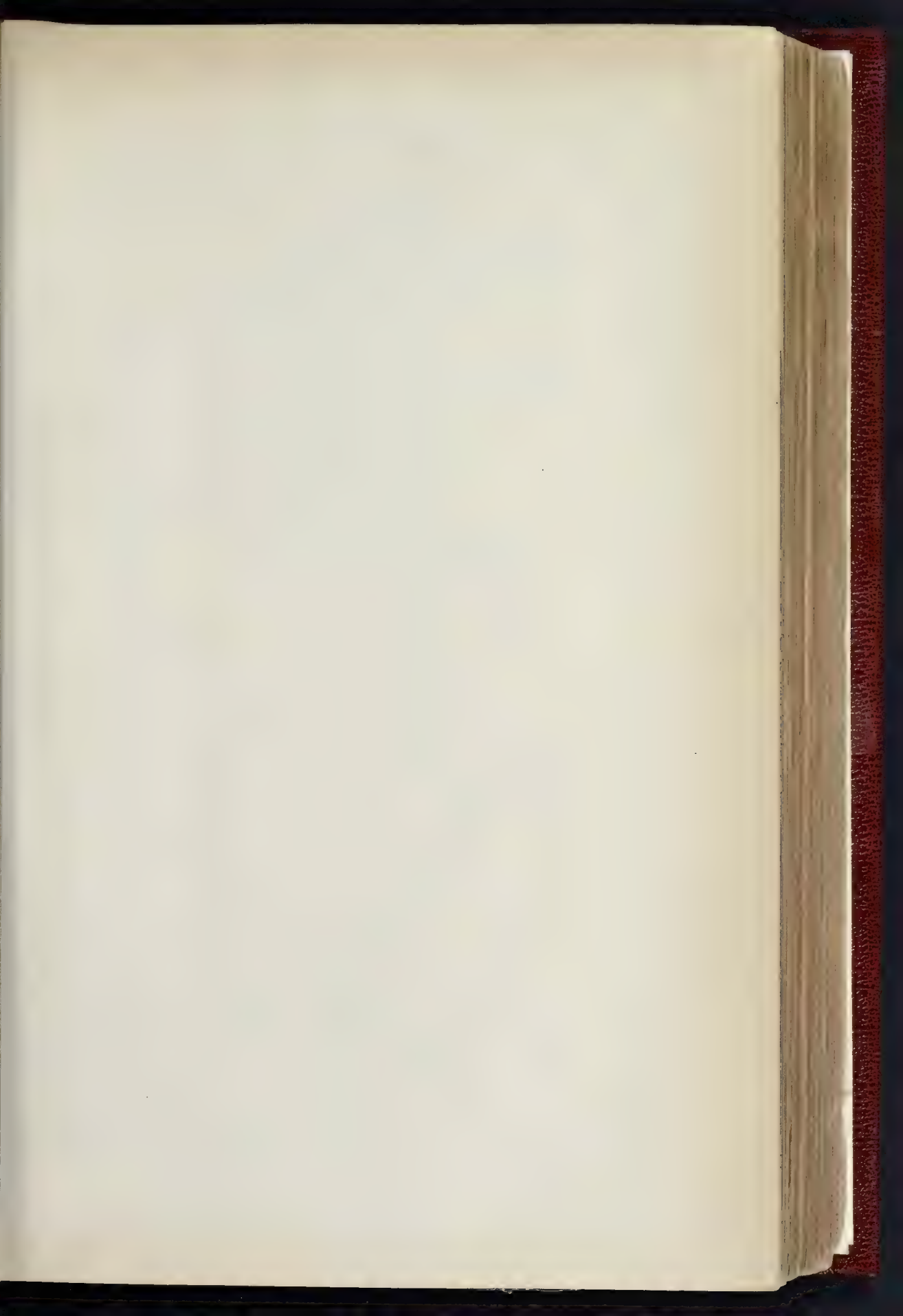
SCALE OF FEET

SECTION

Handy Room

PHOTO LITHO. SPRAGUE & CO. LTD. 4 & 5 EAST HARDING STREET FETTER LANE E.C.







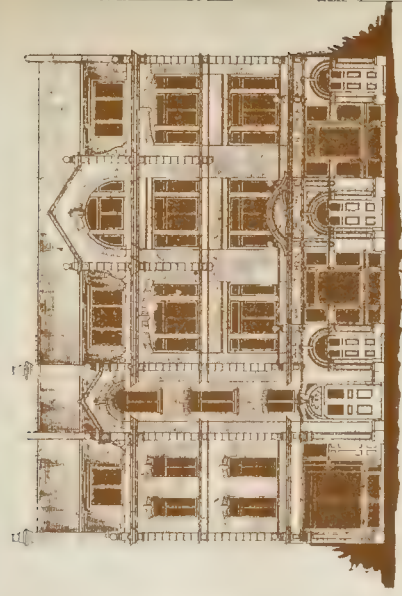
The drawing shows the exterior of a large, multi-story building with a prominent entrance and a courtyard. The building features a mix of brick and stone masonry. The entrance is a large, arched opening with a pediment. To the left of the entrance is a large, multi-story structure with a prominent chimney. The building is surrounded by a courtyard with trees and a path. The drawing is a detailed architectural sketch, showing the building's form and the surrounding landscape.

"Addition of Nursery Wing to Hopedene Surrey: View showing approach from Stables to Drive": Percy N. Cuntham Architect

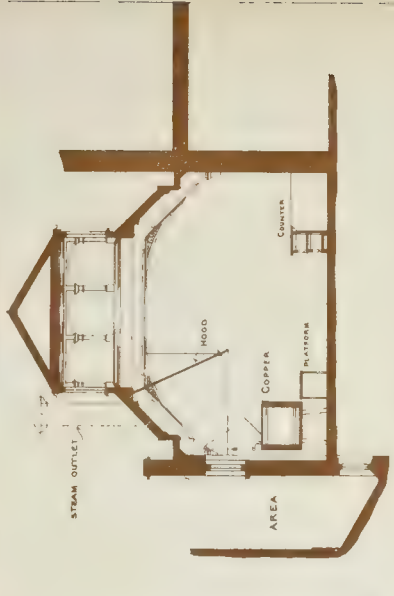




PLAN of GROUND FLOOR



ELEVATION



TRANSVERSE SECTION

SOUP KITCHEN FOR THE JEWISH POOR, BUTLER STREET, E. — MR LEWIS SOLOMON, F.R.I.B.A., ARCHITECT



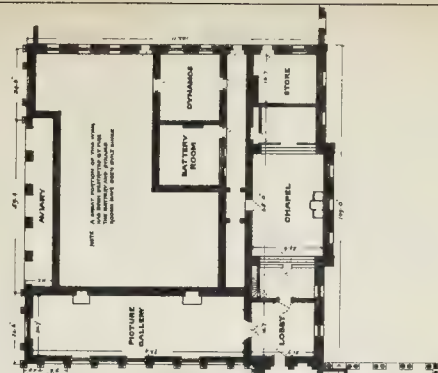




A	LIBRARY	F	NORTH DRAWING ROOM
B	DRESSING ROOM	G	CABINET
C	BED CHAMBER	H	MARBLE DINING ROOM
D	SOUTH DRAWING ROOM	J	HALL
E	SALON	K	BILLIARD ROOM

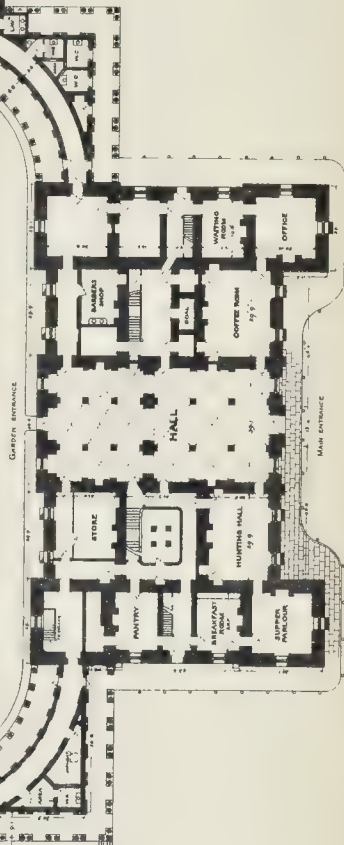


**FIRST FLOOR PLAN OF  
MAIN BUILDING**



NOTE THE SECOND FLOOR CONSISTS ONLY OF BEDROOMS AND THE UPPER PART OF THE HALL AND SALON ON THE THIRD THERE ARE ONLY ATTIC AND THE TOP OF THE STAIRS.

Spadey Town



### GROUND FLOOR PLAN

INVESTIGATION WAS CONDUCTED BY CARROLL, IN HIS POLICE OFFICE. CARROLL, A FORMER PRISON WARDEN, HAD BEEN ASSIGNED THE DUTY OF IDENTIFYING STRONG BOOKS BY THE MAIN ADVANCEES. CARROLL STATED THAT THE FIRST FLIGHT OF PAMBLE STRIPS LEADING UP TO THEM BOTH APPEARED TO BE THE SAME. CARROLL STATED THAT THE MAIN ADVANCEES WERE NOT THE SAME. CARROLL STATED THAT THE MAIN ADVANCEES WERE NOT THE SAME. CARROLL STATED THAT THE MAIN ADVANCEES WERE NOT THE SAME.

3110'0 LITNO SPRAGUE & C. L<sup>0</sup> 4 S EAST HARDING STREET CLEVELAND, OH







example of the restrained and dignified style of mansion architecture characteristic of its period. The plan shows the rather favourite arrangement at the time of placing the servants' quarters and offices in subsidiary wings connected to the main block by quadrant colonnades. In modern life this separation of the servants so far from the main residence would be considered inconvenient; but its architectural effect is so admirable that it is perhaps worth consideration whether it has not, even in a practical sense, some compensating advantages.

#### ADDITION TO "HOPEDENE," SURREY.

This represents an addition made to a house in Surrey, where the limitations of site for the new wing necessitated the formation of a drive through to the stables. The connecting up to the old house at this point involved the removal of the old sanitary arrangements, all which had to be replaced.

The chief endeavour of the architect, Mr. Percy N. Ginhams, was to carry out the work in the spirit of the old building, but at the same time to keep the wing "quiet," so as not to obtrude itself on the main building.

The new work was built with local bricks and tiles, by the local builders, Messrs. W. & G. King.

#### SOUP KITCHEN FOR THE JEWISH POOR.

In this week's number we illustrate the soup kitchen for the Jewish poor recently opened by the Lord Mayor and sheriffs. As this is a building with special requirements, which is said to answer its purpose exceedingly well, its plan and arrangement may be of practical interest.

The building occupies a site having a frontage to Butler-street, Spitalfields, of about 68 ft., and a depth of about 54 ft. After the site had been bought the committee instructed their architect, Mr. Lewis Solomon, to prepare plans, keeping the whole of the ground floor for the purpose of the soup kitchen, and making use of the basement and upper floors for the purpose of bringing in income, as the land was already theirs and there would only be the extra cost of the builders' work to pay.

The soup kitchen itself occupies the back or north portion of the whole of the ground floor, and in it are a 12 h.-p. vertical boiler supplying steam for cooking and nine coppers, each capable of cooking about sixty gallons of soup. In the kitchen, also, is a bread rack to take a ton and a half of bread—the consumption for one night—and bins to hold a large quantity of peas and other cereals. The applicants for soup enter at the east end of the building through the waiting-room, which contains a maze or barrier capable of enclosing about a hundred people, so as to obviate any struggle for priority of admission. They pass in front of a counter behind which the lady visitors serve out bread and the cooks serve out soup, and they go out at the west end through a corridor leading into the street. The walls of the kitchen, waiting-room, and corridors are covered with opalite glazed tiles, so that the premises are always clean and can easily be brushed down and washed. At the west end of the kitchen is a meat-chopping room with sinks and marble table-top for the cook's use, also more vegetable bins, and below there are store and coke cellars. Every applicant before receiving any bread and soup must produce a voucher which can be obtained only after inquiry, and the inquiry is made by the committee in the committee-room, where each applicant enters by the north-east door through the centre lobby and leaves by the north-west door through the exit lobby; this system of entrance and exit by separate passage being adopted to save ugly rushes.

A separate entrance in the street, further west than the poor people's exit, is the entrance to the upper portion of the building, now used as a girls' club by Jewish working girls, who have a large dancing or recreation room 44 ft. by 26 ft. wide, also cookery classroom, other classrooms, and reading-room. The basement forms a large store, having an area of about 2,250 sq. ft., which can be used as storage or workshop, as there is a fireproof ceiling over and a separate lift entrance from the street. To the extreme west of the building a small house has been built, as the area of ground bought was rather larger than was required for the soup kitchen purpose.

The work has been carried out by Mr.

Roberts, of Canonbury, who has also laid on all over the building electric wiring for the light, which is supplied by the Borough of Stepney. Gas-brackets are fixed at all crucial places to prevent a panic should electricity fail at any time. The boilers and coppers have been supplied by Messrs. Benham, of Wigmore-street. The front elevation is of red limestock brick, with Edwards' Ruabon terra-cotta dressings. The interior of the premises is of a very simple character, so as to save expenditure as far as possible.

The total cost of land and buildings works out at about 10,000l.

#### DRAWINGS SENT WITHOUT NAMES.

We must make again a strong protest against the careless and unbusinesslike practice of many architects in sending us drawings for acceptance without the author's name attached to them, and sometimes without even a title to identify them.

Some architects seem to think that the fact that they have written to the editor proposing to send certain drawings, is sufficient to enable him to identify those drawings if they are sent weeks or months after, without a letter and without a name or address on them. This carelessness not only causes us a great deal of unnecessary trouble, but in one or two cases has nearly led to serious mistakes. Every drawing sent to us should have the architect's name and address on the back or margin.

#### ARCHÆOLOGICAL SOCIETIES.

BRITISH ARCHÆOLOGICAL ASSOCIATION.—A meeting of this Association was held on the 14th inst., Mr. S. W. Kershaw in the chair. The Rev. H. J. Dakinfield Astley read an exceedingly interesting paper upon "A Group of Norman Fonts in North West Norfolk," which was capitally illustrated by nearly 100 lantern slides from photographs taken by Mr. E. M. Beloe, of King's Lynn, and lent by him. The north-west corner of Norfolk is remarkably rich in Norman fonts and, with one exception, they are all to be found in a very restricted area, viz., that portion of the county which lies between the Wash on the west and a line drawn from Lynn to Wells on the east, and are to be seen in the following churches, viz., St. Mary, Hunstanton; St. Michael, Ingoldisthorpe; St. Lawrence, Castle Rising; St. Mary, South Wootton; S.S. Peter and Paul, Shernborne; St. Mary, Boythorpe; St. Mary, Great Snoring; All Saints, Toftrees; All Saints, Sculthorpe; St. Martin, Fincham; and St. Mary, Burnham Deepdale. Fincham is the only one outside the area named, and is considerably to the south of Lynn, between Downham and Swaffham, but is still within North West Norfolk. Fortunately these fonts are in good condition, the only one that has been mutilated being that at Ingoldisthorpe, which has had the corners hacked off in order to make it octagonal. This was probably done in the fourteenth century, when the rage for octagonal fonts was at its height, and the people, wishing to be in the fashion, were too poor to have a "modern" font made. The remains of the original Norman carving may be seen on each alternate face. These fonts vary considerably in size, height, depth of bowl, and other particulars. They fall naturally into two sub-groups:—(1) those ornamented with patterns of various kinds, all having a strong family likeness, such as the cable pattern, bead and scroll work, lozenges, circles or squares with interlacing lines, &c.; and (2) those bearing figure sculpture, of animals or of men, or of both in combination. The font at Burnham Deepdale is remarkable from its carved illustrations, in which it would appear to be unique, inasmuch as they are not representative of scriptural subjects, but are taken from the agricultural and domestic life of our Saxon forefathers. They bear a strong resemblance to those which represent the months of the year in the Anglo-Saxon calendar contained in the Cotton M.S. (Julius A. 6.) and others, but, at the same time, there are marked differences. Some of these fonts have been described as purely Saxon, but though some may have been wrought by Saxon artificers—and the rudeness of the figures on the Fincham and Burnham Deepdale fonts would point to this being

so in their case—yet, as regards the period of their execution, they must be considered to be post-Norman. For many years after the Conquest work of this kind must, doubtless, have been performed by Saxon masons and carvers, but a careful comparison of the ornamentation of these two fonts with that of others known to be of Norman date shows the influence of Byzantine art upon them, and they may be properly classified under the designation Norman and not Transitional. In the discussion which followed, the Chairman, Mr. Goddard, Mr. Gould, Mr. Atkinson, the President of the Viking Club, Mr. Johnson of the Viking Club, and Mr. C. J. Williams took part.

#### ARCHITECTURAL SOCIETIES.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—The bi-weekly meeting of this Society was held on Thursday, the 15th inst., the President, Mr. Butler Wilson, in the chair. At the conclusion of the usual business, a paper entitled "Rome—Ancient and Modern," was read by Mr. Arthur Marshall, President of the Nottingham Society. The lecturer remarked that although there was ample evidence of regal Rome possessing structures of some magnificence, it was left to Imperial Rome to furnish the city with its most striking monuments. The best preserved of these was undoubtedly the Arch of Constantine, the sculptures of which had previously adorned other edifices. The Pantheon, the Catacombs, the Colosseum, amongst others, were also fully described with the assistance of lantern slides, most of them excellently coloured by Mr. Marshall's own hand. A vote of thanks to the lecturer was moved by Mr. H. S. Chorley, Hon. Secretary, who dwelt upon the fact that a great portion of Rome, as we see it to-day, was built from the materials of other and more ancient structures, which had long since disappeared. Mr. Robert P. Oglesby, in seconding the vote, referred to the welcome decision of the Italian Minister of Instruction to place marble records upon the site of vanished structures, thus enabling all to see the positions once occupied by Rome's quondam monuments. In conveying the Society's thanks to the lecturer, Mr. Butler Wilson remarked that the oftener one visited Rome, the deeper was the impression left. It was quite possible to leave Rome, after first acquaintance, depressed and overwhelmed by the magnitude of its architectural wealth. Only by repeated visits could Rome be satisfactorily grasped and realised.

EDINBURGH ARCHITECTURAL ASSOCIATION.—The Associate Section of this Association held their third ordinary meeting of the session on Wednesday, 14th inst., at 117, George-street, Mr. J. Douglas Trail in the chair. Mr. Ramsay Traquair read a paper on "Scottish Domestic Detail." In the course of this paper Mr. Traquair dwelt upon the importance of detail to domestic work, and pointed out the necessity for simplicity. He also touched upon the method of study for old work, and the application of such study in our design. The paper was illustrated by an excellent series of photographs specially taken for this lecture, and in showing these the lecturer pointed out the entire absence of any fuss or unnecessary detail, and showed that there was no striving after "effect." Attention was drawn to the manner in which accidental features were taking advantage of in the old work.

THE ARCHITECTURAL ASSOCIATION OF IRELAND.—This society is holding a series of demonstrations during the current session. It is intended that members shall meet at the premises of some of the leading Dublin firms connected with the building trades, where opportunities will be afforded them of seeing work in operation and of learning to discriminate between good and bad materials and workmanship. Special attention is to be devoted to the utility of Irish materials. As an incentive to earnest work, prizes have been offered to the members. Amongst the firms co-operating are Messrs. Campbell & Co., T. & C. Martin, Edmund Sharp, J. & C. McGloughlin, Tonge & Taggart, Rome & Co., William Baird, Egan & Tatlow, and Keatinge & Sons. The first of the series of demonstrations was held at the premises of Messrs. John M'Ferran & Co., Beresford-place. Mr. R. M'Ferran having explained the various qualities of drain pipes, showed a double-socketed pipe, which has the advantages of rapidity in laying, true alignment, and resistance to subsequent depression. Various



samples of English, Irish, and Scotch bricks were brought to the notice of the members, the durability, quality, and facilities of manufacture of each being commented upon. The weather-resisting qualities of Irish, Welsh, American, and French slates were compared, some excellent examples of the Killaloe slate being especially noticeable. The demonstration concluded with a series of tests on Irish Portland cement by a representative of the firm. Many methods of distinguishing good from bad materials were explained. Mr. M'Ferran was assisted by a representative of the Bourtreehill Coal Co.—The eighth general meeting of the session was held in the Grosvenor Hotel, Dublin, Mr. C. J. McCarthy (City Architect) presided. A lecture was delivered by Mr. A. E. Child—who has recently been appointed teacher in the School of Art, Kildare-street—on "Stained Glass Work." The lecturer dealt with his subject from the point of view of a craftsman thoroughly imbued with that school of thought which, avoiding mere copyism of past accomplishments in art, seeks inspiration from the best elements of such, and goes to nature's boundless garden for the rest. The pictures thrown on the screen included a number of windows recently put up in Gloucester Cathedral, illustrating the best principles which should influence stained glass work. The lecturer explained in detail the method of painting glass, and advocated the doing of the whole window together, rather than in separate bits—as often in commercial work. He showed that the use of enamel as a colouring medium was bad because of the difference between contraction and expansion between the glass base and the superimposed enamel. The pigment should fuse at a slightly lower temperature than the glass, so as to become part of it during the burning. It is often necessary to subject the glass to two or three burnings before the right effect is gained. The usual course is to use tinted or white glasses, and by shading them with a preparation of oxide of iron and manganese to obtain the required effects and outlines. The lecturer indicated, on one picture, a form of Celtic decoration which is at present being taught to the students in the School of Art. He spoke very strongly against the popular way of cutting down the price allowed for stained glass below that at which it was possible to get good work, and advocated the concentrating the effort and expense on one part of the work (in preference to carrying out a large quantity of mediocre design and workmanship) and to leave everything else quite plain until it is possible to complete all in harmony with the first.

#### COMPETITIONS.

**CARNEGIE FREE LIBRARY, LOWESTOFT.**—The plans sent in for the erection of the Free Library have been considered by the Town Council, Mr. J. T. Bottle, architect, of Yarmouth, was appointed assessor to advise the Building Committee. The assessor's report on the plans sent in by the various competitors was read and considered. The Committee recommended that, as advised by the assessor, the design "Harmony" be adopted, subject to the same being approved by Mr. Carnegie, and to a satisfactory tender being received for the erection of the buildings for a sum not exceeding 6,000*l*. The architect of the design "Harmony" was found to be Mr. George William Leighton, of Ipswich. Eight other sets of drawings were submitted, by the following architects:—Messrs. R. S. Cockrill, Lowestoft; J. W. Roberts, Lowestoft; F. W. Richards, Lowestoft; H. J. Green, Norwich (three sets); Geo. Barnes & Son, London and Lowestoft (placed second); and Herbert Bignold.

#### THE BUILDER'S FOREMEN'S ASSOCIATION.

The ninth annual dinner of the Builder's Foremen's Association was held on Saturday last at the Holborn Restaurant. Mr. J. C. Hill, Chairman of the Fletton Brick Company, presided over a large gathering numbering close upon 200, which included Messrs. T. E. Clark (Mr. Carmichael), H. T. Ashby (Ashby Bros.), R. Gardiner (Hicks, Gardiner & Co.), Sheffield (Sheffield Bros.), B. G. Thompson (Trollope & Son), H. Hibberd (Hibberd Bros.), J. Campbell Cree; B. Carter (Stephens & Carter), W. Salter (Salter & Co.), Sydney Butler, R. W. Stevenson (London Brick Company), Gathercole (Gathercole Bros.),

Spencer Green (past President of the Clerk of Works Association), and Mr. W. Cook, Secretary.

Following the usual loyal toasts, the Chairman gave "Success to the Builder's Foremen's Association." He said that in looking at the objects of the Association, he saw it was formed to promote the welfare of those having the control of the erection of buildings. He ventured to think that was a very good object. It depended very largely upon the foreman whether a building was stable or whether it was not. They knew that the architect also provided a very useful individual, the clerk of works, who was sometimes more ornamental than useful. The objects of the Association were threefold. The monthly meetings were of an educational and social nature, and there was no doubt that such meetings were very helpful, more especially to the junior members of the profession. It must be a very great benefit to such men to meet and chat with those of greater experience in the same walk of life as themselves. A builder's foreman had never done educating himself. New designs in architecture came out, new methods of construction in buildings were constantly being evolved, and new building materials were always being placed on the market, and if the builder's foreman was to be at the top of the ladder he had constantly to be educating himself up to take advantage of all those things. But having obtained the necessary knowledge to become a builder's foreman his troubles by no means ceased. He had to please the architect and the clerk of works; he had all the difficulties of the labour market to contend with, and, therefore, he had to be a man of great judgment and tact. Last, but not least, he had to please his employer and make his job pay. Turning to larger questions, he would like to refer for a moment to the question of education. The Government, in his opinion, had only given them an instalment of the reforms that were required. He would like to see education made an Imperial tax, and provision made for every young man getting a thorough technical training. We were now fighting for the markets of the world. For centuries we had had those markets in our hands, but we should have to fight for them in the future, and while the Government were providing higher education for the children, he would like to see in every town and village in the country a first-class Government school with a large technical institute attached to it. He would even go further, and desire to see practical workshops in connexion with the schools where boys might learn the practical rudiments of the trade they were going to get their living by. Reverting back to the Association, he said that the third object which struck him as being a most useful one was the self help and self protection which it afforded its members. In conclusion, the Chairman said he would like to see the Association better supported by the builders and contractors of the metropolis, and he would have pleasure in becoming an honorary life member with a donation of ten guineas.

Mr. Geo. Thomson (President of the Association), in responding to the toast, said it was extremely gratifying to him to see such a large gathering present to help and encourage those who had the welfare of the Association at heart. They had no hesitation in asking the builders to help them, for the Association placed no restriction upon its members in the fulfilment of their duties; if anything, it was rather a help to employers. They would not be satisfied until they could raise a fund for the benefit of aged builder's foremen and for those they left behind them unprovided for.

Mr. Sydney Butler, in giving the toast, "The Building Trades," remarked that if the building trade was good so was the rest of trade, and if it was bad it was as proof that the country was suffering from depression. There was no trade that was so absolutely essential to the well-being of the inhabitants, for it was of the greatest importance that the houses in which the people lived should be well and properly built.

Mr. H. T. Ashby, in responding, said that as representing one of the employers of the building trade of London he considered that the welfare, the good name, and the profit-earning capacity of the building trade rested more with the foreman, than with those who were supposed to direct it. Personally he believed in combination for both masters and men, and when he was President of the

Institute of Builders he was always glad to meet the representatives of those who carried out the great building works of London. He did not believe in employing rough methods, or in bullying men, and more than once when he had found a foreman using coarse language to the men under him, he had got rid of him. The most successful foremen were those who set out to enlist the sympathies and regard of those over whom they ruled. Referring to the educational work of the Association he said he trusted it would continue to develop, and as time went on he hoped the council would be able to institute examinations of a practical character, which would go far to enhance the reputation of the Association. He agreed with the suggestion of the President that it would be a good thing to establish a fund for the relief of decayed members, and if such a fund were started he would be only too pleased to give it assistance.

Mr. B. T. Price proposed the toast of the Visitors, which was suitably acknowledged by Mr. S. White, and the health of the Chairman was afterwards drunk on the invitation of Mr. B. Carter.

#### THE LONDON COUNTY COUNCIL.

The first meeting of the London County Council after the Christmas recess was held on Tuesday afternoon in the County Hall, Spring Gardens. Sir J. McDougall, Chairman, presiding.

**Loans.**—On the recommendation of the Finance Committee, it was agreed to lend Camberwell Borough Council 4,750*l*. for land and depots in Grove-vale, Bonar-road, Peckham-park-road, and Glengall-road; and 23,000*l*. for erection of baths and washhouses; Southwark Borough Council 14,250*l*. for extension of Town Hall; St. Pancras Borough Council 20,000*l*. for electric lighting purposes; Islington Guardians 4,000*l*. for alterations, &c., to workhouses; Stepney Borough Council 10,000*l*. for street lighting and 3,545*l*. for conveniences; and sanction to loans, to Westminster City Council 1,680*l*. for depot buildings; Islington Borough Council 4,128*l*. for purchase of land for depot; Westminster City Council 5,473*l*. for street improvement; Hampstead Borough Council 3,544*l*. for street lighting; Lambeth Borough Council 906*l*. for paving works.

**Hainault Forest.**—The Parks and Open Spaces Committee brought up the following report:—

We have received and carefully considered a memorial from the Commons and Footpaths Preservation Society, the Kyrle Society, the Metropolitan Public Gardens Association, and the National Trust for Places of Historic Interest or Natural Beauty, asking the aid of the Council in securing 803 acres of land at Chigwell-row for the purpose of a public open space. The land is within the county of London, and is on the highest part of the ridge which separates the valley of the river Roding from the valley of the Thames. It is, in its highest parts, 300 ft. above the Thames, and occupies a position commanding magnificent views of the surrounding country. The greater part of it is within a twelve-mile radius from the Bank of England, and is consequently within an easy distance of the east-end suburbs of London. It comprises the last remaining unenclosed portion of the historic Forest of Hainault, formerly part of the ancient Royal Forest of Waltham or Essex, the other part of which is now known as Epping Forest. The property is in four ownerships, but the memorialists inform us that negotiations with all of them are in an advanced stage. . . . It is proposed to acquire 803 acres of land, about a mile from Grange Hill station on the new branch of the Great Eastern Railway, for a sum of 21,830*l*., or as stated in the memorial 22,000*l*. in round figures, and towards this the Council is asked to subscribe 10,000*l*., that being the amount necessary to complete the purchase-money, it being understood that when acquired the land shall be vested in the Council to be maintained by it in perpetuity as a public open space. . . . To enable local authorities to contribute, Parliamentary authority will be required, and in order to contribute that sum towards the purchase of about 803 acres of land at Chigwell-row, shown on the plan submitted with this report, conditionally upon the remainder of the purchase money being provided by county and other authorities and by private subscriptions, and upon the land being vested in the Council to be maintained by it as a public open space."

A petition was presented from ratepayers of



Ilford, expressing the hope that the Council would not purchase Hainault Forest, as Ilford would have to pay 4,000l. towards such purchase. The petition was referred to the Parks Committee.

Mr. Sankey moved as an amendment that recommendation "a" be referred back. It was not a matter of providing open spaces for the County of London, but it was taking away a very large tract of potential building land outside London altogether, being 134 miles distant from the County Hall. The City Corporation had not seen their way to buy the land. He did not wish to negative the proposal altogether, but to refer the question back, to see whether it was not possible to buy one strip of land only, which was more or less in its natural state, as the greater part of the land was destitute of any beauty whatever, being simply agricultural land. He was afraid that if the Council showed itself too willing to purchase these open spaces it would curb the liberality of private persons in that direction.

Mr. Cousins, in seconding the amendment, said the recommendation raised a question of principle, viz., whether they should spend the money of Londoners for open spaces outside the county. The question was one entirely for the ratepayers of Essex.

After discussion there voted for the amendment 17, against 87. The Committee's recommendation was then agreed to.

**Greenwich Tunnel: Proposed Subway.**—It was agreed that a contribution of one-third of the net cost of the construction of a subway proposed to be undertaken by the Great Eastern Railway Company between their North Greenwich station and the Poplar entrance to Greenwich tunnel, be made by the Council, such contribution not to exceed the sum of 350l.

**Tramways.**—The Highways Committee recommended, and it was agreed:—

"(a) That the estimate of 25,000l., submitted by the Finance Committee, be approved; and that the expenditure on capital account of that sum be authorised for the purchase of the horses, rolling stock, &c., of the South London Tramways Co. in pursuance of the agreement for the purchase of the company's undertaking entered into under the resolution of the Council of July 15, 1902.

"(b) That the estimate of 5,000l., submitted by the Finance Committee, be approved; and that the expenditure on maintenance account of that sum be authorised for the purchase of the consumable stores, &c., of the South London Tramways Co. in pursuance of the agreement for the purchase of the company's undertaking entered into under the resolution of the Council of July 15, 1902."

**Foreign Rails.**—The same Committee stated that the tender of Messrs. P. & W. Macellan, Ltd., Glasgow, had been accepted at 33,876l. 10s. 8d. for the supply of rails, &c., for the reconstruction, for electrical traction, of the New Cross and Greenwich, &c., section and small sections in the Borough. Messrs. Macellan propose to obtain the bolts and nuts from Messrs. Ibbotson & Bros., of Sheffield, while the rails, &c., will be obtained from the Société Anonyme des Acieries d'Angleur, Belgium, who are the sub-contractors under the present contract.

Mr. Steadman moved that the paragraph be not received, and said he would continue to protest against the contracts being executed abroad. Why should the working man in this country be penalised because of the royalty system in another country? It was a disgrace to a civilised country to see the unemployed working classes pouring in their thousands from East London, and marching through the streets, and yet this great Municipality, which boasted of its Labour policy, was prepared to send its orders to Belgium, and thereby intensify the distress already existing in this country. Between one thing and another it seemed to him that the British workman would soon have no employment at all in England.

Mr. Cousins seconded the amendment. He pointed out that the Council was very strict in its conditions with regard to an English manufacturer, and this must affect the price of the manufactured article.

Mr. Benn (Chairman of the Committee) said he was sorry to say that, with regard to quality and regularity, they had not had satisfaction from English manufacturers, while they had had satisfaction from Belgium. As a matter of fact, 85 per cent. of the materials required for the tramways were made at home, but, for the sake of the commercial success of the tramway undertaking, the Committee

would not be diverted from the policy they had carried out unless they got fresh instructions from the Council.

After further discussion the amendment was rejected.

The Council adjourned soon after 7 o'clock.

## APPLICATIONS UNDER THE LONDON BUILDING ACT, 1894.

THE London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses:—

### Lines of Frontage and Projections.

**Fulham.**—A mission hall, on the western side of Wandsworth Bridge-road, at the corner of Hugon-road, Fulham (Messrs. Z. King & Son for Messrs. S. & R. W. Black).—Consent.

**Poplar.**—Retention of a projecting booby-hutch, on the fourth floor level, at Concordia Wharf, Cold Harbour, Blackwall (Mr. J. M. Knight for the Australian Meat Co.).—Consent.

**Fulham.**—Retention of a one-story shop adjoining, to the eastward, the Cannon Brewery, Lillie-road, Fulham (Mr. A. Roberts for Messrs. J. Lovibond & Sons, Ltd.).—Consent.

**Islington.**—A one-story shop upon the forecourt of No. 170, Barnsbury-road, Islington (Mr. R. Pointer for Mr. H. Ward).—Consent.

**City.**—That the application of Mr. A. E. Pridmore for an extension of the period within which the erection of an iron and concrete gangway across Falcon-avenue, to connect, at the first floor level, a block of warehouses known as Nos. 9, 10, and 11, Falcon-street, with No. 6, Falcon-avenue, City, was required to be completed, be granted.—Consent.

**Clapham.**—Stone and iron balconies in front of three houses on the north side of Thurleigh-road, Clapham, eastward of Gayville-road (Mr. H. Branch for Messrs. J. Nicks & Co.).—Consent.

**Hackney.**—North.—That the application of Messrs. Gordon & Gunton for Mr. J. W. Gandar-Dower, for an extension of the periods within which the erection of warehouse buildings on the site of Nos. 36, 38, and 39, Boleyn-road, Kingsland, was required to be commenced and completed, be granted.—Consent.

**Hampstead.**—Wood and glass enclosures to a projecting screen portico at the entrance to No. 11, Langland-gardens, Hampstead (Mr. W. Willett for Mr. F. M. Woolian).—Consent.

**Lewisham.**—Wood and slate pents over the entrances to six houses on the north side of Codrington Hill, Lewisham (Mr. E. Taylor).—Consent.

**Marylebone.**—West.—Retention of a lantern light erected on the roof of the scullery in the area on the north side of No. 12, Montagu-street, St. Marylebone, abutting upon Upper George-street (Messrs. Hudson & Hunt for Messrs. W. Phillips & Son).—Consent.

**Marylebone.**—East.—A projecting iron sign in front of Nos. 102 and 194, Oxford-street, St. Marylebone (Mr. W. Graves for Messrs. Slaters, Ltd.).—Consent.

**St. Pancras.**—North.—The retention of two sheds and a stack of scaffold poles on a site on the west side of Highgate-road, St. Pancras, in front of the Grove (Messrs. Boehmer & Gibbs for Mr. A. W. Armstrong).—Consent.

**Chelsea.**—An iron and glass shelter in front of the porch at No. 13, Fernshaw-road, Chelsea (Messrs. J. Weeks & Co., Ltd., for Colonel W. H. Roberts).—Consent.

**Strand.**—Retention of an iron and glass shelter, erected in front of the Civil Service Co-operative Society, Ltd., 28, Haymarket, Westminster (Mr. A. G. Repton).—Refused.

**Lewisham.**—Two houses on the east side of Baring-road, Lee, southward of Heather-road (Mr. W. Barber for Mr. A. Durbin).—Refused.

**Hampstead.**—An iron and glass porch in front of No. 93, Canfield-gardens, Hampstead (Mr. J. D. Scott for Mr. A. J. Benjamin).—Refused.

**Islington.**—East.—A one-story addition upon part of the forecourt of No. 112, Drayton Park, Islington (Messrs. Young & Hall for the Express Dairy Co., Ltd.).—Refused.

**Kensington.**—South.—A motor-car stable and petrol store at 16, Addison-crescent, Kensington, to abut upon Addison-crescent and Holland-road (Messrs. Harrison & Son for Mr. H. Liddell).—Refused.

**Lambeth.**—North.—The rebuilding of Nos. 7, 9, and 11, Lambeth-road, Lambeth, to abut upon China-walk (Mr. H. N. Smith for Mr. B. Blaiberg).—Refused.

**Strand.**—An iron and glass shelter at the entrance to the grill-room at the Grand Hotel, Charing Cross, to overhang the footway in the Strand (Mr. V. Woodward for the Gordon Hotels, Limited).—Refused.

### Width of Way.

**Southwark.**—West.—An addition to Messrs. Thornburn, Bain, & Co.'s premises on the east side of Broadwalk, Southwark (Mr. E. R. Hewett for Messrs. Thornburn, Bain, & Co.).—Consent.

**Hackney.**—North.—An increase in the height of the back addition at the rear of No. 101, High-street, Stoke Newington, abutting upon Mason's-court

(Mr. T. Gregg for Messrs. Showler & Co.).—Consent.

**Westminster.**—Two two-story cottages on the north side of Dorset-street, Vauxhall Bridge-road, Westminster, to abut upon Dean's-place (Messrs. Cluttons for the Ecclesiastical Commissioners).—Consent.

**Southwark.**—West.—The covering of a yard at the rear of No. 30, St. George's-road, Southwark, at less than the prescribed distance from the respective centres of the roadways of Princess-place and Princess-mews (Mr. W. W. Bull for Mr. J. J. Smith).—Refused.

### Lines of Frontage and Width of Way.

**Holborn.**—A block of buildings on the south-east side of Shaftesbury-avenue, to abut also upon the eastern side of Vine-street, with projecting oriel windows, and a portion of the buildings at less than the prescribed distance from the centre of the roadway (Mr. R. J. Worley for the Shaftesbury-avenue Freehold Land Syndicate).—Consent.

**Bermondsey.**—The erection on the site of Nos. 306 and 308, Old Kent-road, and Nos. 2, 4, and 6, St. Thomas-road, Bermondsey, of a new Fire Brigade station with external walls at less than the prescribed distance from the centre of the roadway of St. Thomas-road (Mr. O. Fleming for the Fire Brigade Committee of the Council).—Consent.

**Hackney.**—South.—A building upon the site of No. 155, Mare-street, Hackney, with the external walls of such building at less than the prescribed distance from the centre of the roadway of Helmsley-street (Mr. J. Hamilton for the directors of the National Provincial Bank of England).—Consent.

**St. Pancras.**—West.—A porch on the east side of St. Mary Magdalene's Church, Munster-square, St. Pancras, at less than the prescribed distance from the centre of the roadway of Laxton-place (Mr. J. T. Micklethwaite for the vicar and churchwardens of the church).—Consent.

**Chelsea.**—A one-story building upon a site adjoining No. 11, Bury-street (Messrs. Pooley & Pollett for the Metropolitan Horse Shoeing Company, Limited).—Refused.

**Hampstead.**—Residential flats on a site on the south side of West End-lane, and east side of Mill-lane, Hampstead (Mr. C. H. B. Quennell for Mr. A. Bretzfelder).—Refused.

**Islington.**—North.—Three houses, with shops, on the north-west side of Tollington Park, and four dwelling-houses on the south-west side of Pine-grove, Islington (Mr. H. Branch).—Refused.

**Rothenhithe.**—A porch in front of No. 39, New Church-street, Bermondsey (Mr. E. Crose for the Rev. E. N. Coulthard).—Refused.

**St. Pancras.**—East.—Retention of a greenhouse on a site on the eastern side of Camden-road, St. Pancras, at the corner of King's-road (Messrs. W. F. Meakin & Son for Messrs. Bourne & Underwood).—Refused.

**Strand.**—A timber-framed oriel window on the ground floor, a brick oriel window on the first and second floors, and a verandah on the third floor in front of No. 11, St. James's-place, St. James, Westminster (Mr. J. W. Stonhold for Mr. H. M. Mathe-son).—Refused.

**Woolwich.**—The re-erection of No. 81, Wellington-street, Woolwich, abutting upon Upper Market-street (Mr. H. P. Monckton for Lieutenant R. L. A. Ogilby).—Refused.

### Space at Rear.

**Dutwich.**—Deviations from plans sanctioned by the Council for the erection of five houses (partly on the site of Grove-cottages), in a way leading out of Camberwell-grove, Camberwell, so far as relates to an alteration in the space to be provided at the rear of three of the houses (Mr. E. W. Mitchell).—Consent.

**Kensington.**—South.—A modification of the provisions of Section 41 with regard to open spaces about buildings, so far as relates to the proposed erection of a block of residential flats on a site on the southern side of Brompton-road and eastern side of New-street, Kensington, with an irregular open space at the rear (Mr. C. W. Stephens for Messrs. Stuttford & Co., Ltd.).—Consent.

### Width of Way and Space at Rear.

**Wandsworth.**—Stables, with a forage loft and habitable rooms over, at Gothic Wharf, Brewhouse-lane, Putney (Mr. A. E. Chasemore for Mr. T. S. Jay).—Consent.

### Formation of Streets.

**Lewisham.**—That an order be issued to the Kinnaird Park Estate Co., Ltd., sanctioning the formation or laying out of a new street for carriage traffic, out of the north-east side of Bromley-road, Lewisham.—Agreed.

**Lewisham.**—That an order be issued to Mr. R. Stewart, refusing to sanction the formation or laying out of a new street for carriage traffic to lead out of the west side of Torridon-road, Lewisham (Mr. A. Cameron Corbett, M.P.).—Agreed.

**Hackney.**—South.—That an order be issued to Mr. H. Brodey, refusing to sanction the formation or laying out of new streets for carriage traffic out of the south side of Ashenden-road, Hackney (for Messrs. A. & A. Simpson).—Agreed.

\* See our "Tender" columns for list of tenders.



**Means of Escape from the Top of High Buildings.**

**Holborn.**—Means of escape in case of fire, proposed to be provided on the sixth story of a building to be erected upon the site of Nos. 83, 85, and 87, Southampton-row, Holborn (the upper surface of the floor of which story will be above 60 ft. from the street level), for the persons dwelling or employed therein (Mr. C. F. Doll for Mr. H. Walduck).—Consent.

**Kensington, South.**—Means of escape in case of fire, proposed to be provided on the sixth story of Durward House, at the junction of Kensington-court and Thackeray-street, Kensington, for the persons dwelling or employed therein (Mr. D. Brown).—Consent.

**Deviation from Certified Plans.**

**City.**—Certain deviations from the plan certified by the District Surveyor, so far as relates to the proposed re-erection of No. 37, Hutton-street, City (Mr. H. A. Satchell for Messrs. Edward Lloyd, Ltd.).—Consent.

**Working-class Dwellings.**

**Hamstead.**—A dwelling-house, not abutting upon a street, on a site at the rear of Nos. 22-24, High-street, Hampstead, next Gavton-road (Mr. B. E. Atkinson, jun., for Mr. J. W. Fenn).—Consent.

**Hackney, South.**—That the Council do make no order upon the application of Mr. W. M. Dabbs for sanction to the erection of dwellings on land at the rear of houses on the south-west side of Windsor-road, Hackney-wick, Hackney.—Agreed.

\* \* The recommendations marked † are contrary to the views of the Local Authorities.

**TRADE CATALOGUES.**

We have received from Messrs. Green, Ltd., of 155, High-street, Lewisham, S.E., their catalogue of bakers' ovens. On the title-page they describe themselves as "architects, builders, and bakery engineers." They might also have added "surveyors," as on page 11 we find a list of their charges for measuring works and preparing quantities. The catalogue, as a whole, suffers from *telle montée*. An illustration of an ancient Pompeian bakery is followed by the statement—"The only really satisfactory bakers' ovens invented since the period of those in our illustration (which was about the date of the coming of our Saviour), that to our knowledge have been sold in any such large quantity as to justify their general use by the baking trade, are Green's Self-acting Hygienic Smokeless and Continuous Hot-air Ovens." The catalogue, which cannot fail to be of service to bakers in search of an oven, contains many reproductions from photographs of ovens which have been built by the firm, and also plans and sections and five typical plans of bakeries. Complete prices are given, together with laudatory press-notice and testimonials from bakers.

Messrs. Fredk. Jones & Co., of Perrin-street, Kentish Town, N.W., send us a little pamphlet entitled, "Notes on Non-conductors of Heat." It contains a description of silicate cotton, or slag-wool, and tables of experiments showing the comparative values of this and other materials used for covering boilers, steam-pipes, and heating-pipes, and for the insulation of refrigerating chambers. Particulars are also given of the particular forms in which silicate cotton is supplied—loose, or sandwiched between wire netting, or sewn on strips of canvas, or fixed to sheets of galvanised iron, &c. The catalogue is illustrated with reproductions from photographs, and contains a concise price-list.

Messrs. Thomas Cropper & Co., of Chelsea, have sent us a copy of their catalogue of sanitary fittings. It is a large book of 200 pages, well printed and fully illustrated. Among the contents are drain-traps and gullies, manhole channels, steps, and covers, automatic flushing tanks, drain-testing and clearing apparatus, sinks, water-closets, urinals, lavatories, baths, traps, and other fittings, lead and iron soil-pipes, hot-water tanks and cylinders, kitchen-range boilers, heating-apparatus boilers and radiators, inlet and outlet ventilators, pumps, and fittings for speaking-tubes, electric bells, and gas. The catalogue is not lacking in variety, but some of the subjects have mentioned are dismissed in few pages; by far the greater part of the book is devoted to sanitary work. We do not notice any important novelty, but many of the fittings are designed on correct lines, and the catalogue as a whole will prove useful to architects and builders. We need scarcely say that many of the "ornamental" fittings—particularly the lavatories—are, in this catalogue as in so many others, far from

artistic; surely it would pay to spend a little money on new and less ornate designs for cast-iron standards and friezes.

**Correspondence.****NATURAL AND ARTIFICIAL SEWAGE PURIFICATION.**

SIR.—I have read with considerable interest the review in your paper on the book "Natural and Artificial Sewage Treatment," lately published and jointly written by Colonel Jones and myself.

You observe that I seem to have a strong bias in favour of land treatment, and to have allowed this bias to influence my work in a manner which robs it of a good deal of its value. As I was not aware of this so-called bias—having only quite recently recommended in one case the employment of contact beds followed by land treatment, so as to lighten the labour of the land, which was not available in sufficient quantity—I should feel much obliged if you would kindly undertake to support your statements by testimony from anything I have stated in the sixty-nine pages of my part of the book referred to.

In the meantime, allow me to assure you and your readers that my intention in writing the book was to place material before them which would enable them to form their own conclusions, and surely you will not blame them if they—like myself, from an impartial survey of all the facts of the case, are driven to the conclusion that the land treatment of sewage possesses greater merits than any of the artificial or so-called bacterial or biological methods, and that the methods possessing lesser merits cannot be considered of equal value to the method possessing greater merits.

You also find fault with me for not having mentioned the cases of "rank failures" of sewage farms. But it ought to have been evident that my aim was to elucidate fundamental principles and not to deal to any extent with the way these principles ought to be applied in every-day life, as this is a very large subject for itself. But granted that such failures have taken place, what do they prove? Surely not that the principle itself is wrong, but only that the particular application thereof is at fault. And in connexion with this, allow me to point out that in the majority of failures it has not been the particular quality of the land that was at fault, but the absence of practically any intelligent management. The Royal Commission doubts "if any land is entirely useless" for sewage purification, and my experience leads me to think that even what may be termed inferior land will with careful management do a wonderful amount of good work.

In support of my contentions I would ask you kindly to print the following comparative statement, which is in part taken from page 66 of the book, and which, I think, speaks for itself.

**Comparative Statement of the Merits of the Natural and Artificial Sewage Treatment.****Results to be obtained from:—**

A.—Natural Treatment.	B.—Artificial Treatment.
1. Removal of suspended matters.	1. Removal of suspended matters.
2. Removal of from 75 to 95 per cent. of the dissolved organic matters.	2. Removal of from 50 to 75 per cent. of the dissolved organic matters.
3. Removal of pathogenic germs.	3. Nil. Effluent bacterially practically raw sewage.
4. Utilisation of large portion of manurial elements.	4. Nil. All manurial elements escape into the rivers.
5. Great reduction of quantity of liquid.	5. No appreciable reduction of quantity of liquid.
Total: Five beneficial results.	Total: Two beneficial results.

H. ALFRED ROEHLING.

\* \* Mr. Roechling's letter is interesting, and we regret that we have not space for a detailed reply or for the long quotations which he asks us to give in support of our view that he appears to be biased in favour of land treatment. We are still of opinion that too much was made of the points in favour of this method and against bacterial treatment, and that too little was said about the advantages of the latter and the disadvantages of the former. One quotation from the Preface, which is signed by Mr. Roechling as well as by Lieut.-Colonel Jones, will perhaps suffice to show his attitude:—"If it can be proved to those that Nature is not sure and true enough in its methods, the authors are prepared to assist it with methods and means produced by the inventive brain of man; but if such proof is not forthcoming, they adhere—in preference to groping in the dark—to Nature's own methods, knowing from experience that, when allowed full scope and fair treatment, it is most sure in all its ways." If this means anything at all, it means that the proof required has not yet been given, and that Mr. Roechling considers the search for artificial

methods of sewage purification to be, even now, mere "groping in the dark."

At Mr. Roechling's request we have printed his comparative statement of the merits of natural and artificial sewage treatment, and, as I may say, is one of the passages we had in mind in attributing bias to the author.

We cannot pause to discuss the percentages in paragraph 2, but will merely say that they do not, in our opinion, correctly represent the facts. The question of pathogenic germs is more important. The "man in the street," for whose benefit Mr. Roechling writes (p. 29), would certainly gather from paragraph 3 that land treatment destroys all pathogenic germs in sewage, and that they all survive artificial methods of purification. This is certainly not true. It is not proven that even good sewage-farms destroy all such germs, and many sewage-farms certainly do not; on the other hand, numerous tests have shown that biological methods of purification often reduce the numbers of these germs in a striking degree.

The second Report of the Royal Commission on Sewage Disposal was in Mr. Roechling's hands before the publication of his book—he refers to it in a footnote on p. 35—but we think that a perusal of pp. 26, 87, and 88 will lead him to agree with us that paragraph 3 is misleading. Paragraph 4 also affords room for discussion, but we have said enough to show that the comparative statement, which Mr. Roechling asked us to quote, betrays either bias or deficiency of information.—Ed.

**PROPOSED BRIDGE AT COWES.**

SIR.—Noticing an advertisement in your journal asking for tenders for the above, I applied for the particulars, which I enclose. The proceeding is so extraordinary that I feel justified in protesting against it.

The Council have an "Engineer," and I wish to know why he does not himself design the bridge, the usual professional way, have quantities prepared, or prepare them himself, and then ask for tenders in the proper way. If he is not competent so to do, the Council should employ an engineer and pay him his Institute Commission, or advertise for competitive designs pure and simple, offering a premium. Instead of which this deluged Council expects a score of manufacturers to make designs, take out quantities, and prepare estimates, who then become competitively both engineers and contractors.

But, notwithstanding the dual position, the unfortunate winner of the job afterwards to be the heel of the Council's Engineer in every respect, and tied down in such a manner that he could compel the contractor to carry out the work practically as he (the Engineer) may choose to dictate.

So, you see, first of all the Council suck the brains of a dozen firms, get hold of their ideas and plans, which are handed over to their Engineer, who, in a manner, whips the accepted contractor with his own cords, he being no longer respectable enough to be considered as the engineer of his own design.

The information thus obtained from the whole of the designers will educate the Engineer to this job, and he will get a new or less useful portfolio of plans to help the Council over the next bridge job; and I for one will have nothing to do with any work so offered.

If a Council or a private individual does not want to employ a professional man, let them put the job into the hands of one competent firm of constructional engineers to deal with entirely, and not turn any number of these firms into competition semi-professional men, under the disguise of contractors tendering for a job.

I sincerely hope the Cowes Urban District Council will not get a single offer.

\* \* The following are the first three clauses of the Conditions referred to by our correspondent:—

"1. The contract will comprise the construction and erection of a bridge over the railway in the position shown upon the accompanying plan. The bridge to be constructed of steel, iron, or other suitable material.

"2. Persons tendering are to submit prices for (1) a bridge 24 ft. wide, suitable for vehicular traffic, and (2) a bridge 10 ft. in width only, or a less width, or less useful, and for the plans, designs, together with a specification, and in the event of a tender being accepted by the Council, the contractor will be required to supply the engineer with all necessary preliminary drawings, and that previous to the construction of the bridge, all working details of the same shall be submitted to and be approved of by the engineer to the Council. The contractor shall be bound to execute the bridge in accordance with the plans, to the entire satisfaction of the Council and their engineer.

"3. The bridge shall be manufactured throughout of the very best materials and workmanship and be open for inspection at any time during period of construction. For this purpose the engineer shall have free access to the contractor's workshops."

**THE STUDENT'S COLUMN.**—Our "Student's Column" article, "Builders' Tools and Their Uses," is unavoidably held over. **APPOINTMENT OF SANITARY INSPECTORS.**—The Local Government Board has sanctioned the appointment of the following sanitary inspectors:—Mr. H. J. Gentry, Greenwich; Mr. T. W. Dee, Woolwich.



BOOKS RECEIVED.

THE VENTILATION, HEATING, AND MANAGEMENT OF CHURCHES AND PUBLIC BUILDINGS. By J. W. Thomas, F.R.C.S., F.C.S. (Longmans, Green, & Co.)

LOCKWOOD'S BUILDER'S AND CONTRACTOR'S PRICE BOOK; 1903. Edited by F. T. W. Miller, A.R.I.B.A. (Crosby Lockwood & Son, 43.)

THE LAW RELATING TO GAS, WATER, AND ELECTRIC LIGHTING. By Lawrence Duckworth. Second edition. (Erlingham Wilson, 12, 6d.)

THE BUSINESS MAN'S COUNTY COURT GUIDE. By Charles Jones. Third and revised edition. (Erlingham Wilson, 3s. 6d.)

OBSTRUCTION TO LIGHT. By H. Bridges Molesworth, M.Inst.C.E. (E. & F. N. Spon.)

SOME QUICK AND EASY METHODS OF CALCULATING: A Simple Explanation of the Theory and Use of the Slide Rule. By R. Gordon Blane, M.E. (E. & F. N. Spon.)

PROCEEDINGS OF THE INCORPORATED ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS. Vol. XXVII. Edited by Thomas Cole. (E. & F. N. Spon.)

GENERAL BUILDING NEWS.

RESTORATION OF INGLEY-GREENHOLM CHURCH, YORKSHIRE.—Ingley-Greenholm Church is to be restored and re-seated. Plans and specifications have been prepared by Mr. Temple Moore, and the cost is estimated at about 700l.

SCHOOL BOARD, GATEHEAD.—The Gatehead School Board have now entered upon possession of their new schools in Kelvin Grove. The block is arranged to accommodate infant scholars on the ground floor, and junior boys and girls on the first floor. This, the first of two blocks, is part of the full scheme providing accommodation for about 1,500 scholars, and is placed with the main elevation towards Kelvin Grove. The school is arranged on the Central Hall plan. The accommodation provided in this block is for 700 scholars, as follows:—

Ground floor, 400 infants in seven classrooms, with places for sixty-six, fifty-six, and forty-five respectively. First floor, 350 junior boys and girls in seven classrooms with places for sixty, fifty, and forty respectively. A class of sixty could be placed in the junior central hall, making a total accommodation of 820 infant and junior scholars. The classrooms are compactly arranged around the central hall, where, by the use of glazed screens, the head teacher is enabled to have full supervision of the whole of the classrooms and have direct access to any particular room without having to traverse the corridors. Small pass-doors are arranged between all classrooms. Two classrooms in each floor are divided by folding screens to allow of them being formed into one large examination-room when necessary. The central hall is about 48 ft. long and 28 ft. wide. Two entrances are provided at either end of the building to each department, and are conveniently arranged, giving access to the cloakrooms along a short corridor 7 ft. wide. The teachers' rooms are situated on a mezzanine floor arranged between the ground and first floor cloakrooms—one to each department. The infant teachers have a small private stair from the cloakroom to their room from the top half landing of the girls' staircase. A heating chamber is arranged at the low end of the site, with coal storage. A caretaker's house of five rooms, with bathroom and scullery, has also been erected. The building is faced with Commendable red facing bricks. Stone dressings are used up to the first floor, and buff terra cotta dressings to all gables and parapets. The erection of the senior block has been commenced, and will be somewhat similar in plan and design to the present block, the main front being to Brighton-road. Accommodation will be provided for 720 scholars in classrooms; and, if necessary, classes of sixty scholars each could be placed in the central halls, making a full total of 840 senior scholars, or a possible total of 1,660 scholars in the whole school. The whole of the premises are being erected from the design and under the supervision of the architect, Mr. J. Landell Nicholson, Newcastle-on-Tyne, whose plans were placed first in open competition. The work is being carried out by Mr. Thomas Hunter, of Washington, Co. Durham, as general contractor, with Mr. Creighton as clerk of works, the sub-contractors being:—Concrete floors by the New Expanded Metal Co. (Messrs Walker & Sons, Gallowgate); plumbing by Messrs Allison & Son, of Gateshead; slating by Mr. Charles Nicholson, Newcastle-on-Tyne; painting and glazing by Mr. Thomas Dellow, Low Fell. The heating has been executed by Messrs Richardson & Co., of Darlington. Wrought-iron pipes and cast-iron radiators are used throughout arranged on the low-pressure system. The cloakroom hat and coat lockers are of malleable iron, manufactured by Messrs. Brookes & Co., Ltd., Manchester, with wire screen divisions to girls' cloak racks. The lavatories are of Jardine McMath's Patent trough arrangement, executed in marble and supplied by Messrs. Smiley & Sons, Ltd., Newcastle-on-Tyne.

NEW SCHOOLS, THE WESTPORT.—The Wesleyan Methodist trustees of the High-street Church, Lowestoft, recently purchased certain cottage prop-

erty at the rear of the present school which, when pulled down, will form a good site for new schools. In a competition for new schools to be erected on this site to cost 3,000l., the plans and designs submitted by Messrs. Garais & Pennington, architects, Pontefract and Castleford, were selected by the assessor, Mr. Cockrill, Borough Surveyor of Yarmouth, and they have been instructed to proceed with the work.

SWEDISH MISSION CHURCH, SUNDERLAND.—A mission church for Swedish sailors visiting the port of Sunderland is being erected at the top of James William-street, at the back of the old market. Messrs. W. and T. R. Milburn are the architects. It is estimated that the total outlay on the building will be about 1,200l. On the ground floor there will be a reading-room wherein Swedes, Norwegians, and Danes will find the newspapers of their countries, and rooms for the caretaker, and a vestry occupy the remainder of the floor. The whole of the upper story is devoted to a chapel, which will be 23 ft. wide and 40 ft. long, providing accommodation for over 200 people. The contractor for the work is Mr. W. B. Cooper.

VICTORIA COTTAGE HOSPITAL, MARYPORT, CUMBERLAND.—A new cottage hospital has just been opened at Maryport which has been erected as a memorial of her late Majesty, Queen Victoria. The hospital is situated on the south side of the town, and in the parish of Dearham. It is designed for ten beds, and contains a male ward, a female ward, and a separate ward for special cases, together with convalescent, operating, bath, and sitting rooms, kitchen, and three bedrooms for the nurses. The architect was Mr. Charles Eaglefield, Maryport. The contractors were:—Mr. W. Marshall, mason's work, 568l. 9s.; Mr. J. Kendall, joiner's work, 290l.; Mr. Clark, slating, 381l.; Mr. Kirk, plastering, 115l.; Mr. Thompson, plumbing, 114l. 11s. 9d.; and Mr. J. McKee, painting, 26l. 10s. 9d.

HOTEL, MANCHESTER.—The new hotel of the Midland Railway Company at Manchester is nearing completion. The four façades are in the Renaissance style, with vitrified terra-cotta mouldings above foundation of red and grey Aberdeen granite. It is about four years since the company acquired, at a cost of about 365,000l., the land on which the new building stands, and cleared from it the Gentlemen's Concert Hall, the People's Concert Hall, the Lower Mosley-street Schools, and other buildings. Then, after the contracts had been let, there were delays on questions of street lines. Something like 24 yds. had to be given up to all the four streets which surround the plot, so that the company's area was reduced to about one and a third acres. The foundations had to be of exceptional strength, and the excavations were carried down to the red rock, and in some places to a depth of 30 ft. below the street level. In March of 1899 the operations were actually commenced and there were many delays for material. For six months the laying of strong blue bricks, faced with others of white enamel, went on out of the sight of the public, and then was seen the erection of a framework of girders—a skeleton of steel—going up apparently to a sixth story. This steelwork cost 200,000l. The contractors, who have never during the last six months had fewer than 1,000 men engaged on the job at once, were able at times to increase the number to 1,500 or 1,600. The main entrance will be in Peter-street, and will afford wide entrance and exit ways for carriages. A second entrance, with a portico covering the footpath, will be in Mount-street, a third entrance will be in Windmill-street, opposite the Central Station, from which to the doors of the hotel will run a covered way, and there are entrances also on the Lower Mosley-street site. The basements provide for service apartments, hairdressing saloons, baths, and other appurtenances of a modern hotel. On the ground-floor is the octagonal-shaped lounge with music balcony, covered by a dome of coloured glass, a winter-garden, a French restaurant, a general restaurant, a coffee-room, and private dining-rooms. On the first floor are provided a ball-room, lounge, and reception-rooms, suites of private-rooms—one of which will be designated "the Royal suite"—and the Gentlemen's Concert Hall. Of the 480 rooms in the hotel 400 are bedrooms. Access to every floor is by lifts. The numerous rooms in the upper portion of the building look out upon an iron balcony. The contractors are Messrs. W. Brown & Son, of Salford, and the architect Mr. C. Trubshaw. Mr. Stewart has acted for the company as building expert. The fireproof floors, ceilings, and roofs are on the Mark Fawcett system.

THEATRE, WORCESTER.—The Theatre Royal, Worcester, has been altered and restored under the superintendence of Mr. Alfred B. Rowe as architect.

LIVERPOOL INFIRMARY FOR CHILDREN.—A new Out-Patient Department, in Mulberry-street, has been erected at Liverpool in connexion with the Infirmary for Children. The building is being erected from plans prepared by Messrs. Haigh & Thompson, of Liverpool, which were accepted in competition. The new "extern" stands alone, surrounded by streets on three sides and a public passage on the fourth. The patients' entrance is at the south-west angle of the building, approached from the principal thoroughfare called Mulberry-street, and exactly opposite the infirmary.

It opens into a space for the accommodation of perambulators, and through this communicates directly with a waiting-hall. The latter is placed in the centre of the building, and round it are grouped the various consulting, examining, and operating rooms. Near the entrance is a registration-room, adjoining which an isolation-room is provided. The dispensary is placed opposite the principal entrance, to the right of which are also conveniences for the women and children. At the north end of the building, next Mulberry-street, is the entrance for the staff, near which the various rooms for doctors and nurses are situated, with lavatories and other conveniences. An ophthalmic room is provided; also a store for splints, &c. At this end of the building are placed the heating cellar in the basement, and on the first floor accommodation for the keeper and his wife, with a small yard. The building generally is one story high; the waiting-hall is higher than the adjoining rooms, and above the keeper's yard (which is on the first floor), and can be lighted and ventilated on four sides. The rooms are warmed by hot water, the fresh air passing through the radiators. All windows have opening casements. The interior walls are lined with glazed bricks dado high, having round internal and external angles both horizontally and vertically. All the joints have been finished flush with Parian cement. The wall surfaces above the glazed bricks have been rendered in Portland cement, finished with a smooth surface of Parian which has been painted in white ripolin. The floors have been paved with terrazzo generally, but some with wood block and "Litosol." The front entrance has an inclined plane without steps. All lavatories, sinks, &c., are bracketed from walls, without floor supports. Electric light has been fitted throughout. The building has been built of Accrington red bricks, with Darley Dale stone dressings, the roofs being slated. The contractors of the new building were Messrs. Holme & Green; the warming is by Messrs. Killick & Cochran; the terrazzo floors by Messrs. John Stubbs & Sons; metal casements, railings, &c., Mr. George Wragge; electric lighting, Messrs. Harford & Co.; plumbing and painting, Messrs. Cottrill & Besant; the sanitary fittings by Messrs. Doulton; slating and plastering, Messrs. Tanner & Son. In January last year the Committee advertised for competitive plans from architects who have had experience in hospital work for the new infirmary buildings. After consideration, the scheme submitted by Messrs. Haigh & Thompson has been selected as being, in the opinion of the Committee, the best solution of the problem. The building, which is to be erected on the old site, is designed on the pavilion plan—one pavilion running north and south on the Mulberry-street boundary of the site, and the other having a corresponding aspect, parallel to the Liverpool Gymnasium, but 27 ft. away; the south gables of both pavilions will come up to the Myrtle-street boundary line. Between these wings is placed the administrative block, facing Myrtle-street, but set back, with the principal entrance in centre. The nurses' home is arranged on the St. Mary's Recreation Ground boundary, but is connected with the main central block by a "conservatory bridge." The pathological department is situated in the north-west angle of the site, and the day-house and entrance isolation block on the rear boundary. There are five main wards in the pavilion blocks for twenty coats each.

FOREIGN.

FRANCE.—In excavating for the third line of the Paris Metropolitan Railway, on the Place de la République, remains have been found of a bridge, probably built under the orders of Richelieu, over the ditch of the fortifications of Charles V. Important decorative works are shortly to be commenced at the new Mairie of the Xth Arrondissement (Paris), designed by the late Architect Rouyer. About 100,000 fr. is to be spent on interior sculpture and painting.—The new Ecole des Arts et Metiers at Paris is to be built on a site of 20,000 square metres, adjoining Boulevard d'Hippolyte, Rue Pinel, and Rue Villejuif.—The Municipality of Reims has opened a competition for a monumental fountain at the junction of Place d'Erion and Rue Buisson, to cost 150,000 fr.—The old College of Roubaix is to be rebuilt and the Turgot Institute transferred to it.—The Municipal Council of Bordeaux has decided on the construction of two moving bridges ("Ponts transbordeurs") over the Garonne, one in front of the Place Richelieu, the other, lower down the stream, opposite the Cours du Médoc. It is regretted that the Council has decided on a course which will have the result of destroying the fine perspective of the Quai de Bordeaux and of the Douane and the Bourse, both buildings the work of the architect Louis XIV.—The jury is the competition for the Edmond Labarre Prize, of which the programme was "Une Faculté des Sciences," has awarded the prize to M. Jausseley, pupil of MM. Daumet and Esquié.—The centenary of the transference of the translation of the Académie de France to the Villa Medici is to be celebrated by a fête in Paris.—The Chamber of Deputies is concerned with a project for



a metropolitan railway from Auteuil to the Opera. There is also talk of prolonging the metropolitan line to Clichy as far as the outer boulevards.—The "Vieux Paris" Committee has demanded the restoration of the paintings which decorate the porch of the church of St. Germain l'Auxerrois, but with the condition that the work should be carried out in fresco and not in oil painting.—The death is announced, at the age of 63, of M. Desiré Goubet, engineer, and inventor of a submarine boat that bears his name.

A NEW CATHEDRAL FOR BOMBAY.—It is proposed to erect a new cathedral in Bombay. Mr. J. Begg, the Consulting Architect to the Government, has already prepared sketch plans of the proposed cathedral, and it is roughly estimated that the building would cost to erect Rs. 6 lakhs.

CHINA.—As a part of the atonement of the Chinese Government for the murder of Baron von Ketteler, it was arranged that a memorial arch should be erected in Peking. This has now been done, and the edifice was formally dedicated by Prince Chun on the 16th inst.

#### MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENT.—Messrs. Pugin & Pugin, architects, have removed their offices from 12, Paradise-street to 51, North John-street, Liverpool.

ROYAL ACADEMY.—Sir Ernest Waterlow and Mr. John F. Bacon have been elected Academicians; and Mr. W. R. Colton and Mr. Arnesby Brown Associates.

THE EDUCATION OF AN ENGINEER.—The fifth meeting of the twenty-ninth session of the Liverpool Engineering Society was held on the 14th inst. at the Royal Institution, Colquhoun-street. Mr. Ernest S. Wilcox (President) occupied the chair. During the evening a paper was read by Mr. A. F. Fowler, M.I.C.E., M.I.M.E., on "The Study of Engineering from a Business Point of View." Mr. Fowler said that he wished to consider the subject from the point of view of any one who decided to make his living in the profession, and who wished to be qualified as quickly as possible. He said that many persons of judgment were now mentally inquiring if the education of engineering students to-day was not being conducted too much on the lines of research and excessive technique. Did it not tend to narrowness, and did it, as it ought, develop the observant faculties and the habit of thinking for oneself? These queries appeared to reflect upon the discretion of the purely professional engineer, but they were really inquiries as to whether or not science was taught with discrimination and regard to the interests of the student. A considerable knowledge of mathematics and physics was indispensable; chemistry and geology were desirable; but after a good groundwork in these subjects had been learned at school, their further study might be confined to their application to the work taken up at the office or workshop, and to assist the student to attain the all-important quality of thoroughness. This, of course, referred to those students who had entered offices or workshops, and not to the comparatively few who elected to become pure scientists.

ALL HALLOWS, LOMBARD-STREET.—At a general meeting of the London and Middlesex Archaeological Society, held on the 13th inst., great concern was expressed at the news that a commission had been appointed by the Bishop of London to consider the union of the parishes of St. Edmund the King and the Martyr with All Hallows, Lombard-street, and with the further proposal to pull down the Church of All Hallows, and to sell the site. The following resolution was passed in relation to this subject:—"That the Society expresses its astonishment and regret at the proposal to destroy a church of such exceptional beauty and interest as All Hallows, Lombard-street, and trusts that the parishioners of that parish will withhold their consent from any scheme that contemplates the destruction of their church. That a copy of this resolution be sent to the Churchwardens of All Hallows Parish, and to the Bishop of London."

INCORPORATED SOCIETY FOR PROMOTING THE ENLARGEMENT, BUILDING, AND REPAIRING OF CHURCHES AND CHAPELS.—This Society held its usual monthly meeting on the 13th inst. at the Society's House, 7, Dean's-yard, Westminster Abbey, S.W., the Rev. Canon C. F. Norman in the chair. Grants of money were made in aid of the following objects, viz.:—Building new churches at Broughton Moor, St. Columba, near Cockermouth, Cumberland, 80*l.*; Holloway, Christ Church, near Matlock Bath, Derby, 90*l.*, in lieu of a former grant of 80*l.*; East Kirkby, St. Thomas, near Kirkby-in-Ashfield, Notts, 50*l.*; Egremont, St. Columba, near Liverpool, 80*l.*; Grimethorpe, St. Luke, near Barnsley, Yorks, 60*l.*; Hilderthorpe, Emmanuel, near Bridlington, Yorks, 40*l.*; Hucknall-Tothorpe, near Sutton-in-Ashfield, Notts, 40*l.*; Renshaw, St. Matthew, near Sheffield, 30*l.*; Rock Ferry, St. Barnabas, near Birkenhead, 135*l.*; and York, St. Barnabas, 25*l.*; and towards enlarging or otherwise improving the accommodation in the churches at Chipping Warden, SS. Peter and Paul, near Banbury, Northants, 25*l.*, and Danby, St. Hilda, Yorks, 15*l.* A grant was also made from the Mission Buildings Fund towards building a mission church at All Stretton, near

Church Stretton, Salop, 50*l.*, in lieu of a former grant of 50*l.* The following grants were also paid for works completed:—Palfrey, St. Mary and All Saints, near Walsall, Staffs, 1,000*l.*; Ravensthorpe, St. Saviour, near Dewsbury, Yorks, 200*l.*; and Hoxton, St. John the Baptist, Middlesex, 40*l.* In addition to this, the sum of 301*l.* was paid towards the repairs of eighteen churches from Trust Funds held by the Society.

YORKSHIRE BUILDING TRADES' FEDERATION.—The annual dinner of the Yorkshire Federation of Building Trade Employers was held on the 15th inst. in the Building Trades' Exchange, Sheffield. There were about 120 guests. Mr. J. Dawson (Huddersfield), President of the Federation, was in the chair. After the loyal toasts, Mr. S. Smeeth (President of the Lancashire, Cheshire, and North Wales Federation) proposed "The Yorkshire Federation." Those Federations were not institutions that were intended to promote strife—he believed they minimised it. If builders were thoroughly organised they could arrange differences and eliminate grievances without resorting to force, a brutal system of fighting which ought to be out of date. He urged the value of the intertrading method which had been adopted in Lancashire with great success. In towns where it was in operation members of the local associations pledged themselves not to deal with any one who was not also a member. The result was more than to double the membership in every case, and immensely to increase the strength of the Federation. He hoped Yorkshire would in this matter follow in the footsteps of Lancashire.—Mr. Mansfield (York) responded first. He congratulated the Yorkshire Federation and the Northern Contractors' Association for the work it had done in showing that only reasonableness was wanted, and thus avoiding strikes. The Federation existed to see mutual justice between master and man.—Mr. E. R. Good (Hull) further replied. The text of the Federation was "Freedom of employment," and he urged them to carry it out. If they did so, they would get a fair return for their money. He was not antagonistic to trade-unionism, but the practice of unionism had not in any sense approached the ideal of its title during the last fifteen years.—The President also spoke in acknowledgment of the toasts. The Federation, he believed, was upholding the doctrine that this was a free country, and that a man could sell his labour for the best price he could get. Builders did not want to put the workman down; in fact, two years ago, when trade began to fail, a resolution was passed advising members not to reduce wages, but rather to attempt to remove unreasonable rules that the men had insisted upon. The Federation had done good service by preventing strikes. They had had to take action in order to break down the indignity and oppression that the men had practised for twenty years, until they thought that they could do as they liked. They had taken five cases in the last four years, and one of the earliest settled the question of picketing. Mr. Justice Stirling granting them an injunction. He spoke of the other cases, which had shown that the law would defend the employer as well as allow the workman his liberty. He welcomed the recent decision in the Taff Vale case, which had shown that damages could be obtained from the unions, and said its result would be fewer strikes and more reasonable demands than they had had in the past.

—Mr. A. Sinclair (Scarborough) proposed "The City and Trade of Sheffield."—Mr. W. H. Lancashire, who was the first to respond, expressed the opinion that Sheffield was going too much into the building trade. He had never seen less than 200,000 men in the Construction Committee. With the large undertakings that the Corporation had in hand they could afford to dispense with that altogether. Let them be content with bringing such undertakings to perfection, and then stop, and allow private traders a fair chance of getting a living.—Mr. J. Longden also replying, said builders preferred to pay good wages if they could get an equivalent amount of work done. Unfortunately, the pay had increased, and the work had decreased. It had been necessary to form organisations of builders, and a better understanding between employer and employed was now growing.—Mr. A. Muir Wilson, who further responded, condemned the Works Construction Committee as a sham, a farce, and an iniquity, and said he intended to propose its dissolution, as it was an encroachment upon the rights of private trading.—Mr. J. Wright (Nottingham) proposed "The National Association." He said the master builders did not want to interfere with the workmen's right to combine and sell their labour at the best price; but if the unionists would not work they did not want them to interfere with those who would or with the masters. He urged that to make the National Association successful there ought to be a national managing secretary, a head office, and a national building journal. (Alderman Jesson (treasurer of the National Association), in reply, described Mr. Wright's suggestion as capital. He also said the builders would hail the day when a Minister of Commerce was appointed, with a seat in the Cabinet. He regretted that only 20 per cent. of the building trade employers of the country belonged to the Association.)—Mr. J. Alderman also responded.—Mr. Judge, Wakefield, gave "The Sheffield Association."—Mr. J. Biggin, President, in reply, said the Asso-

ciation had been brought up to date, and was one of the most vigorous in the country. They had done their best to show to every builder in Sheffield the advantages of membership. The day of individualism was past; an individual employer could not cope with the united and arbitrary actions of the men.—Mr. Hodkin also responded.—The other toasts were "The Architects and Surveyors," proposed by Mr. P. Rhodes (Leeds), and acknowledged by Mr. A. F. Watson; and "The Visitors," given by Mr. A. J. Forsdike, and responded to by Mr. Walker (Derby) and Mr. Edgar (Nottingham).

MANCHESTER MASTER BUILDERS AND THE "FAIR CONTRACTS" CLAUSE.—On the 15th inst. the Manchester Watch Committee listened to the reading of correspondence which has been addressed by the Manchester and Salford Master Builders' Association to the Town Clerk with respect to certain contracts which are being let for the foundations of the new police and fire station in London-road. Mr. J. Tomlinson, the Secretary of the Association, stated, writing from the office of the Organisation in Cromwell-buildings, Blackfriars-street, on December 23, said that the members of the Association are of opinion that the new conditions introduced into the contract would have wider and more far-reaching effects than the Corporation either intended or anticipated. They regretted that they could not tender for any work under the proposed conditions, but would be pleased to confer with the Watch Committee or its officials. Writing again on the 6th inst. under instructions, the Secretary traversed the various details of the fair contracts clause. The members of the Association, he said, object to the demand of the Corporation that the contractor "must work under the standard rate of wages to the whole of their workpeople, and observe the hours of labour recognised by the local organised bodies of workers in the various trades affected in the district where such work is being executed." By this clause, the letter urged, a contractor taking a job in Manchester for the Corporation would be required to pay the wages recognised by the Manchester trade-unionists to the whole of his workpeople wherever they might be employed; and whilst a Manchester employer could be required to pay Manchester wages to the men whom he employs in other towns where wages are much lower, an employer, say, at Stockport, Eury, or Preston should be required to pay his local staff at the Manchester rate if he had a Manchester Corporation contract, thereby handicapping employers who are working for the Manchester Corporation. In the second place, it is objected that the words "any organised trade society to fix their own rate of wages and hours of labour, and that if a contractor has signed the clause he could be forced by the Corporation to observe such rates of wages and hours of labour or run the risk of having his contract cancelled. Thus the employer would have no voice in fixing wages and hours, as particular agreements with the operatives in the building trades cannot be enforced by law, and there could be no resisting the men's demands by strikes or lock-outs, as this would practically mean giving up the contract. The letter went on to speak of the number of old men who are not able to do a full day's work, and who are, by recognised custom, paid lower than the standard wage. Under the clause the Association alleges that these men could be no longer employed except under risk of a cancelled contract. Further, the master builders object to the demand that the principal contractor should be responsible for all work executed by himself, and as they say, as it applies to the quality of work, but in respect to its application under the first part of the clause previously objected to. Also they object to the onus of proof being thrown upon the contractor in the case of any vexatious complaints made by the labour delegates or other irresponsible persons. Although they might find no difficulty in showing compliance with the conditions so far as their own workpeople were concerned, probably in the case of sub-contractors and others the difficulty would be so great that they could not pledge themselves to undertake the responsibility. The master builders also object to the City Council having a voice in approving of the sub-contractors. They contend that the contractor is best fitted to decide as to who shall be his sub-contractors, and in support of their position it is urged that neither the Government nor railway companies seek to impose such conditions upon contractors. Finally, the Association proposed alterations to the very drastic penalty which the Corporation asks power to enforce, perhaps for what might be a trivial offence. After hearing the foregoing letters read, the Watch Committee decided that, as the situation had been created by the City Council in adopting the fair contracts clause, the correspondence should be laid before the Council at its next meeting, with a request for direction upon it.

LONDON STREETS.—At a meeting of the Westminster City Council on the 15th inst. at the City Hall, Charing Cross-road, Captain Jessel, M.P., the Mayor, presiding, it was resolved to establish a labour exchange at Caxton Hall, Caxton-street. The Works Committee recommended, and it was resolved,—"That a communication be addressed to His Majesty's Government, suggesting that the Royal Commission about to be appointed to inquire



into the congestion of traffic in the streets of London be directed to receive evidence and report upon the obstruction caused by the breaking up and use of the streets by companies and other undertakers under statutory powers to lay pipes, wires, &c., and execute works over, under, across, and about the streets; and also as to the advantage and practicability of requiring such pipes, wires, works, &c., to be placed in subways under the streets." The same committee submitted recommendations to the effect that no street should be flushed when the temperature is lower than 12 deg. Fahr., or when the application of salt would be necessary after flushing, that ballast be sprinkled on the roads after flushing, and when required, and that roads with steep gradients be ballasted every morning during wintry or greasy weather. Mr. McConnell said that the regulations had been directed and ballasting had been directed, and, in order that the responsible officials might be brought before the Works Committee with a view to their dismissal, he moved that the whole matter be referred back to that Committee. Mr. Everett seconded the motion, which was agreed to. It was resolved to plant trees in Whitehall and Parliament-street from Horse Guards-avenue to Bridge-street on both sides of the roadway. Sir John Wolfe-Barry, a member of the Council, undertook to give the trees, and an estimate of £200, ss. for planting them and supplying grids, guards, and kerbs was approved.

**THE BUILDING ACT AND THE CITY.**—At the meeting of the City Corporation on the 15th inst. at Guildhall, the Remembrancer drew attention to the London County Council's London Building Acts Amendment Bill. Mr. Lobb said the Bill was in echo of the Queen Victoria-street fire. He was of opinion that the need of providing more efficient apparatus, they should put upon the individual occupier the expense of providing that protection. Mr. Morton said the Bill was framed in the interests of the workers in the City, but he thought they might get over an apparent difficulty by endeavouring to make the Corporation the authority to putting the Act into force. Mr. Deputy Baddeley said he was convinced that the Bill would diminish the rateable value of the City and put owners and occupiers to enormous expense. He moved, and it was agreed, that the Bill be referred to the Streets Commissioners, with instructions to confer with the City Lands and Bridge House Estates Commissioners, in order that steps might be taken as those Commissioners might deem necessary in the interests of the ratepayers.

**QUEEN VICTORIA MEMORIAL IN SHEFFIELD.**—The Executive Committee of the Queen Victoria Memorial in Sheffield held a meeting at the Town Hall on the 16th inst. to consider suggestions from the artist, Mr. Alfred Turner, of Kensington, that improvements should be made to the design for the memorial, involving additional cost. The Chairman, Mr. Alderman Eaton, explained that the artist suggested that the pedestal and the figure of the Queen should be increased in height, and a letter was read from Mr. Turner, stating that he had sent the drawings of the pedestal, as amended by Mr. W. Mountford, and they would see that the total height was now 32 ft. 6 in., as against his original height of 25 ft. That the added 7 ft. 6 in. had greatly enhanced the dignity of the memorial in the opinion of all artists who had seen the designs. Mr. Mountford would also like to see the two panels under the cornices continued round the memorial in the form of frieze. Having gone carefully into the expenses, he begged to suggest that another 1,000l. be added to the original estimate in order to carry out these improvements. Any practical man would tell him that the 3,000l. left no margin at all for any improvements.—The City Surveyor (Mr. Pike) said he had received a further letter from Mr. Turner, stating that the additional 5 ft. to the pedestal meant a considerable increase in the expenses; while the alteration from 16 ft. to 17½ ft. which was imperative now that the height of the pedestal was increased, or the Queen would look positively small) would increase the expenses of bronze casting quite double the amount. The original design would cost him fully the 3,000l., as he would be amending one—if approved—the 1,000l. A sub-committee having been appointed, the meeting terminated.

**HOLBORN TO STRAND IMPROVEMENT.**—The Improvement Committee of the London County Council reported on Tuesday that in regard to the Holborn to Strand improvement considerable progress has been made. The Council is now in possession of the whole of the property between Catherine-street and the Law Courts on the Strand, as well as most of the land needed for the formation of the new crescent road, and nearly all the houses have been demolished. The Act of 1890, which authorises the construction of the new street from Holborn to the Strand and the widening of the Strand east of Wellington-street, makes provision for the reinstatement of the Gaiety Theatre, Gaiety Restaurant, and Gaiety Theatre, and a considerable extension of that class of paving. Again, in the same class of streets, where, however, the gradient is steeper than 1 in 40, the paving thereof should, according to circumstances, be square-dressed sets, either of granite or of whin. Where, in such streets as have been described,

question, and the company have made much progress with the new building. The Act also makes provision for the reinstatement of Carr's restaurant on the north-eastern frontage of the proposed crescent road close to the Law Courts, and the Council approved an elevation for the new restaurant, which is now nearing completion. The work of forming the new street from Holborn to the Strand and clearing the insanitary area at Clare Market is being undertaken as one scheme. In the Clare Market area about 3,038 persons of the working class were displaced, and the scheme sanctioned by the Home Office was that accommodation should be provided for 750 persons on the cleared land at Clare Market and for 1,500 persons at Millbank. For the new street about 3,700 persons of the working class will be displaced, and the scheme sanctioned by the Home Office is that accommodation shall be provided as follows: 250 on the Duke's-court and Marquis-court sites, 790 in a lodging-house in Drury-lane, 1,681 on the Reid's Brewery site, 680 on the Herbrand-street site, and 290 at Millbank. In carrying out the complete scheme of improvement it will be necessary to acquire in all forty-nine licensed houses, and the Council has decided to continue the policy hitherto maintained and to abandon those licences. The widening of Southampton-row between High Holborn and Eagle-street has been completed, and the widening of the remaining portion of that thoroughfare will be undertaken at an early date. The formation of the portion of the new street immediately south of Holborn will be undertaken in the course of two or three months. The work of widening the Strand has involved the acquisition of portions of the churchyards of St. Mary-le-Strand and St. Clement Danes. The Act requires the Council to undertake the complete and reinforcement of all human remains which may be found in the parts of the churchyards required for the improvement. The Council accordingly made arrangements for the removal of the remains and their reinterment in the consecrated portion of Brookwood Cemetery. All the work connected with the widening of the Strand from Catherine-street to the Law Courts has been completed, including the new sewer and the subway for pipes, wires, &c. The work connected with the formation of the eastern portion of the new crescent road, which will begin at the Strand close to St. Clement Danes Church and will re-enter the Strand at Catherine-street, has been commenced.

**ALL HALLOWS, LOMBARD-STREET.**—At a general meeting of the British Archaeological Association, held on the 14th inst., the following resolution was unanimously passed:—"That the members of the British Archaeological Association hear with deep regret of the proposed demolition of All Hallows, Lombard-street, one of the group of churches erected by Wren after the Fire of London, and one which may claim to possess an interior hardly excelled in London, among churches of the seventeenth century. The richness of the carved wood-work and the subordination of ornament to structural needs render it specially worthy of preservation, in the estimation of all who value the productions of the master-mind of its architect and desire to retain the few remaining links between past and present times."

**THE SLATE TRADE IN 1902.**—During the year there has been a very brisk demand at remunerative prices, especially for the better qualities of slate, and this shows every prospect of continuing, as all stocks are very low. In a few districts the building trade has not been so brisk, but the steady falling off in output counterbalanced this. Also the importation of American slate has largely diminished, owing to increased demand in the States and higher freights. New companies have been formed to work some of the smaller undertakings, and slate quarries are gaining favour with investors owing to the prosperous state of the trade. Except the Penryn strike, there have been no labour troubles, nor any important cases under the Workmen's Compensation Act.

**STREET PAVING IN GLASGOW.**—A report by a deputation of Glasgow Corporation who visited London, Liverpool, St. Helens, and other cities, on the conduits and smooth paving of the streets of those cities was submitted at a meeting of the Corporation on the 19th inst. The members of the deputation recommended that in view of the widening and improvement of Nelson-street an experimental and well-ventilated conduit for the reception of all service pipes, cables, or wires, should be constructed. They are also of opinion that in streets without tramways, in and near to the business parts of the city, and in main thoroughfares through the suburbs, in which there is continuous traffic, and where the gradient is not steeper than, say, 1 in 55, the paving thereof should be of asphalt. Their view is that there should be throughout the city a very great extension of asphalt paving. Where, in the same class of streets, the gradient is, say, between 1 in 55 and 1 in 40, the paving should be of hard wood, and in such class of streets there should also be a considerable extension of that class of paving. Again, in the same class of streets, where, however, the gradient is steeper than 1 in 40, the paving thereof should, according to circumstances, be square-dressed sets, either of granite or of whin. Where, in such streets as have been described,

there are tramways, and where the gradient is not steeper than 1 in 40, the paving thereof should, if possible, be of asphalt or hard wood, but the case of each such street would require to be considered on its particular merits. In the case of those streets in the central and other districts of the city where there are no tramways and where the other traffic is not great and which are more or less of a residential character, the paving thereof should, according to gradient, be of asphalt or hard wood, unless that gradient is so steep as to render the adoption of smooth paving inadvisable. In suburban streets of a main or important character, and which may or may not have tramways, the paving should also be of asphalt. In the less important of those streets, the paving (where the gradient is not clearly unsuitable) should probably be that of tar macadam, and in the remaining streets having little or no vehicular traffic, the paving should be that of ordinary macadam. Where smooth paving is adopted, all the pipes and cables of the various departments of the Corporation, and those of the Gas, Water, and other authorities, in some systematic manner, be laid in lanes or in the footpaths, and not in the roadway.

**MEMORIAL WINDOW, MONTGOMERY CHURCH.**—In the Parish Church, Montgomery, recently, a stained-glass window, introduced by the Mayor (Mr. Nicholas Watson Fairles-Humphreys) in memory of his wife (the late Mrs. Maria Micela de las Mercedes Fairles-Humphreys), and her father (the late Mr. Richard Smith-Humphreys), was dedicated. The work was designed and drawn by Mr. Charles Hean, of Kensing, Sevenoaks, and executed by Mr. George Lloyd-Maerchant, of London. The chief subject is the "Nativity of our Lord." The representation occupies the three lower lights. The window has been placed in position by Mr. Maurice Jones, of Montgomery, and his assistants, under the supervision of Mr. Arthur A. Reeves, of London. Outside, a guard of copper wire has been fixed to protect the glasswork from injury.

**KINGSBURY (MIDDLESEX) SEWERAGE.**—At the invitation of the Urban District Council, Sir Ralph Little, Chairman of the Middlesex County Council, opened the new sewerage works at Kingsbury on Saturday, the 17th inst. Under the first contract nearly four miles of cast-iron and stoneware pipe sewers have been constructed. Concrete tubes being used for the manholes. The main outfall sewer is 15 in. diameter and, in order to obviate the necessity of two outfalls or pumping, is laid at a considerable depth, being over 40 ft. deep in places. The cost has been nearly 10,500l., and a further expenditure of 9,000l. will be necessary to complete the scheme. Mr. S. Slater Grimley, Engineer to the Hendon Urban District Council, is the consulting engineer, under whose direction Mr. Cliff Ford, contractor, Harlesden, has executed the works.

## CAPITAL AND LABOUR.

**PLASTERERS' STRIKE AT LLANDUDNO.**—A Birmingham firm is erecting a large convalescent home at Llandudno, and the work was well advanced when the local plasterers, who were receiving the current local rate of wages, demanded that they should be paid on the Birmingham scale of 1s. 6d. instead of 8d. an hour. It was represented that they were asking what was unreasonable, and that, though the contractors were a Midland firm, they were paying the local men the regular trade union rates. However, the whole of the Llandudno plasterers struck work; the operations were partially suspended as the result. The contractors have now imported all the labour they require from the Midlands, and the local men are left idle.—*Liverpool Post.*

## LEGAL.

### BUILDING DISPUTE AT LEICESTER.

The case of Blackler v. Wright came before Mr. Justice Ridley and a special jury in the King's Bench Division on the 14th and 15th insts.

This was an action by Mr. Andrew Blackler, trading as A. W. Blackler & Son, of the Royal Marble Works, St. Mary Church, Devon, to recover the sum of 658l. 15s., balance of an account of 1,521l. 3s. for work done and materials supplied to the defendant, a builder and hotel proprietor of Leicester. The defendant disputed 111l. of the plaintiff's claim, which was charged in respect of architect's fees for getting out quantities, and counterclaimed for 480l. damages for loss sustained through the alleged failure of the plaintiff to complete his contract by the specified time. The plaintiff, in reply, denied that he undertook to complete the work by any specified time.

Mr. Eldon Banks, K.C., and Mr. Clay appeared for the plaintiff; and Mr. Samuel T. Evans, K.C., and Mr. Disturnal for the defendant.

Mr. Banks, in opening the case, said the plaintiff was the proprietor of marble quarries and works in Devonshire. Defendant was the proprietor of the Grand Hotel, Leicester, and he decided in 1900 to make extensive additions to it, including a winter garden and a banqueting-hall, to be called the King's Hall. He decided this was to be a very handsome hall, 85 ft. long, some 30 ft. wide, the



walls to be lined with marble, in addition to some twenty marble pillars. After the negotiations, Mr. A. Hall, architect and surveyor, of Leicester, was engaged to act as architect, and he, as country architects often did, got out the quantities himself instead of employing a quantity surveyor, and invited contracts for the work, instructing the parties tendering to include in their tenders 100% for his quantity fees and 5% for the cost of lithographing the quantities. The original scheme was a very ambitious one indeed, and the first tenders were for something like 4,000l. Plaintiff sent in his tender and included the architect's fee, but the original plan was subsequently modified, and ultimately the work carried out by the plaintiff was reduced to 1,542l. 3s. But the architect, according to custom, was entitled to his fees upon the full amount of the original quantities taken out by him, and it was a curious thing that in an action which Mr. Hall, the architect, was bringing against the defendant, the latter had made an affidavit in which he claimed credit for the difference between the fees on the 1,542l. and the sum claimed by the plaintiff in this case—an inconsistency with the present defence, which was that he was not liable for any part of those fees. But the defendant was a man who liked to have his own way, and if he did not have it those in any way connected with him heard of it. But in these courts he must be guided by the ordinary rules. As to the allegation of the defendant that the plaintiff had contracted to complete the work by May 1, 1901, plaintiff would tell them that he never contracted to complete the work by any specific date, and that he told the architect when it was proposed to increase the height of the pillars from 14 ft. to 17 ft. some inches, that he could not possibly complete the work by May 1, nor could he promise to complete it by any particular date, as he should have to quarry marble specially for the pillars, which were longer than were to be found in one piece in any building in the country, save one. Plaintiff only promised to use all possible speed, and this he had done, and in fact he had completed the work before the winter garden and the staircase by which the hall was approached were completed, so that the defendant could not have suffered any loss by the delay in completing the marble work in the banqueting-hall. He was not therefore entitled, counsel contended, to the damages claimed by way of counterclaim.

Plaintiff was then called and bore out his counsel's opening statement.

Mr. Amos Hall, architect, gave evidence of a corroborative nature. He stated that he was architect for the hotel and acted as defendant's agent in ordering the marble for the banqueting-hall.

#### Cross-examined:

He wrote several letters to the plaintiff pressing him to complete the work by May 1, 1901, but they were written at the instance of the defendant, who was "jumping" on people all round because the hall was not finished as soon as he wished. In point of fact the plaintiff had not undertaken to finish the work by any specified date, but had promised to push it on as quickly as possible. He considered that the plaintiff had completed the work in a reasonable time, considering the difficulty to obtain the marble for the columns.

Re-examined as to the fees for quantities, it was the custom of the trade for contractors to charge them on the full amount for which they were originally taken out. The quantities were submitted to the defendant and his manager before being sent out, with the paragraph at the bottom requesting the parties tendering to include fees for quantities.

For the defence the defendant was called and was giving evidence as to the loss he had sustained through the delay in completing the building, when Mr. Bankes interposed and said he had not been supplied with particulars. If the point was insisted upon there must be a reference as to the amount, if it was decided that plaintiff was liable.

This was agreed to by Mr. Evans on behalf of the defendant.

In cross-examination defendant admitted that it was the custom of the trade for the contractor to charge the fees for taking out the quantities on the full amount, but in this case he had a special arrangement with Mr. Hall. He admitted that the plaintiff was not aware of that arrangement till after the completion of the work. Defendant did not charge the plaintiff and Mr. Hall with conspiracy, or with suppressing letters, but Mr. Hall had led him to believe that plaintiff must finish his work by May 1.

Other evidence was given on behalf of the defendant.

Counsel having addressed the jury, his Lordship in summing up said he could find no foundation whatever for the charge of fraudulent conspiracy which was implied in the first instance. He left to the jury the question whether there was a contract to finish by a specified date, or only in a reasonable time, and also as to whether the fees for taking out the quantities ought to be paid on the smaller or larger amount.

The jury, without leaving the box, found for the plaintiff on both issues, and also on the counterclaim.

Judgment was accordingly entered for the plaintiff on the claim and counterclaim with costs.

#### BUILDER'S ACTION FOR LIBEL.

The case of Dandridge v. Hayles came before Mr. Justice Ridley and a special jury in the King's Bench Division on the 10th inst., an action by the plaintiff, a builder and contractor, against the defendant, also a builder and contractor (both carrying on business at Shanklin, Isle of Wight), to recover damages for libel. The case for the plaintiff, Francis Dandridge, was that in April, 1900, the Sandown Urban District Council decided to build a new road, Shanklin, in which the defendant, George Hayles, resided and owned property, sewered, levelled, metalled, and put into proper repair. Plaintiff tendered for the work, and obtained the contract, which was, he said, properly carried out under the supervision of the Surveyors of the District Council and his clerk of the works. While it was proceeding the defendant wrote a letter to the District Council containing the words complained of, in which he imputed that the contract was being carried out in a "barefaced scamping manner," and complained of a deficiency of ballast, &c. The Town Council inquired, and found the complaint was groundless, but the defendant still persisted in his allegation, and resisted the payment of his proportion of the cost as frontager on the ground that the work was not properly executed. He was, however, ordered to pay the amount to which he was assessed by the magistrates, and on appeal to the King's Bench Division was unsuccessful. The letter was read out at the Council meeting and made public, and defendant said, done him a great deal of injury, and, therefore, he brought the present action. The defendant pleaded that he wrote the letter *bona-fide* as a ratepayer and frontager, and that, therefore, it was privileged.

Sir Arthur Collins, K.C., and Mr. Turrell appeared for the plaintiff; and Mr. Montagu Lush, K.C., and Mr. Marriott for the defendant.

Evidence having been given in support of the plaintiff's case, it was proposed on behalf of the defendant to call evidence to show that the work was not carried out in accordance with the specification, but that course was not followed, as his lordship said that such testimony could not affect the question raised by the case, which was whether the plaintiff had satisfied the surveyor, as it was said he had done. The case for the defendant, therefore, rested on the plea of privilege and the absence of malice.

In the result the jury awarded the plaintiff 50l. damages, and judgment was entered accordingly.

#### PATENTS OF THE WEEK.

##### APPLICATIONS FILED.

2,518 of 1902.—H. H. HODKIN: *The Combination of a Sink, Boiler and Bath.*

This consists in the combination of a sink of enamelled iron capable of being turned up on one edge, and a bath fixed underneath said sink with or without a special water boiler.

2,698 of 1902.—C. A. JONES: *Method of Providing Compensation for Shrinkage of Boards in Table Tops or other Surfaces Consisting of more than one Board.*

A method of providing compensation for shrinkage of boards in table tops or other surfaces consisting of more than one board and consists in the use of longitudinal strips fastened along the joints on the underside of the boards.

2,634 of 1902.—W. BAILEY AND H. C. ASKWITH: *Clamp or Brace for Binding or Securing the Joints of Chairs, Couches, or other Articles of Furniture.*

Binding and strengthening the joints or corners of chairs and such like articles of furniture by means of a clamp consisting of a piece of metal of angle or L-shape, and a bolt or the like, together with a nut or nut as desired.

3,117 of 1902.—R. LEGGOTT: *Apparatus for Operating Fan Lights.*

An apparatus for operating fan lights, and consists in the combination with a quadrant having indent or recesses therein, of a lever, having a handle, and locking lever.

3,122 of 1902.—F. CLAYTON: *Recessing or Grooving Planes.*

This plane consists of a suitable frame or body, preferably having two handles, and fitted with five tool holders in suitable positions on the frame, the tool being interchangeable, and being held in position in any desired holder so as to be adjustable vertically therein by means of a loose cot or thumb-screw. Right and left side tools are provided, and a suitable bottom tool. A right or left hand slide is fitted beneath the frame or body of the plane, this slide being secured and adjusted by means of a pin and screw working within a pair of oblique slots. The cutting-tool passes through a side opening in the slide, the amount of cut being regulated by tapping the slide at the ends. The slide may be removed when not required by slackening the screw, and withdrawing the pin and

\* All these applications are in the stage in which opposition to the grant of a Patent upon them can be made.

screw from their respective slots, a suitable opening in the frame being provided to allow for the insertion and withdrawal of the screw head. The slides are interchangeable and adjustable in two or more pairs of slots, and as the various tools are interchangeable and adjustable in the several tool-holders the plane can be adapted to a large variety of work, the required tool being fixed in the holder best suited to the purpose.

3,147 of 1902.—H. E. HUGHES: *Latches or Fastenings for Doors or other Purposes.*

This consists in the combination with a handle on one side of the door, of a lever so pivoted thereto that the handle and lever can be grasped at one and the same time, a lateral arm projecting from said lever, and passing through the door immediately under the latch and projecting a little to the other side, the lever and handle being both so arranged as to be capable of being grasped by one hand, whereby when the hand grasps the handle to open the door it at the same time opens the latch.

3,201 of 1902.—A. DOMAN: *Springs for Doors or Flaps.*

This consists in the combination with a coiled spring, of a rod or pivot having a collar or projection perforated or slotted to receive a pin locking the said rod to its support or carrier.

5,101 of 1902.—J. S. FLINT, H. C. KEY, and E. E. MASON: *School and Other Desks.*

This consists in the combination of a fixed desk or board, and of a movable hinged, jointed, or linked supplementary top or board, free to move on such hinges, joints, or links to render it adaptable for various purposes and positions.

10,496 of 1902.—E. PEARSON: *A Device for Fixing Knockers, Handles, and Other Door Furniture, so as to be easily and readily detached.*

A means for securing door knobs, knockers, and such-like articles, and consists of a recessed nut engaging on the screwed end of handle or other spindle or bolt, a pivot section engaging with recess in said nut, and carried by the usual rose or plate, and a spring holding said pivoted section or plate in position.

23,363 of 1902.—D. M. SUTHERLAND: *Millboard Panels.*

This relates to the manufacture and use as panels of millboards coated on the backs and edges with a thin metallic film, preferably laminated lead.

247 of 1902.—R. STANLEY: *Apparatus for Use in Connection with the Manufacture of Sanitary and other like Pipes.*

This consists in the combination with extrusion machines for the manufacture of sanitary and other like pipes of a revolvable ring surrounding the mouth thereof; a removable bracket adapted to said ring and adapted to be locked in operative position, and carrying a cap capable of being raised and lowered vertically, and capable also of axial movement and of being locked in position within the free end of said bracket, and a knife on said rod.

360 of 1902.—G. KIEFER: *Dust Collector.*

A dust collector having short or long passages for the current of dusty air, characterised by the arrangement, in the path of movement of the current of dusty air, of one or more inner chambers or hollow bodies of quadrangular, round, or elliptical shape, through the side walls of which chambers (said walls consisting of or including permeable material, filter stuff, smooth fine gauze, sifting cloth) the finer and finest dust is separated, whilst the velocity of the movement of the air current, passing the smooth side walls of said chamber or chambers, in approaching and entering the fine meshes of the gauze or filter stuff, is continually decreased, until the cleansed air escapes free from dust.

622 of 1902.—C. V. BOYS: *Moulds for Welding Rails and the like.*

Apparatus for welding by means of thermit, and consists in the use of a metallic casing in which the mould is formed, the casing being constructed in parts adapted to envelope the parts of the articles to be welded and to clamp them in position.

2,522 of 1902.—L. WHITTAKER: *Manufacture of Bricks or Artificial Stone Blocks or the like.*

This relates to appliances for mixing materials for the manufacture of bricks or the like, and consists in the combination of receptacles for the materials and water, of proper proportionate size, valves or other closing and delivering devices to the receptacles, and connexions for operating all the said valves or other closing and delivering devices simultaneously, either by hand or automatically.

3,108 of 1902.—J. E. BURKILL and W. SUNDERLAND: *Method of and Means Employed for Connecting Pipes.*

According to this invention the ends of the pipe or sockets are cast or formed with a half V-shape or inclined flange, and when the ends of two pipes or sockets are brought together they form a full V-shaped flange or ring around the pipes or socket. Round the V-shaped flange are now placed two semi-circular portions or segments of a clamp, which hollow or trough-shaped on cross-section. The two portions are placed over the joint the



fanlight or like opener, in which are combined a worm, worm-wheel, and rack, with a pivoted stop, with or without teeth.

Royal Victoria Hall, Waterloo-road, S.E.—Dr. Skeats  
on "The Geological History of a Coral Island." 8.30 p.m.

Hard Stocks ....	1 14 0	per 1,000 alongside, in river.
Rough Stocks and		
Grizzles.....	1 11 0	" " "
Facing Stocks....	2 12 0	" " "
Shippers .....	2 5 0	" " "

	s. d.		
Best plain red roofing tiles.....	42	0 per 1,000, at rly. depôt.	
Hip and valley tiles.....	3	7 per doz.	" "
Best Broseley tiles.....	50	0 per doz.	" "
Do. ornamental Do. ....	52	6 " per 1,000	" "
Hip and valley tiles.....	52	6 " per doz.	" "
Best Raubon Red, brown or brindled Do. (Edwards) 50		6 per 1,000	" "
Do. ornamental Do. ....	60	" "	" "
Hip tiles.....	4	0 per doz.	" "
Valley tiles.....	3	0 " "	" "

	£	s.	d.	
Hard Stocks ....	1	14	0	per 1,000 alongside, in river.
Rough Stocks and				
Grizzles.....	1	11	0	" " "
Facing Stocks....	2	12	0	" " "
Chippers.....	2	5	0	" " "



## COMPETITIONS, CONTRACTS AND PUBLIC APPOINTMENTS.

(For some Contracts, &amp;c., still open, but not included in this List, see previous issues.)

## COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
Town Hall	Sutton Colfield Corporation	50l., 20l., 20l.	Feb. 20
Town Hall	Chipping Wycombe Corporation	100l., 50l., 50l.	Mar. 1
Infectious Diseases Hospital	Chelmsford Joint Hospital Board	23l. and 10l.	Mar. 31
Proposed Technical School	Blackpool Corporation	50l., 25l. and 10l.	Apr. 14

## CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c., supplied by	Tenders to be delivered
Steel Girder Bridge, Baldon, N.B.	Leicester Corporation	Gordon & Co., Civil Engineers, Inverness	Jan. 26
Wood Paving, &c., Abbey Park-road	Newport (Mon.) School Board	G. G. Mawbey, Civil Engineer, Town Hall, Leicester	Jan. 27
Additions to Schools, Five-well	Tan ydd U.D.C.	R. H. Hop, Surveyor, Burntwood	do.
Road Works, Quarry-row, Tulse-hill	West Hartlepool Corporation	W. J. Brown, Borough Engineer, West Hartlepool	do.
Road Works, Throck road	Caerphilly U.D.C.	A. O. Harpur, Surveyor, Council Offices, Caerphilly	do.
Street Works, Cardiff-road and Others	West Hartlepool Corporation	J. W. Brown, Borough Engineer, Town Hall, West Hartlepool	do.
Par Avenue, 11, Station-road	Grimsby Corporation	H. G. Wignall, Civil Engineer, Town Hall, Grimsby	do.
Hospital Buildings	Haddington County Council	C. S. Carfrae, Civil Engineer, 1, Erskine-place, Edinburgh	do.
Storage Tank and Casing, Basing, Gillingham, N.B.	Blaingowrie Town Council	Barber, Hopkinson & Co., Architects, Keighley	do.
Additions to Holy Trinity Schools, Kingley	Sale (Cheshire) U.D.C.	R. H. Hop, Surveyor, Burntwood	Jan. 28
Sewers	Birkenhead Corporation	G. B. Mawbey, Civil Engineer, Town Hall, Birkenhead	do.
Surveyor's Materials	Nas (Ireland) Guardians	D. J. P. O'Connell, Workhouse, Nas, Ireland	do.
Street Works, Linn road	Mr. C. J. Fox	T. Johnson, Corporation, Town Hall, West Hartlepool	do.
House and Shop, Oxford-road, Workington	Holland (Lancs.) County Council	H. G. Wignall, Civil Engineer, Town Hall, Grimsby	do.
Broken Granite (2,500 tons), Slag (200 tons)	Aston Manor U.D.C.	G. H. Jack, Civil Engineer, Council House, Aston Manor	do.
Rebuilding Holborn Bridge	Audenshaw (Lancs.) U.D.C.	J. P. Wilkinson, Civil Engineer, 47, Arcade-chambers, Manchester	do.
Sewers, &c.	Swadlow U.D.C.	G. B. Mawbey, Civil Engineer, Gasworks, Swadlow	do.
Slating Works at Gt. Works	Gainsborough U.D.C.	C. Lunn, Architect, Minsbridge	do.
Three Houses, Sheel, &c., Wood Bottom	Sanwich Town Council	R. W. Fraser, Engineer, Council Offices, Gainsborough	do.
Portland Cement	Exington Corporation	W. J. Jennings, Architect, 4, St. Margaret's-street, Canterbury	do.
Works at the Buhl an	Ennis-cortly (Ireland) U.D.C.	J. P. Wilkinson, Civil Engineer, St. Mary's Gate, Manchester	do.
Wrought Iron Paving	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Sewers, &c., Station-road and Others	Warral R.D.C.	J. Berry, Architect, 3, Market-place, Huddersfield	do.
Sewerage Works, Dalton, Huddersfield	Warral R.D.C.	Beloe & Priest, Civil Engineers, 13, Harrington-street, Liverpool	Jan. 29
Roads, Hooton and N.W. Bessborough Estates, Hartow	Warral R.D.C.	A. H. Mountain, Civil Engineer, Town Hall, West Derby	do.
Sewers, &c.	Warral R.D.C.	The Surveyor, 134, High-street, Lymington	do.
Street Works, Whitby Range, Lanes	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Works at the Buhl an	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Water Supply Works	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Two Shops, Linn road, near Bellingham	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Sewers, Barningham, Station, &c., Chester	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Sewer	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Street Works, Rayleigh Grove	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Additions to Infirmary	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Making up Woodfield road	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
New Sorting Office, Liverpool	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Granite and Slab	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Ten Cottages	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
School, Rhyl, near Upper Cwmwrech	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Broken Granite (2,500 tons)	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Road Works, Pontardun, Ir. Wales	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Church, Gt. Kildun, Ir. Wales	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Yards and Chapel, R. M. station, Victoria, Wales	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Granite Road, M. station	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Council Chamber, &c.	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Broken Granite	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Road Works, Dugby road	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Restoration of Church, Wotton, Middlesex	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Most Room and Cart shed, Green Lane	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Bricks, Cement, &c.	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Workhouse and Offices	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Drainage Works, Ayr, N.B.	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Dull Hall, Ayr, N.B.	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
House, Ayr, N.B.	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Rebuilding the Cross, Ir. R. M. station, near Cardiff	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Street Works, Dugby road	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Restoration of St. John's Church, Workington	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Water Main (12 inches)	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Additions, &c., 2, South-road, Bishop Auckland	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Supply of Map Presses	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
School, &c., St. George's, Cornwall	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Road Works, &c., Gt. George's, Cornwall	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Public Offices, Wigan-road	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Two shops, High-street, Bromley	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Alterations to W. Works	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
From the &c., Gt. George's, Cornwall	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Making up Woodfield road	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Electric Plant	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
From the &c., Gt. George's, Cornwall	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Sewers, &c.	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
School, &c., St. George's, Cornwall	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Four-path Paving Works, Wigan-road	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Portland Cement, &c., Wigan-road	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Road Works, &c., Wigan-road	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Making up Woodfield road	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Sewers, Wigan-road	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Supply of Map Presses	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Direction of St. John's Church, Workington	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Works of Road Wigan-road	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Annual Accounts	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Light, Road Works	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
New Works	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Meat, Poultry, &c., &c.	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Road Materials, &c., &c.	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Thermometer, &c., &c.	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Supply of Materials for one year	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Generating Station, &c.	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
School for Girls and Infants	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Two-way House, Twizel, West Pelton	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Three Houses, Twizel, West Pelton	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Four Houses, Twizel, West Pelton	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Excavation Works, Twizel, West Pelton	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Waterway Church, Mapperley, Derby	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Sewerage and Drainage Works	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.
Farhouse, &c., Beamish, near Crpeth	Warral R.D.C.	J. W. Gardner, Civil Engineer, Dublin	do.

[See also next page.]



Application  
to be in

Those marked with an asterisk (\*) are advertised in this Number.      Competition, iv.      Contracts, iv, vi, viii, x, & xx,      Public Appointments, xviii.

## Per gallon.

	Per gallon	Per 100 sq ft
Eggshell Flatting Varnish .....	1 1/2	18 00
White Copal Enamel .....	1 1/4	16 00
Extra Pale Paper .....	1 1/2	18 00
Best Japan Gold Size .....	1 1/2	18 00
Best Black Japan .....	1 1/2	18 00
Oak and Mahogany Stain .....	9 00	10 00
Brunswick Black .....	8 00	10 00
Berlin Black .....	10 00	12 00
Knotting .....	10 00	12 00

-The responsibility of signed articles

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications.

which have been duplicated for other journals are NOT DESIRED.

and address of the sender, whether for publication or not. No notice can be taken of anonymous communications. We are compelled to decline pointing out books and

Any commission to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who reserves the right to reject it if unsatisfactory.

All communications regarding literary and artistic

All communications regarding editorial and business matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than 10 a.m. on Thursdays*. N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under seal, unless in some exceptional cases and for special

\* Denotes *accepted*. † Denotes *provisionally accepted*.

F. Minter	£3,590	0	0	H. Bullen	£3,147	0	0
D. Clouston	2,200	0	0	S. & F. Smith	2,066	0	0

R. Chapman..	3,418	0	0	S. & F. Smith	3,000	0	0
T. Blyth ....	3,350	0	0	H. W. Barnes	2,903	0	0
W. Porter ....	3,329	7	0	G. A. Lines ..	2,900	0	0
I. W. Neale ..	3,245	15	6	Girling & Smith,			

Youngs & Son	3,239	8	5	Cromer*....	2,835	0	0
G. Elsey ....	3,200	0	0				

DARTFORD.—For making up private streets, Thirza-road, &c., for the Urban District Council. Mr. W. Huxton, Surveyor, 8 Hythe-street, Dartford:—

J. Leaver ....	£1,649	9	0	Parsons & Par-
A. T. Catley ..	1,480	0	0	sons, Ilford* £1,313 11 0
Free & Sons..	1,433	8	3	

LONDON.—For the completion of new casual wards and other buildings at Gainsborough-road, Hackney.

and other buildings at Gainsborough-road, Hackney Wick, for the Guardians of the Hackney Union. Mr. W. A. Finch, architect, 76, Finsbury-pavement, E.C. Quantities by Mr. G. T. G. Wright, 3, Great Winchester-

Perry Bros, Bishop's-road, E.\* ..... £23,700

Fraser & Co., Commercial-road, E.\* .... £3,559

LONDON.—For the erection of dormitories, lavatories, wards, &c., at the Waterloo-road Workhouse, Cambridge Heath, N.E., for the Guardians of St. Matthew, Bethnal Green, Mr. W. A. Finch, architect, 7, Finsbury-pave-

ment, E.C. Quantities by Mr. C. H. Goode, 27, Buckingham-street, Adelphi, W.C. :—  
Patman & Fother- | Lawrence & Sons .. £11,984

ingham .....	£13,423	Foster bros. ....	11,972
Lamplough .....	13,179	Appleby & Son ..	11,627
W. Shurmur .....	12,699	Smith & Son .....	11,289

Dearing & Sons ..	12,599	Wall & Co.....	11,275
Lawrance & Sons..	12,350	A. E. Symes .....	11,175
Sheilbourne & Co...	12,300	J. O. Richardson..	10,900

Barrett & Power ..	12,750	Watts, Johnson, &	
Perry Bros. ....	12,037	Co., Limehouse†	10,297
Hayden & Sons ...	11,985		

King & Son, informal tender.

LONDON.—For extension of boiler-house and pro-

vision of two new boilers at the Hackney Union, Homerton, N.E., for the Guardians. Mr. W. A. Finch, architect, 76, Finsbury-pavement, E.C. :—

Watts, Johnson, &	Fraser & Co. ....	£2,420
Co. ....	W. Shurmtur. ....	2,394
W. J. Clark ....	Fraser & Fraser ....	2,237
£2,697	J. Richmond .....	2,200
2,595		

[See also next page.]

\_\_\_\_\_

[See also next page.



LONDON.—For first portion of scheme (viz., nave, tower, vestries, &c.) of London Baptist Association Church, Mitcham-lane, Streatham, S.W. Messrs. George Baines and R. Palmer Baines, architects, 5, Clement's Inn, Strand, W.C. :-

	Est. A.	Est. B.	Est. C.	Est. D.	Total.
J. Carmichael .....	£	£ 5.	£ 5.	£ 5.	£ 8.
Mattock Bros. ....	4,710	20 0	45 0	81 0	4,856 0
Johnson & Co. ....	4,687	25 0	41 0	80 0	4,833 0
Holloway Bros. ....	4,614	19 0	45 0	77 0	4,755 0
Jenkin & Co. ....	3,847	17 0	44 0	77 0	3,985 0
Holliday & Greenwood. ....	3,655	24 0	43 0	75 0	3,797 0
T. J. Scott .....	3,597	17 10	44 0	77 10	3,736 0
Gough & Co. ....	3,552	19 0	44 0	77 0	3,692 0
Garrett & Son .....	3,534	23 0	49 0	73 10	3,696 10
Goddard & Sons .....	3,516	18 10	44 0	77 0	3,656 10
Lorden & Son .....	3,444	13 0	43 0	75 0	3,575 0
Battley, Sons, & Holess .....	3,387	17 0	44 0	75 0	3,593 0

LONDON.—For the reconstruction for electrical traction of the New Cross and Greenwich, &c., section, and small sections in the Borough, of the London County Council Tramways—supply of rails, &c. :-

Eckelow, Vaughan, & Co., Ltd. ....	£43,568 0 0
Walter Scott, Ltd. ....	41,483 10 0
Steel, Peck, & Tozer, Ltd. ....	37,431 19 0
Austin & Co. ....	36,546 0 0
Witting Brothers, Ltd. ....	35,512 18 0
P. and W. Maclellan, Ltd., Glasgow* .....	33,876 10 8
Penney & Co. ....	33,303 11 0
Edward Lomer .....	31,079 15 0
Le Bas & Co. ....	30,060 5 0

LONDON.—For the supply and erection of a 50-ton electric overhead travelling crane at the generating station to be established at Greenwich, in connexion with the electrical working of the London County Council's tramways :-

Rushworth Bros. ....	£4,757 5 0
Carrick & Ritchie .....	4,634 5 0
Jessop & Appleby Bros. ....	4,090 5 0
Russell & Co., Ltd. ....	3,999 5 0
Adamson & Co. ....	3,590 14 6
Chaplin & Co. ....	3,439 15 0
Booth & Bros., Ltd. ....	3,412 0 0
Larnuth & Co. ....	3,313 15 0
Spencer & Co. ....	2,940 5 0
Brounlt & Sons, Ltd. ....	2,895 5 0
Marshall, Fleming, & Jack .....	2,880 5 0
Ransomes & Rapier, Ltd. ....	2,841 15 0
Higginbottom & Mannock, Ltd. ....	2,670 5 0
Hitchin & Son .....	2,474 15 0
C. & A. Musker, Ltd., Liverpool ..	2,104 0 0
The United Augsburg and Nürnberg Machine Works .....	1,994 8 0

[Messrs. Musker will sublet the following portions of the work, namely, (a) to Messrs. R. S. Newall & Co., Ltd., the manufacture and supply of the steel ropes for the crane; (b) to Messrs. Kynoch, Ltd., Birmingham, or to the Hadfield Steel Foundry Co., Sheffield, the manufacture of the cast-steel; (c) to either Messrs. Needham & Sons, Manchester, or to Messrs. Heap & Co., Liverpool, the manufacture of the crane girders; and (d) to the British Westinghouse Electric and Manufacturing Co., the manufacture of the motors, controllers, resistances, &c.]

LONDON.—Work at Kentish Town fire-station, to remedy defects in connexion with the heating apparatus and the drying-closet, for the London County Council :-  
Werner, Pfeleiderer, & Perkins, Ltd. .... £185 15 0  
Marchant & Hunt .....

Stevens Bros. .... 146 0 0  
G. & E. Bradley\* .... 140 9 10  
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Wenham & Waters, Ltd.\* ..... £343 15

SEVENOAKS.—For the erection of a residence in Hitchin Hatch-lane, for Mr. G. S. Finch. Mr. W. A. Finch, architect, 76, Finsbury-pavement, E.C. :-  
Patman & Fothering- ..... £3,875  
ham ..... £4,800  
T. L. Pearson (with-  
drawn) ..... 3,438

CORRECTION.—In the list of tenders published last week (page 78) for the erection of a receiving home for children at the Tooting Bec Asylum, the first name should have been "Foster Bros.," not "Foster & Sons." We printed the list as we received it.

#### TERMS OF SUBSCRIPTION.

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# The Builder.

VOL. LXXXIV.—No 3730.

JANUARY 31, 1903.

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### Knossos at Burlington House.

HERE is surely no attribute of time or of art more remarkable than the relation of art to time. And surely there is no aspect of the history of mankind more full of ironical vicissitude than the record of man's progression in the power of making beautiful things. The periods of development and decline, the states of climax and collapse, of imitation (conscious or unconscious), of transference, of creation, or of oblivion are so strange, so unaccountable, and so baffling to the inquirer that it would seem at times almost impossible to bring that aspect of anthropology which deals with the creative power of human brains up to scientific or even philosophic rank. We can but collect facts and stand aghast at their disorder, knowing that at any moment the spade of the excavator and the wit of the explorer may bring to light fresh facts to make chaos more chaotic. That our own age, in spite of human development, lies behind the Middle Ages and the Renaissance in point of art we accept with cheerful resignation as a preposterous necessity; but history bears greater marvels of inverted progress than this. We have been wont to receive from Ruskin and from others assurances of the excellence of the early Florentines, but even as children, though we took these assurances on trust, and readily believed that art was an essence that lay outside such considerations as mere similitude, we marvelled in our silent way that the Italian painters of the fourteenth century were so much less capable in the matter of delineating form than the Greek sculptors of eighteen centuries before. If folk could compass the representation of human shape four or five hundred years before Christ, why, we asked, were excuses to be offered for the incomplete achievements of an age that had enjoyed so much more than a millennium of increased experience? Then, when we were acclimatised to our

astonishment at the abilities of long-ago Greece, we became aware of an apparently limitless stretch of Egyptian skill lying behind historic Europe in ages so remote that the occasional addition of centuries to the tale of wonder could hardly increase the amazement. Of Egypt we feel we can believe anything, and so we can of China and the East. We are like the audience of a conjurer—having once witnessed the possibility of the impossible, we are ready to go all lengths in credence of the incredible. Thus Knossos, the last turn of the magician's spade, finds us, indeed, not new to the miracles of time, but so far from jaded that we are veritably stirred by the accumulated stress of past wonders to an increased appetite for like marvels.

Time was when the age of myth lay in ordered precedence behind the dawn of legitimate history, when we looked back on a nebulous epoch in which the existence of the gods of Greece and Rome was as difficult of disproof as of proof; but of recent years that exploring power which has dug about the roots of Biblical history and has left that history marvellously undisturbed—indeed, confirmed and established, has plunged into the centuries of classic myth, and is daily busy making facts out of things distant and strange which we had thought to be the visions of poets, the imaginings of historians, or the accretions of too expansive tradition.

Tyrras and Mycenæ have had their exposure. To-day it is the turn of Crete, the land of Minos and Minotaur, of Dædalus, and of the love of Ariadne for Theseus.

The collection of drawings, casts, and photographs now on view in a gallery at Burlington House are the visible results of that diligent exploration of the soil of Crete which has been conducted since 1899, the year in which the island was emancipated from Turkish rule. Mr. Arthur Evans has been the controller and director of the work, backed by a committee of which Prince George of Greece is the patron, and assisted by Dr. Ducau Mackenzie and Mr. Theodore Fyfe—the latter in an architectural capacity. Mr. Cor Bosanquet, Director of the British School at Athens, has also been actively, as

well as officially, associated with the Cretan discoveries, and his predecessor, Mr. Hogarth, is personally responsible for most of the art treasures which were found in spots other than Knossos, notably at the seaport Zakro and in the Dictæan cave.

Those who were present on December 15, 1902, when Mr. Evans delivered a paper on the Knossian Excavations before the Royal Institute of British Architects will have heard the description of most of the subjects now exhibited, and the Journal of the Institute (Vol. x., No. 4) will be found to contain a plan and other illustrations which are helpful to the right enjoyment of this very remarkable exposition of prehistoric art.

The Cretans, perhaps, were always liars, but they were not always the enemies of truth. There came a time when they made a stand against the telling, by other people, of the unholy story of the Minotaur,\* and insisted on the reconstruction of this myth in terms of historical probability. Reason could be easily assigned for so proper an expurgation of national history, but it was not so easy to understand why, with the unclean monster, the Cretans swept away his labyrinth,† stating that the so-called labyrinth was no maze, but merely an ordinary castle dungeon.‡ To-day there seems to be at hand an explanation not merely of the legend of the labyrinth, but of its refutation. The plan which the excavations of Mr. Evans have made it possible to prepare exhibits a building which, though not professedly a maze, presents in the intricacy of its corridors and chambers so complicated a series of passable and impassable compartments that a stranger wandering in its recesses might well need the help of some Ariadne's clue.

This plan, which hangs on the left of the door in the room set apart for the Knossian collection, should claim first attention. For all its seeming intricacy, it is in reality a

\* Yet the impressions from seals in this collection are evidence that monstrous and hybrid beings were dear to the Cretan imagination.

† The word labyrinth is connected by modern etymologists with the Labrys, or sacred two-headed axe, which recurs so frequently among these remains.

‡ Plutarch. Life of Theseus.



marvel of straightforward and almost modern directness, and reveals in a marked degree the evidences of deliberate design. The key to the understanding of it lies in the fact—of itself a very remarkable fact—that the buildings set forth upon it are, to a great extent, basement apartments; that, with certain significant exceptions, the main rooms of the palace were on an upper floor.

The features immediately intelligible are two great courts, wholly or partly surrounded by buildings. The central court, measuring some 200 ft. by 90, appears to have its principal approach from the north, on which side are traces of the convergence of two ancient roads, one coming from the prehistoric city, the other from the sea. The western court is entered through a portico, connected on the south with a corridor known to the explorers as the "corridor of the procession," by reason of a remarkable series of processional frescoes found therein. The existence of a vast propylæum, apparently leading only to the comparatively small "court of the altar," is accounted for by the reasonable supposition that at this point there was a magnificent approach, either by steps or slope, to a huge upper megaron or hall, covering all or part of the confused mass of chambers which lie between the western and central courts. That a similar hall lay on the east side of the central court is also considered by Mr. Evans to be probable,\* and, indeed, we find on that side the well-preserved remains of a staircase, so entirely modern in its arrangement of flight over flight, that we wonder increasingly at the apparent neglect by succeeding ages of a device at once so effectual and so architectural. No discoveries in Greece, Rome, or Pompeii exhibit anything of the kind.

But the basement buildings are not to be overlooked on account of the supposed glories of the upper halls. The very store-rooms have their tribute of beauty; the large hoard of jars and amphoræ, many of which are well illustrated in this collection, are in themselves attractive in both form and ornamentation. The South Propylæum, apart from its intrinsic interest, was the scene of the discovery of the very fine coloured fresco of a cupbearer which Mr. Evans describes as "the finest example of figure painting that has survived from prehistoric Greece." The olive press, another point of interest, was found wonderfully complete, with its adjacent magazines and well-arranged conduits; and the workshop of the palace sculptor offered traces of that sculptor's art; but perhaps the centre of architectural interest among the chambers of this lower stage is to be found in the elegant little throne-room situate on the west side of the central court, from which it was separated by a vestibule or anteroom. The throne-room itself is divided† into two portions, one of which is at a lower level, and is lighted from above by a sort of unglazed skylight, or compluvium. A man standing in this lower part would be separated from the personages on the upper floor by a kind of

barrier, but there was access at the side by means of a short flight of steps. Two architectural features in this room are of special interest—the throne itself and the columns which support the roof. The throne, a cast of which stands facing the door, is like nothing else in known art save that the panelling below the seat bears a faint resemblance to a cusped Gothic arch. It is scarcely beautiful, and suggests in the naïveté of its archaism the possibility of its being even earlier than its ancient surroundings. As to the columns, it should be observed that the originals have perished, but from the shape of the sockets (in the stone bench) from which they spring, and from the evidences of a little architectural wall-painting discovered in this very palace, Mr. Evans felt justified in directing Mr. Fyfe to effect a restoration in the manner which has become known as the Mycenaean order. Mr. Fyfe has exercised a pardonable liberty with the capitals, which he has made to approximate in general effect to those of the Greek Doric, a welcome improvement on the Mycenaean detail, which, truth to tell, is frankly ugly. He has retained the inverted tapering of the shaft, which expands upwards instead of downwards; and this in itself is a sufficient deformity. The new columns of the restoration are apparently of wood, as were the remains of the old ones. Around the upper throne-dais were ranged gypsum benches, and when the explorers first opened the ground the walls were bright with the colours of a weird griffin fresco.

The throne-room is well illustrated in the photographs and drawings of this collection, so is the really marvellous "quadruple" staircase; indeed, the greatest care has been taken to set before us, by the use of general views as well as orthographic drawings, the actual state of the present stage of excavation. One small regret may perhaps be expressed—the regret that in the admirable photographs scarcely any human figures are introduced to give an indication of scale. A man on the staircase, for example, would have enabled us to see at a glance whether the very unusual proportion of rise to tread in the steps is due to the tread being much broader than the normal size or the riser much shallower, or both. How general must have been the use of steps in those far-off days is shown by the strange little porcelain mosaics which represent the façades of houses; these diminutive elevations are, no doubt, somewhat conventionalised (as we conventionalise the front of a doll's house), but they have some attempt at verisimilitude, and all represent houses of more than one story.

But the modernisms of Knossos are not exhausted by the mention of nineteenth-century staircases and thirteenth-century Gothic thrones, nor even by an allusion to the very elaborate and scientific system of drainage and sanitation.

We sometimes reproach our womankind by appealing to the broad-waisted beauty of the Venus of Milo, and suggest that the progress of body-culture has been a continuous deterioration since Eve, but Knossos comes to the rescue of modern woman and her argument. It is true that the female toreadors represented in the great bull-fight fresco may not be typical of good Cretan society, but their tight waists are certainly shared by all the other women depicted in this collection, whose costume seems generally to include a skirt of very modern

cut and a waist-belt of minute circumference.

It is no doubt difficult even for those who are most expert in such matters to be certain of the dates of all the specimens of ornament and decoration which these excavations have brought to light, and it would obviously be wrong to assume that all the examples of fresco, gesso, mosaic, and pottery-painting here exhibited belong even approximately to the same date; but with every allowance for the probability that time, rather than other causes, is responsible for those differences of style which divide the specimens from one another, it is impossible not to realise that we are face to face in these very variations with yet another evidence of the modern spirit of these ancients. We were wont, in comparing the present with past ages, to observe that former epochs were consistent in their methods, true each to his own school of creation, hedged in if not by a firm barrier of time at least by a law of slow progress which was strong enough to prevent arbitrary divagations or an abrupt advance or relapse; and then we were bidden to note in despair how that our age alone, overfed with knowledge of the past, unstable and eclectic, is unwilling or unable to be persistent and uniform, to be at once simple, sincere, and true to a type. We thought that our modern age alone wavered uncertain between the natural and the conventional, that we alone could tolerate the juxtaposition of archaism, realism, and revival. But no; Knossos at least was our equal in versatility, and for all our trains and telegraphs Crete would appear to have rivalled modern England in knowledge of the doings of her neighbours and her predecessors. There was truth in the cry of Dædalus,\* when he took to the making of wings, that Minos ruled both land and sea, so that the air was the only free way out of his kingdom. Minos must have commanded not only the maritime world, but with it the most powerful vehicles of commercial and artistic intercourse. Crete, in fact, must have been a Britain, a little island of large intercourse, a little heart of a great world. Glance at the bull fight fresco, at the torso in coloured relief, at the lion-head goblet, at the lily and myrtle fresco, at the frame of painted vases, and the truth of this, the significance of it will appear. Consider what we know of other ancient periods of artistic activity, and undoubtedly the contrast is marvellous. Look at Nineveh with its uniformity of style in grandeur, look at the academic integrity, the sameness of Greek variety, look at the marked and steadily maintained mannerisms of Egypt, and then let us turn to Knossos, ancient Knossos, which lies almost as far before the first century as we lie after it, and what do we find? A versatility, an exhibition of plurality in method which must surely be the attribute of an artistic race already old enough and learned enough to be consciously uncertain. How can we account for the existence side by side of the archaic simplicity of the bull-fight fresco and the finished restraint of the cupbearer? Or take another example, in the two representations of the lily exhibited on the same wall. The lily is of all flowers the one of which the conventional treatment lies nearest to the realistic, yet here we see the flower depicted at the hands of these ancient

\* "But it should be observed that the upper hall on the east side would be on the same level as the court (owing to the fall of the ground), and consequently a story below the western upper hall.

† The lower portion of the room is described by the discoverers as a tank, or bath, but the reason for the existence of a bath in what appears to be an audience-chamber is not clear. Could it have been a kind of dock in which a prisoner would face a judge?

\* Ovid, "Metam." VIII., 187.



artists in two degrees of modified imitation, so far removed one from the other that there lies between them at least a fair swing of that artistic indecision which implies, as a rule, not the fumbblings of a groping in darkness, but the revels of a giant in the blaze of day. In a word, it is the embarrassment of riches. Time (that is, difference of epoch) may, we admit, be accountable for some of these differences of execution; but, even so, would seem that there were men of ancient Crete who could appreciate the existence side by side of things so various, whether contemporary or not.

And there is no lack of style in these works. Style, indeed, is wanting, in the sense of uniformity; but of style, as implying distinction, refinement, and the studious avoidance of the commonplace, there is universal evidence. A bit of drawing here and there may be childish, but even the rudest of the human figures here displayed as part of a decorative whole which one cannot despise. We have already mentioned the beauty of the cup-bearer subject beside it, for mastery of form, must be placed the truly amazing torso in colouredesso, the bull's head, which, like the torso, is an example of tinted sculpture, and some marvellous leaping figures in carved ivory, so perfect in the refinement of anatomy as to form a complete contrast in sculpture with the equally perfect but rigidly conventional head drinking-cup. These things alone, and no others come to light, would have been enough to prove to the modern world the ancient ability of Crete.

In a sea-girt land mistress of a naval supremacy one would perhaps expect to find an art tinged with marine suggestions and marine motive. Nor is this absent, several varieties of fish-scale ornament, and a vigorous set of dolphins (which seem prototypes of the Aldine colophon), are evidence that subjects were sought from the sea as well as from the land; but perhaps a deeper and more significant sign of sea-influence is to be sought in that constant use of wave forms and of shell-derived spirals which is, as we now, a characteristic of all Mycenaean art. Indeed, the fragments and restorations of spiral designs richly coloured and intended to doubt as ceiling decoration are among the more conspicuous, though not altogether the most beautiful things in this collection.

Who shall say that the explorer in laying out the home of Minos, or in digging out the very birthplace of Zeus, is destroying the romance of mythology? He has shown that the beauty of life in those days, its power, its refinement, were greater than we had ever dreamt; that the age of Theseus and Ariadne was an age very like our own; that Minos was a greater man than we knew—perhaps more rather than less likely to be the son of Zeus! And as for Dædalus, may it not be that he has achieved increase of fame, being found to be not only sculptor and inventor, but (greatest of all) architect?

**CHURCH RESTORATION, IPSWICH.**—The Church of St. Lawrence, Ipswich, has just been reopened after restoration. The architect was Mr. Frank Owen, and the builder Mr. Charles Borrett.

The explorers appear to apply the term *Minoan* to the best buildings on the site (c. 1800 B.C.), thereby implying that the earlier remains of which there are traces (not conjecturally at 2800 B.C.) precede the existence of the age who was son of Zeus and brother of Radamanthus, who brings the father of the Gods into strangely close touch with known humanity.

## THE ARTS AND CRAFTS EXHIBITION.—II.

**I**N our first notice of the Arts and Crafts Exhibition we confined ourselves mainly to the class of exhibits there which have the closest relation with architecture, in regard to principles of design and structure, viz., those which came under the general appellation of "furniture." For in fact furniture may be almost said to be architecture in a movable or portable form. Like architecture, its design has to express construction; in most examples it has its base and its crowning finish, treated on much the same principles as the basement and the cornice or other termination in architecture; it must stand firm on its base; it must be suitable to its practical purpose; and even many of the characteristic forms of ornament in architecture are applicable, and are applied, to furniture. As J. D. Sedding said in a paper read at a former Arts and Crafts exhibition, architects feel very much at home there.

We have now to look at some of the exhibits which are less directly architectural, touching occasionally on two or three exhibits of the furniture class which were passed over before owing to their not being grouped with most of the others.

All these objects exhibited at the New Gallery are supposed to be in a rather special sense artistic work; they are to illustrate the artistic spirit as applied to articles for the most part of practical use; or at all events to manufactured articles which can be made from designs furnished, as distinct from such art work as painting and sculpture, which is the personal work of the artist and which is not for practical uses. The line is in some cases difficult to draw; there are in fact things in the New Gallery which might as well be in an art exhibition; pure and simple; such as Miss Rope's two charming sculpture panels and Mr. Gillick's frieze, in the West Gallery. But in regard to those which really represent crafts—what is it which really gives these articles a claim to artistic quality? In regard to not a few objects in the exhibition it would appear that artistic quality is supposed to reside in designing a thing in a different way from what is usual; in making it in an unexpected form or using an unexpected material—especially if it is a rougher and coarser material than is generally employed. This kind of unexpectedness does not in itself constitute artistic character, which is shown in the combined qualities of beauty and fitness, not in eccentricity; and as we have already implied (and we see the same criticism elsewhere) the eccentric element is far too prevalent in the exhibition. It must in fairness be remembered, however, that as long as the result is not either ugly or unfitting, there is something in novelty of treatment; an object put together and treated on lines different from what we are generally accustomed to in that class of object represents an endeavour on the part of the maker to think for himself, and not to copy accepted forms, and is so far interesting; and the introduction of an unusual and even coarse material may be justified as an experiment: "This stuff is generally considered too common for such and such a purpose; but let us see whether something cannot be made of it." That is a legitimate

endeavour, and one for which the Arts and Crafts exhibition affords a natural opportunity, seeing that the so-called "Academy of Arts" turns its back on such matters.

In the class of textiles the four panels exhibited by Mrs. Traquair in the West Gallery, illustrating the story of Orpheus and his search after Eurydice (at least that is what we take it to be, but the treatment in the fourth panel especially is somewhat obscure), are quite the most remarkable examples. These are in fact decorative pictures in tapestry, and might have been executed as paintings, but they were worth doing in tapestry, to show the special texture and quality of the material. As colour they are very fine, and show a keen sense of the effect of tapestry colour when viewed from a certain distance; the colour adopted for the nude portions of the figures, for instance, is, at a distance and when the work is viewed as a whole, quite sufficiently near flesh-tint for a decorative picture, though on a close inspection it has no such appearance. The third of the series is the best as design; in the second the figure is too much like an adaptation from Botticelli, and in the fourth the composition is confused and does not explain itself. But these panels are perhaps, on the whole, the most remarkable works in the exhibition. They are certainly a long way superior to Mr. Walter Crane's "Heraldic Portière," executed by the lady who is called in the catalogue "Mistress Walter Crane" (a foolish piece of affectation only too characteristic), which is weak both in colour and design. Among merely decorative textiles there is some good work, and some that is showy rather than good. In textiles that are to be hung or used folded, not spread out straight, it is important to remember that there is a freedom allowable, and even desirable, which is not allowable in surfaces which are always to be displayed flat. Miss (or Mrs.) Hussey's "Appliqué Linen Quilt," for instance, No. 153 in the West Gallery, is an admirable specimen of design for that kind of object, where the pattern may be as unsymmetrical as you like, because it can never be seen as a symmetrical design; all that is required is that each part as seen should present play of line and colour. The kind of irregular design shown in this would be bad in a wall-paper; it is very good in a quilt—just what is wanted; and while it is described in the catalogue as "unfinished," it may be doubted whether any further finish would improve it. The embroidered coverlet, No. 369 in the North Gallery, is an example of the opposite kind; good work in detail, but far too square and symmetrical for an article in which the design can never be seen as a whole. The nature of the stuff, again, should to some extent rule the character of the design. Thus the printed linens exhibited by Messrs. Baker & Co. in the West Gallery, and designed by Mr. A. F. Vigers, are quite right in their free and rather playful use of floral forms; while the vertical and severe design, with subdued colours, in Mr. E. Hunter's "Portière" (132), is suitable to that more weighty material and would be unsuitable to the lighter printed silk. Some of the textile exhibits in the West Gallery are rather commonplace; but two or three by Miss Una Taylor are fine in design and execution, and her "Study in White Silk Embroidery" (77) is both novel and effective.



Among other things in the West Gallery, before we quit it, we may mention two or three specimens of folding screens, of which that "by Annie Garnett and Assistants," mounted in ebony, is a very pleasing piece of work, with conventional flowers worked in silk on a warm orange-tinted ground. Colour is valuable in a screen, as we see in comparing this simple design with the screen (1154) painted in monochrome by Mr. Meteyan with the story of Orpheus and Eurydice; a much higher class of artistic work in one sense, but depressing, as a screen, from the heavy and unbroken brown colour of the paintings. Another screen (846), designed by Mr. R. W. Gibbon, illustrates what we remarked before as to experimenting in coarse materials; this is covered with a rough greenish material, certainly not attractive; but it is relieved by a leaded glass panel in each leaf, and with this addition does well enough as a screen, say, for a study or office; it would be quite out of place in a sitting-room.

The necessary distinction between floral design for textiles and for wall-papers is hardly well illustrated in the exhibition. Wall-papers, from their always flat position and the nature of the material in which they are executed, demand a much more severe conventionalism than textiles; but the set of wall-papers by Messrs. Jeffrey, in the North Gallery, which forms the most important exhibit of this class, does not afford at all a good example of what wall-paper design should be, in spite of the superior names appended to the various designs. Apparently there is a kind of reaction against conventionalism in wall-papers, and all these are too naturalistic and too ragged in line; the "Orange Tree" (396d), by Mr. Walter Crane, is the best, and indeed the only one which can be called good as a wall-paper; and even that is not stiff enough in the lines of the foliage. We want another re-action in wall-paper.

The South Gallery contains some of the best of the designs for stained glass. Mr. Anning Bell's two cartoons for a stained-glass window, "The Adoration of the Shepherds" show much better figures than are usual in stained-glass design, and may be instructively compared with the melancholy and stiff figure of Christ exhibited in the West Gallery (17), by Mr. Selwyn Image, which represents the extreme of mechanical conventionalism of the figure. Various water-colour sketches for stained glass by Mr. Louis Davis, in the South Gallery, are worth notice for the excellent decorative effect obtained by the contrast of figure panels with a general surface of plain square quarries. A design for a window by Mr. W. Aikman (231) is also very successful in a decorative sense. Allied to stained-glass design are Mr. Louis Davis's studies for painted shutters in the West Gallery, especially that for the altarpiece in the chapel of the Universities Mission, Westminster (121), which in fact is almost like stained-glass design except for the treatment of the bars dividing the panels.

The South Gallery forms a curious collection of bad and good. The pair of brass candlesticks (191a) triangular in plan, are an example of structural unsuitability—awkward to handle and the wrong shape for what they have to carry. Two large altar candlesticks by the Birmingham Guild of Handicrafts (212) are good in style and

highly creditable. An alabaster chimney-piece by Mr. Lethaby (which we think we have seen before) is admirable in style as a treatment of a special material; and near it is a small landscape in silk embroidery (269) which represents what should never be done in such a material. The "Painted Oak Reredos for St. Giles, Sidbury" (298) is a commonplace piece of gimcrack which should not have found place here, while on either side of it are two fine specimens of carpets, of which the right hand one (which we cannot identify in the catalogue) is the best; this has a design which makes squares of conventional floral design alternating with equal squares of plain ground, of a prevailing low purple tone, with very good effect. A painted dresser (304) designed by Mr. C. Spooner, and exhibited by the Wood Handicraft Society, is so pleasing in effect, with its black sprigs of leaves and dotted yellow buds, that one wishes it were inlay instead of painting. A store cupboard (191), by Mr. Barnsley and Mr. Gimson, is rather heavy and clumsy in its base; the upper portion, with the gilt panel ornament, looks well, but the best point in it is the manner in which the edges of the thin shelves and partitions inside are cut into a wavy line instead of being left with straight edges—a most refined little bit of detail. In this room also, among various examples of illumination, are some perfectly charming little illuminated pages, by B. A. Traquair, of various sonnets from Rossetti's series called "The House of Life," the sonnets written out in black letter and decorated in the margin with small coloured pictures of symbolical figures. These are things quite beyond the ordinary run of illuminated decorations.

In the balcony are collected most of the designs which are more specially architectural. Among these are a set of photographs of works of architects who "were largely influential, by their teaching and practice, in bringing about and enforcing that view of the arts and crafts upon which the Exhibition Society has based itself"; architects who have mostly thought of detail more than of plan and construction; as others, making the opposite mistake, have thought more of plan and construction than of detail. That the former set have done most to promote art in the crafts is, however, undeniable; only we do not think they have grasped architecture as a whole. The "Designs for Plain Glazing" exhibited by Messrs. Lowndes & Drury show a good many examples of what can be done with this simple and inexpensive means of decorative effect. The series of illustrations of windows for Gloucester cathedral form an important exhibit, as they show how, when the general design has been made by the leading artist (in this case Mr. C. W. Whall), competent executants may be left to fill in decorative details according to their individual perception, so as to avoid reducing any part of the work to mere division of labour. A frame of copperplate illustrations to a book by Mr. Reginald Hallward (532) shows a charming set of decorative pages of combined writing and illustration. On the end wall, among other things, are some studies for portions of a plaster frieze by Mr. Bankart, who lately read a paper on the subject before the Discussion Section of the Architectural Association, and advocated the kind of rough and rounded treatment of plaster modelling which we presume is illustrated here, and

which we confess has to us very much the appearance of unfinished work. The vista of the end balcony is closed by Mr. Statham's model for Vauxhall Bridge, which is illustrated in the present issue.

We shall speak separately of the designs which come under the class of jewellery and plate.

#### NOTES.

##### Municipal Trading.

WE are pleased to see the steady increase of interest which the public is taking in the subject of municipal trading. Since our first "Note" on this subject in July last the *Times* has opened its columns to a discussion of this question, and hardly a week passes without its forming the subject of debate at some public meeting. Lord Claud Hamilton, at the recent debate at the Junior Constitutional Club, made two very good points. In the first place he pointed out, as Municipal Authorities were now competing with private enterprise, it was becoming more difficult for the best men of business to serve on the municipalities, as their position was rendered anomalous. To those who have watched the tendency increasingly apparent at each Municipal election of leading men to avoid the onerous duties involved in serving on Municipal Councils, and, in consequence, the result of municipal affairs being left in hands less competent to deal with undertakings of such importance to the community, the above is a powerful argument against an unlimited extension of the sphere of municipal undertakings, and Lord Claud's second point, that as the number of municipal employees is increased the independence of their employers who are dependent on their suffrage will tend to be lost, is worthy of equal attention. Lord Claud stated that in Birmingham at present 7,000 workmen were in municipal employ, and that another 1,500 would be added were the tramways taken over, and from the above figures it is clear that a considerable influence can be brought to bear on their employers at the polls, and that the same independence in municipal enterprise that has existed in private commercial undertakings cannot be looked for.

##### Competition Reform Society.

WE have received the first Annual Report of the Competition Reform Society, which seems to have become practically a branch of the Institute, as it has been arranged that all communications to the promoters of competitions should be made through the Secretary of the Institute. We do not quite see, therefore, what the Society is doing which could not and should not be done by the Institute Competitions Committee. That Committee may have been wanting in vigour in prosecuting the subject; we do not say that it has been; but that we presume is the excuse for the formation of this Society. In view of the existence of the Competitions Committee of the Institute, however, the existence of another Committee, more or less in connexion with the Institute, dealing with the same subject, seems hardly logical. The Society publish a list of eighteen cases in which they have intervened to obtain better conditions for competitors. Out of these, two appear to have elicited no answer; two elicited rather vague promises of attention; eight produced no satisfactory result; one, we gather, is



still *sub judice*; and in five satisfactory improvements were brought about, three of these being cases in which an assessor was appointed when such an appointment had not been at first contemplated. Considering what average Competition Committees are made of, this is not a bad record. Still, we do not see why the regular Competitions Committee of the Institute could not have done all this just as well; and as we imagine that the success of the "Reform Society" is really due to the fact of their letters having been sent out through the Institute, the whole position seems exceedingly odd.

**The Colney Hatch Disaster.**  
The terrible fire at Colney Hatch calls for no elaborate or drawn-out comment from us.

Its lesson is only too plain, viz: that if authorities will sanction the erection of easily inflammable buildings for the housing of a large number of persons, the conditions for such a catastrophe are officially provided, and it is little more than a question of time and adverse circumstances for it to be brought about. The adverse circumstances were in this case furnished by the wind, but for which the fire might probably have been got under with at all events much less loss of life. It seems astonishing to read that temporary buildings constructed as these were should have received the sanction of the Secretary of State; but so it is, and now that a most melancholy calamity has occurred as the result of this sanction we shall no doubt see a revision of the official decision in regard to such erections; but it is sad to think that it requires such a fatal disaster to bring home to the authorities the danger of such erections. We cannot but comment, moreover, on the extraordinary want of uniformity prevailing in the control exercised by the public authorities over the construction of buildings. At Eynsford, in Kent, we find the authorities refusing to sanction the erection of a little five-roomed cottage standing in its own garden and entirely isolated from other buildings, on the ground of danger from fire, while at Colney Hatch we find a wooden building accommodating 300 insane persons and attached to an asylum containing some 2,800 persons (including the staff), erected by and maintained by the controlling authority itself.

**Picketing.** THE proposition of the Parliamentary Committee of the English Trade Unions to

introduce a Bill to enlarge facilities for picketing, is scarcely likely to be received with enthusiasm in the House of Commons. It is still lawful for workmen to assemble round the entrance to a factory in any numbers merely to persuade other workmen by argument that they should go on strike. As a matter of fact, however, the assembling of men on strike in crowds round works, on the fiction of attending to argue a point, is a distinct species of terrorism. Nothing can prevent hostile demonstrations, which naturally from time to time turn to acts of violence. It would be very much better to make it unlawful for workmen on strike to assemble at the gates of factories, from which they have been discharged or have left of their own will, in any larger number than two or three. Until this becomes the law, the non-union workmen will always be at a disadvantage. Human nature being

what it is, so-called "peaceful picketing" must always be a species of effective terrorism.

**Railway Reform.**

THIS subject is still very prominent in the daily Press, and the agitation seems not unlikely to bear some fruit. The dissatisfaction and alarm caused by the continued fall in the value of railway securities is far too widespread to be silenced by the diplomatic "shelving" process which is the usual fate of shareholders' protests, and railway reform "is in the air." The recent visit of English railway managers to France for the purpose of studying Continental methods of automatic signalling may be regarded as one evidence of this. The placing with railway waggon-builders of orders for large-capacity waggons is another, although some railway authorities are much averse to adopting them. A prominent London and North-Western official has recently stated that very few of their customers would make use of such waggons. It was popularly supposed that they would be particularly serviceable in the coal trade, but they would certainly not be welcomed at the collieries, and the principal class of traffic for which they could be used was heavy traffic (such as bricks, sand, &c.), standing in the lowest class of the General Classification. Another unforeseen objection to their use is mentioned by a correspondent in last week's *Engineer*. It seems that in the London coal trade the men flatly refuse to unload any waggon holding more than 12 tons, unless their pay is considerably increased. Unnecessary train mileage is evidently being reduced. The Great Eastern Report just issued shows that, although the receipts had improved, there had been a reduction of 142,773 train miles for the half-year. This is stated in the Report to be due to the use of more powerful engines, but there has lately been a general movement among the railway companies in the direction of reducing the number of goods trains by a thorough rearrangement of the service.

**The Improvement of Highways.**

THE pamphlet which has been issued by the Roads Improvements Association is very timely, and the Society may certainly be congratulated upon having obtained from the President of the Local Government Board the appointment of a Departmental Committee to inquire into the administration of the English highways. At the same time it is doubtful if, on the most important points which have lately been discussed, especially the construction of new main roads from London and the large provincial towns, any changes can be effected. The tendency of modern legislation is to hand over as much as possible to local bodies the administration of country districts, and we do not for a moment believe that the State will ever take any portion of the English highways into its hands. What is needed is that, for the purpose of a limited number of the principal main roads, there should be two or three combined County Boards, and that in each county all the other highways should be in the hands of the County Councils. If the County Councils are also impressed with the idea that roads must be improved as well as kept in order, about as much will be effected as is at present possible.

**Tramway Goods Traffic.**

NO utilisation of the tramway system has, as yet, been attempted for the conveyance of goods on an extensive scale. Such tramways as have been established in the metropolis as well as in provincial cities and towns have hitherto found passenger traffic more than enough. There are now indications of an approaching change. In many populous districts, such as those to be found in Lancashire, towns lying at considerable distances apart are being linked together by tramway systems, and, although passenger traffic is by no means lacking, it must be clear that the congestion, common in large cities, is not to be expected. Hence the question of establishing arrangements for through goods traffic has received serious consideration. In Lancashire the tramway mileage amounts to some 750 miles, and as some of the companies control very considerable lengths of line, it would not be difficult to formulate a workable scheme. The South Lancashire Tramways and the Liverpool and Prescot Light Railways constitute what is practically one system, and by arrangement with the St. Helens Corporation and the St. Helens District Tramways Co., it would be easy to connect nearly thirty towns with Liverpool and other large commercial centres. For the purpose of dealing with traffic economically, special vehicles would have to be provided; it would be necessary to establish depots for dealing with small consignments, and to make sidings giving access to large industrial works. At the present time the demand for traffic facilities in Lancashire far exceeds those offered by the various railway companies, and any development in the direction we suggest would certainly meet with general approval.

**Restrictive Clauses in Insurance Policies.**

IN our issue of December 6 we drew the attention of those who are insured against the liabilities imposed on them by the Workmen's Compensation Act to a decision which proved the necessity of carefully reading the conditions contained in such policies, and of rigidly observing them; but we desire now to direct our readers' attention to another reason for never accepting such policies unread. We find that many of the leading insurance companies are inserting a clause not only referring all disputes under their policies to arbitration, which is a perfectly reasonable and legal clause, but going further and making an award in favour of the insured a condition precedent to his right to bring any action. This extension of the arbitration clause appears to us not only objectionable, since it purports to tie the hands of the assured whilst leaving the insurer free to bring an action on the policy if the arbitrator's decision is unpalatable to him, but it is clearly illegal or void as ousting the jurisdiction of the Courts. Extremely complicated questions of all sorts arise under the Workmen's Compensation Act, and we strongly advise those about to insure to insist on the deletion of any such conditions from the policies presented to them. If the clause is good, it seems to us inequitable; whereas, if, as we believe it to be, it is bad, the insured may be involved in litigation before he can secure the benefits under his policy which he is entitled to.



One mind should dominate every building.—I mean, the educated eye should be able to discern that the same master mind has superintended every part, be it large or small, to make up the perfect and complete building. But the actual means of compassing this end is complicated by the fact that it is a physical impossibility for every architect—indeed, for almost any architect—to gain sufficient knowledge of all the varied materials at his disposal to enable him to design in them with that



grasp which the craftsman must have. It seems, therefore, that while the architect must know the limitations of the various materials he employs, and must have a general knowledge of the methods of the craftsman in that material, he must perforce leave the actual expression to the craftsman himself.

The multiplicity and variety of materials now at the disposal of both designer and manufacturer, seem to invite their free use, and many excuses are found for their adaptation. A supposed opportunity is found for the use of this or that material. The cheapness of its production will permit of a space being decorated which otherwise would have remained bare. The character and style of such decoration is too often misapplied, and instead of securing a refined and pure adornment to that space it is rendered tawdry and incongruous. It would have been much richer in its bareness.

Such results strike a harsh note; they disturb the harmony of refined work, and vex the soul of the conscientious student who by his training and gifts knows that if such work and money had been expended with proper direction and knowledge, a far better result could have been obtained. They must surely also exert a harmful influence upon the good judgment and taste of the public, which, ignorant as it is, mistakes elaboration for beauty, and misapplied decoration for art.

It should be the aim of all of us to eliminate this misapplication, to bring architect and craftsman into more complete harmony, so that each may realise that under the stress of modern conditions each must work conjointly with the other, never forgetting that the part must in all cases be subordinated to the whole. We must "piece out these imperfections in our minds," or to use a less classic quotation, and put it into the words of, say, a foreman mason, we must endeavour to give each crudity "its back day."

Let us briefly review the province of the architect. The study and practice of architecture in this twentieth century may without any hesitation be said to be one of the most intricate and difficult of professions, added to which there is that indefinite, indefinable something, be it ever so simple, which distinguishes architecture from mere building.

There are so many different branches of study, so many different and new materials to gain a knowledge of, so much to be learnt from both past and present, that the architect is really a student all his life.

The architect's part in the decoration of a building is a large one, for he must, in my opinion, be able to direct the subjects and their general proportions and styles. He must be able in designing his building to introduce the various arts for its adornment in places where their introduction will materially assist it, supposing such ornament is not merely the enriching of constructional features, such as the way in which sculpture is often employed, but is only to emphasise the meaning and purpose of the building.

The value of an imposing group of sculpture, the use of other carving, the colour schemes and the kind of materials for their production, the value and use of frescoes and the styles and subjects of them, the treatment of glass, must all be under his direction, and he should know how each is to be treated and made one with the architecture of his building.

The architect will know that in introducing his group of sculpture the elevation of his building can be either very materially enriched or ruined. He will therefore direct the exact scale of figure, a certain line in its composition, and the breadth of treatment necessary for its value. The sculpture becomes part and parcel of the architecture, and for that purpose must be architecturally treated; it must have no appearance of being foreign to the general scheme, or of something just modelled and placed there irrespective of architectural proportions.

Therefore the architect alone can know what is best required upon these lines for the adornment of his building. These conditions similarly apply to most of the decorative art, which must be considered architectural adornments. In mosaics and painted panels, frescoes, and other features, utility, style, scale, line, and the proportions of general massing of colour and subject are the fundamental points to be studied, and the direction of them must come within the province of the architect. He should convey his ideas of them to the decorator by means of rough sketches.

Given that an existing building requires decorating, if that building is of considerable consequence because of its purity and refinement of style, and the architect who produced it was a famous man, it should be an architect's province to direct the character and style of the necessary decoration, because only an architect who has made that style his especial study, and whose experience in construction enables him to appreciate and follow the beautiful characteristics in that style, and who has paid particular attention and studied the individuality of that famous man, can be competent to know the best decorations for it. Even then there is danger in touching the building.

Let us now glance over the province of the decorator, and under that name I include the sculptor and painter and all other workers in the applied arts. Like architecture, decoration covers a very wide field; a field which should have a boundary line marked by an architectural wall to prevent decorators straying from within its precincts into unknown spheres. The decorator usually commences his career by serving a term of years at a special craft in which he obtains a thorough technical grounding. As a sculptor he becomes an expert in modelling and carving, and is able to execute commissions for figures in various materials including bronze. His province in this art allows him considerable scope and freedom, but in carrying out his commission too much freedom cannot be allowed for he would doubtless be running amok with the architect for whom the figures are being carried out. He will receive general instructions as to scale, breadth of treatment and other views of the architect, all of which are necessary to render his work strictly architectural and to be in harmony with the building. It is the decorator's province to execute the commission on these lines. Experience and efficiency in his own particular material aid him in actually producing the work, and here the architect will not presume to direct. The decorator—if he be a painter—will receive similar directions from the architect, and to him are allotted conditions comprising subject, scale, and general scheme of colouring. It is not his province to choose these because he cannot possess another man's individuality, and cannot therefore be competent to know the character and style for the decoration such as were originally intended by the architect. In a case where, given a free hand to decorate a Renaissance building, good or bad as it might be, the decorator is very apt, for many reasons to go wrong. It may happen that his experiences as a painter of architectural decorations, have been mainly confined to the Gothic school, and no matter how skilful he might be as a draughtsman or colourist, the influence of the Gothic is bound to make itself manifest in his work, and even the rudiments of subject, scale, and general scheme of colouring in a Renaissance decoration will not be grasped by him, and a poor scheme will result unless he independently seeks the advice of a competent architect. The painter may be a man who prefers to ignore character and style, and go for something which is quite the outcome of his own invention and fanciful ideas. Then, provided the building he is to decorate be one which glories in the beauties of a pure order, and as such is a representative example, the result of his labour is deplorable, and the building spoilt. The decorator here who is inexperienced in architecture, as is so often the case, will do many foolish things, and unwittingly quite disregard obvious conditions existing in the main, and various details in the construction of the building.

His own invention of style and fanciful ideas of colour and material cannot lend themselves to be in perfect harmony with this beautiful building. Some of the most delicate features in its architecture, characteristic mouldings, valuable flat surfaces—which were probably never intended to receive much if any colour—will all come in for their share of his paint brush, or be chiselled away to receive some incongruous and foreign material. A free hand in a case of this kind should not come within the province of the decorator, even though his knowledge of, and respect for, architecture be recognised as experienced. An architect should supervise, but only the united and harmonious endeavours of both will produce true results.

Let us now review examples where the architect collaborates with the decorator. The one who has conceived the main and grand construction confers with the other, from

whom is required the actual production of his art for its adornment. Let me then firstly deal with sculpture, for I consider that art, when applied to architecture, the most difficult to treat.

For example, a commission for a group of figures upon a pediment is placed with the sculptor by the architect for execution. The architect will, in conferring with the sculptor, show him the elevation of the building it is proposed to adorn, direct the dimensions and scale of the group, and give the subject for it; and together they will discuss points on treatment in technique and manner of style, and cost. Having clearly understood the views of the architect, and having grasped the necessary architectural requirements, the sculptor proceeds to make rough sketches, to about 1-in. scale, for the composition of his group, which he is often pleased to do in various materials. He may elect at first to sketch in different media upon paper the general lines of his group or he may—as in my opinion he should—commence right away with a small scale sketch in clay or wax. In this group the most important point which will tax the sculptor's skill is that of composition, and in that particular alone he will find it necessary to make and experiment with many rough sketches for his group of figures. These rough sketches are made to arrive at correct positions and pose of the figures, and they are put in in a very broad manner. In them detail is not considered. The sculptor is mindful of the fact that the group is to adorn a pediment, an architectural feature in the elevation which will require his every consideration. It might be a great distance from the ground, and have much or little projection, conditions which will greatly influence and govern the treatment of the group which is to surmount it. Difficulties of conceiving proportions as affected by foreshortening have to be overcome, and they can be studied in the initial stages of rough sketches together with the composition. A temple is prepared to 1-in. scale to show the general lines of the architectural elevation, the pediment under consideration and a slight indication of the character of detail surrounding.

The object of preparing this temple is, firstly, to be of material assistance to the sculptor in modelling his sketches; secondly, to keep the elevation of the building vividly before his mind, so that he can well realise the conditions and be directed by them.

The rough studies as they progress will be repeatedly placed upon the pediment, and the points of composition, proportion, and foreshortening of the figures in them thoroughly considered until they are decided upon. During this stage of his work the sculptor is resorting to the use of the living model, for in modelling the human form, no matter how naturalistic or conventional it is to be, the use of nature cannot be dispensed with. The actual presence and the movement of a limb of the living model will suggest ideas in composition which the most practised mind cannot always conceive; so that in the rough sketches for the composition of the figures in his group, and at every other stage during the process of modelling, the sculptor should always have nature before him.

From the rough composition study the sketch is advanced, and subject, character of costume, and other attributes are thought out and designed. The sketch having been carefully worked up and having reached a more finished stage, and being satisfactory to the sculptor, should be placed upon the temple for the architect's inspection. Indeed, the architect should frequently visit the studio and carefully watch the progress of the work, show interest in the sculptor's efforts, and free expression of opinion should be indulged in. The architect must be satisfied with the design at this stage because the group is about to be modelled to the actual size required, and any necessary and important alterations had better be made in the small sketch. In modelling the large group the sculptor naturally selects the medium of clay because of its pliability and softness. The setting up of a large group for modelling requires considerable skill, for each figure requires to be supported by irons, stout wire, and other hard materials which are built up on the stand and which more or less represent the skeleton of the human body. The vertebral column is set up in stout iron, supported by a stronger piece which is fixed to the stand, and to it is attached the cross pieces



and angular piece made to represent the bones of the legs, arms, and phalanges of the hands and feet. The utmost care and skill is wanted to build these up so that the pose of each skeleton shall be in its proper place, for it cannot be altered afterwards. The sculptor is able to build this up from the measurement and positions of the figures in his careful sketch. Thus far, not only have technical points been studied, but the general lines of utility and character, in so far as their application to the building is concerned, have guided the artist in his ingenious creation. As yet, however, he has only a fair start and a good and sound basis to work upon; the finished piece from his hands has yet to come. The applicability of his studies and careful sketch, although appearing to the architect and himself as satisfactory, does not obviate the necessity of its more careful study in the full size model; and no matter how appropriate his work thus far seems, the sculptor in entering upon his next task is, for many reasons, apt to go astray. The style of treatment best suited to its architectural character, the manner of technique most practical and artistic for the material, expression, detail, grace of line and finish, have all to be managed and executed by him upon the large model, and the advice and suggestions of the architect on some of these points will be very necessary. Regarding the style of treatment necessary the architect previously conveyed in a measure his wishes and ideas, but now, with the final modelling in course of execution, he is better able to define them. He will now find it much easier to express his views upon the kind of conventionality he might require, and how he would like the sculpture kept in the key of bold shadows or otherwise, for the large group is approaching its more definite form, and these points are easier of discernment.

Concerning the manner of technique most suitable for the material, much might be said, but briefly to illustrate its importance let it be known that the treatment of modelling for one material will not suit another. For instance, a delicate detail of very slender proportions which is practicable in the material of bronze would not be sound in marble, and still less so in stone. It would be misplaced labour in either of the two latter materials, because not only might it be extremely difficult to carve, but it would be susceptible to damage or soon destroyed by climatic agencies. Again, the texture of surface modelling in the one material would be quite different in the other. The dullness and density of stone allows it to hold shadow which cannot be felt in the more transparent quality of marble. The contrast between both of these materials and bronze is, of course, very considerable. The colour and strength of the latter are such that a freedom and boldness can be practised in the modelling which would be quite impracticable in either of the former materials. Moreover, expression and effect can be facilitated in this by the use of acids, which produce additional colour. It will be seen that the sculptor has to study these materials and model for them, by executing in his modelling technique and texture which he will require to be carved or cast. It will also be seen that the architect will require to possess a general grasp of these points so that he should be competent to select suitable material for the enrichment of his architecture. I repeat, the sculptor is very apt to go astray when executing his full-size model. Let me suggest where. In the creation of expression, grace of line, detail and finish, the temptation to lose sight of architectural conditions is very strong. With the living model before him, draped in the costume which has been difficult to arrange, attended with splendid detail, attributes of symbols and trophies and other matter inherent to the subject, the sculptor will see so much that is beautiful and artistic that his impulse is to copy it all. He is so fascinated by all the expression, detail, and grace of line which appear before him that the applicability of his group to the pedestal it has to adorn is very apt to be forgotten. He is greatly inclined to introduce too much rather than tax his ingenuity to find out how much can be left out, and in modelling a large subject which is to be applied to architecture, these errors are too easily fallen into. The difficulty lies in the distinction that architectural work is vastly different from modelling for the pedestal in the gallery.

It is the architect's province to see that these errors are not fallen into, and criticise accordingly, and he and the sculptor must be

agreed that the model, when finished and cast into plaster, will be suitable to be carried out in its final material. But before the final stage is entered upon, the cast should be temporarily placed in its position on the building, and it should be tinted to resemble as near as possible the material it is to be worked in, so that the architect and sculptor can see the effect. This is a very necessary precaution, and one which should in all cases of the kind be exercised. If the group is to be in bronze, the sculptor has comparatively little more to do with it, having only to touch up the wax impression prepared for him previous to casting in the metal by the bronzefounder. But if the work is to be carved in stone or marble, there will be a great deal that requires his supervision and the personal application of his skill. Commencing the cutting of the block of stone or marble, the first process is that of pointing, and this is usually done by an assistant, who as a rule does little else. Pointing is a process which enables the pointer to cut away the material until very nearly within the surfaces required, and it is done by the aid of an instrument which is so constructed with a gauge that any point on the model can be accurately found in the material. Points all over the model are taken and closely put in in the material, so that accuracy of measurement is obtained and a guide found for the carver who now follows. For convenience and care this is done in the studio, where the group is generally finished. Technique in carving will require considerable direction. In marble or stone the use of the file or rasp should be avoided, because they are apt to render the work hard. The finest and most artistic effects are obtained by a dexterous use and clean cut of the chisel and clawtool; the latter, for large and bold work, should be very freely used. The architect should have a general knowledge of the methods of carving, and have his own ideas concerning them.

I have dealt somewhat freely and at length with sculpture because I feel it necessary to emphasise how intimate must be the relation between the sculptor or decorator and the architect; and it will be seen also how important it is that the architect should have a very definite conception of the methods and difficulties in sculpture, and how impossible it really is for him to design with freedom in a material of which he can but gain general knowledge.

The principles in the application of the art I have attempted to describe are involved in most of the other decorative arts, but, in my opinion, in a less important manner for the application of figures in form requires far more skill and study than is necessary in applying figures in colour. The latter has only one aspect in its composition, whilst the former must be correct from every conceivable point of view.

Proportion, scale and disposition of wall paintings, mosaics, opus sectile, stained glass, carving of ornament, plaster work, pottery, &c., must be directed by the architect who should have a general knowledge of the technique of each separate treatment. He should be the better judge in placing these decorations, for he, having designed the building, will know the value of enrichment in his architecture, whether it be in form or colour.

There are probably no two arts more commonly used in architecture than those of the more ornamental carving or stained glass in their elaborate or modified ways.

With reference to the former, there are so many good examples to be seen, so much that is ancient and modern which the student-architect can revel in, that the study of it becomes a standard one, and is one of the first which he takes to in his early career. I do not know why he should be set to model or draw from the cast, for any other purpose than to obtain facility for freehand drawing, a knowledge of what carving is, how it should be applied, and to become versed in the various styles and orders; but I do suggest that there is an influence attending the study of this art which is acquired thereby, and usually unnoticed by him. It lies in the assumption that, provided the student attains excellence in this art he develops a readiness for grasping more easily and freely the general principles of the applied arts. His quickness of perception is, in my opinion, trained more by this influence than any other course of study. The same agent is at work with the professional carver. A carver who is at first trained as a wood carver very often develops

an especial aptitude for doing other things. He possesses an expert and dexterous touch derived from the nature of the material and the use of the great variety of tools necessary. A carver whose early training is on stone or marble does not acquire this facility. There are many men, competent workers in several of the decorative arts, who were in their early days trained as wood-carvers.

There is probably no applied art, which, in its manufacture, has more processes and technical stages to go through than that of stained glass, and a word as to its application may not be out of place. Stained glass is the most vivid kind of coloured decoration. In the ever-changing light of day the luminous quality of stained glass powerfully affects the lighting of the interior and its coloured decoration. This should be borne in mind by the architect, who does or should direct that coloured glass upon the south side of the building is not treated in too warm a scheme of colour and so on. In a window the massing of colour and of figure subjects make very important architectural features in the building; the distribution of coloured masses conveys proportion, and the dimensions of figures, scale, and a window might not only in itself be ruined, but the whole interior seriously affected by the want of care and study of these points. It is in my opinion most essential that the designer of a window should visit the building, carefully study the architecture and architectural conditions attaching, and make rough sketches on the spot. The architect should insist upon these precautions being taken, for a happy coloured scheme cannot be conceived without them. The habit of adapting a figure to a space just because it fits should not be encouraged, because it is invariably found to be a faulty one. The adaptation of a figure designed for one window cannot comply with the conditions of a similar window in a different building.

Throughout the various stages of stained glass manufacture the worker himself is often perplexed about his results. He is continually experiencing the feeling of uncertainty for the effects he is striving for. So many points in the material and process are apt to play him false. It is also sometimes bewildering to him to know and to gauge the key of coloured glass to use, the strength of painting, and its breadth of treatment most suitable for the building. Experiments and trials are inevitable. A stained-glass window, or a portion of it, should always be temporarily placed in its final position so that its effect and value can be truly realised. To give a thorough description of the art of stained glass would mean an extremely long paper, hence my brief reference to it, for it was only my intention to touch lightly upon the descriptive side of one or two arts, my motive being to point out the difficulties of technique and design in the applied arts, and to endeavour to show how hard the architect's position must be concerning them. Reference to all the arts mentioned is quite unnecessary, because the principles I have tried to make out which apply to one apply to another.

The position of the architect towards the craft is a difficult one. He in turn is apt to stray in the utilisation of this or that craft, for the want of technical information. Therefore, I think his study of decorative arts should not be neglected, for it is very necessary; also that his studies ought to be confined more to the technical side of them, rather than contriving to excel in the artistic productions of draughtsmanship, and I venture to express the hope that such technical studies will be set the students in the Architectural Association's new school. On the other hand, I suggest that the decorator, in his early studentship and in later life, does not give that thought and study he should to architecture, which is so important for his work.

The attitude of the architect should be one of collaboration with the decorator.

He cannot possess the sound grasp of technicalities of all the decorative arts which he should have, as I have attempted to show for the complexity of work of all kinds in his profession renders it impossible. He must have confidence in his decorative artist. I would plead for the more intimate relationship between them, that one shall become used to the methods and feelings of the other. In the production of a noble conception in the art of architecture, harmony and goodwill must pervade the minds of the producers. Each must be familiar with the taste and ideas of the other. The architect who conceives the



noble idea, must extend personal feelings of consideration to the workers who are to build it up, so that they feel their efforts encouraged and their labours appreciated. Their mutual and friendly efforts will produce happy results, and the structure in stability will be established and in the refinement of beauty adorned.

Mr. Halsey Ricardo, in moving a vote of thanks to the reader of the paper, said he did so willingly, although he was to some extent out of sympathy with the paper. To begin with, he had a feeling of personal shame when he heard the description of the Admirable Crichton that Mr. Forsyth gave—all the qualities of what an architect should be being tabulated and poured out in a fine stream, remembering that he had, on occasion, allowed himself to be called an architect. The ideal put forward seemed to be a somewhat superhuman one, and it reminded him of the definition of a poet given by his tutor to the Prince Rasselas. The Abyssinian mentioned one quality after another in unending succession until at last the Prince broke in with, "Enough: thou hast proved that no mortal can be a poet." He (the speaker) thought that according to the standard of an architect set up by Mr. Forsyth, no mortal could be called an architect. Still there were such things as architects, just as there were poets, and it was, perhaps, well to have the ideal architect put before them. The lecture represented a very exalted state of affairs. There was the architecture which was organised; then there were the applied arts, which Mr. Forsyth gave away—they did not know what to do or what they had to do—then there was the idea that the result was an universal want—that this refined, sublimated architecture was what the people wanted. When we talked about architecture, we had a happy way of thinking that we meant by that word one recognised accepted thing, but we often did not mean that at all. There had been several kinds of architecture. There was Egyptian architecture, the product of priestcraft and quietism; there was Assyrian architecture, which was a warlike architecture; then there was Grecian architecture, which was pure sculpture—an architecture that was generally in the mind of your sculptor at the present day: there was always a Parthenon at the back of his mind, and that ideal he reproduced when he could, with results, as, for instance, in the case of the British Museum; then there was the architecture of the Roman Empire, which took an engineering form, which was a basis or block on which was put an embroidery of Greek art which obscured its intrinsic quality to us to a large extent—we thought of it decorated with Greek embroidery. Then we came to the Medieval architecture—a romantic architecture—which we, in the twentieth century, mostly had in our minds when we talked about architecture. Mr. Forsyth had stated, as many others had done, that architecture was the mother of the arts; but, really, before ever architecture was there were sculpture, painting, song, dance, poetry, weaving, &c., and architecture, comparatively speaking, came late. If architecture were the mother of the arts, she had been adopted so, though no doubt she was intimately associated with the applied arts, which were the bloom and completion of architecture, and the most striking expression of which was to be seen in Medieval work. After the medieval work, there was what we call the Renaissance, which was the architecture of classical scholarship; then there was that religious and romantic awakening, the architecture of revived medievalism, and that again has reverted to the architecture of scholarship; and now we were exercising the architecture of organised scholarship and we ought to ask ourselves, especially in talking about the applied arts, whether we were not prolonging a thing which had reached its climax. Architectures of various kinds travelled along their appointed roads—there was the bud, the blossom, and the fruit—and then there came—he would not call it decay—but the pause of ultra-maturity—another wave came, and submerged it and put something else in its place. Each new wave was at its beginning in the nature of a try back, but the altered conditions under which each new wave flowed led to different developments. But although we are the heirs of the whole past of the work, in harking back we should base our-

selves on forms that had spring in them—on the bud rather than on the blossom or the fruit. It seemed to him that they had been invited to prolong a tradition of what was made and done in the times when all the crafts and arts were an active going concern, at a time, now by the same showing, when there was not the same spirit of collaboration. Putting the matter figuratively, he might say this: Imagine a person—a lady whom they would call Architecture, residing with various handmaidens (the Applied Arts), and especially two: Painting and Sculpture. We must not call this lady the mother of the Applied Arts, but the adopted mother, for there was a difference. The handmaidens spent their time in doing all they could to make Architecture beautiful, embroidering dresses for her, &c., until she was a figure of enriched and cultivated beauty. By and by the handmaidens grew up and became of age; "they came out," and were well received because they were beautiful and had great personal attractions. One of them, Painting, was given a glass, was surrounded with a gold band, and she was taken off to the harem of a connoisseur. Another, Sculpture, became a private secretary, because of the great beauty of her handwriting and the stories she told. Architecture, being more or less left alone, began to import her clothes from abroad: they were not made specially for her, but she adapted them to her figure, and for the ordinary purposes of every day use "reach-me-downs." And so it went on, and we were rather in the position of seeing this lady grown old, grey, and divorced from her husband—who was Popular Enthusiasm—and left very much alone, or sought after by people who had a bent for the study of family histories and phases of bygone beauty. Popular Enthusiasm, the husband of Architecture, was away, coquetting with Literature, Philosophy, and Music, and, at the present moment, so it was said, was wedded to Science. That represented the situation at the present moment. Sculpture and painting had left architecture altogether, and were advanced to separate arts demanding special qualities for appreciation, though now and then there was sculptor or painter who touched popular fancy in a fine sense. In sculpture Alfred Stevens with his British Museum Lion, Barye with his animals, and M. Bartholomé, in his "Monument aux Morts," and, in painting, Ford Madox Brown ("The Last of England"), Holman Hunt, Watts—these touched the people at large, but for the most part fine art was an exotic cult; it did not really belong to them. And so this scholarly architecture which was being practised now was again a cult; it was not popular. If they thought of the genesis of some of the things now being done, the process of doing them would be found to be something like this. Take the case of a town hall. A committee was appointed, and they did not dare to appoint an architect, proposing instead, a competition; and they did so because they were in this position: not one of the members, as a rule, had a farthing's worth estimate of any other committee man's opinion, and should there be a man entitled to an opinion on architecture he would not have the courage to back it up. An assessor was in consequence appointed, and he said a particular plan was the best. The Committee accepted the design selected by the assessor, but they did not see why it was the best, nor did they suppose they would be able to. The architect proposed a building which was a shibboleth to them, or a kind of mystery. The architect imported into it a quantity of sculpture, which the reluctant Committee were got to think the building must have. The sculptor produced his models, and he worked them up to a point which showed the sculptor intended to carve stone models of his clay models, and this work had as much connexion, when done, with the building as the usual ornaments on the mantelshelf. When the work was done—not *in situ*, but in a studio and under artificial conditions of light—it was stuck up and people professed themselves glad that they had got it, though they did not know why, and really had no feelings at all. It was the same with painters. The art of decorating buildings had lapsed. Artists made sketches on canvas in the studio, and at the last moment they were stuck up in their place. Such things were not done in the time of one's ideal—in the days of cathedral building, when sculpture work, for instance, had a personal charm about it. Work now

lacked a popular demand: it was done by architects who had to persuade clients to do something they did not want, and arrange with builders to do it for a sum which it could not properly be done for. An architect had to deal, too, with builders who were not builders, but financial organisers, and whose chief concern was as to when the work was to be finished, and how the certificates were to be managed. Builders had to see that the individualistic mysteries that issued from the architect's office were got done in time, and the workmen, unable to see the drift of these details, did their work doggedly as so much taskwork. There was organised scholarly work, which represented a fine intellectual effort, but it had a narrowing effect. And the net result of this individualistic art, this dominant and omnipresent architect was that we were trying to prolong the traditions which had been broken into by the processes of the present day; and the various traditions which were not based on the materials but on the usages and practices of past times, gave a result rather like what Tiresias said to Ulysses, when he met him in the under-world—"We live in a grey twilight: there is no sun and there is no night"; and if we walked from Marble Arch to the Bank, we must feel inclined to repeat that. There was no real life, but only a semblance of life. There was something we could call scholarly architecture, but that had reached to the end of its road, and he did not think that any amount of guidance from the ideal architect would infuse it with the sprouts of a fresh life.

Mr. R. H. Weymouth, who seconded the vote of thanks, said he was glad Mr. Forsyth had approached the matter from the craftsman's point of view. There was a vein of humour running through the paper, for the words occurred again and again that an architect *should* do this and that—not that he *did* do it. One thing had not been touched upon, and that was the training of the craftsman. He thought that a certain number of craftsmen should first of all be trained as architects in architects' offices, for a man thus trained who later took up, say, plaster work, or decorative work on buildings, got an architectural basis for dealing with architectural work afterwards which could not be got otherwise. If this could be done, the quality of the craftsmen would be improved greatly. But the craftsman and the architect should be well-educated in ordinary school learning before turning to either craftsmanship or architecture, for a general basis of a good, sound, public school or Varsity training was a great help to either. As a rule, the better educated a man was as a boy, the better qualified he was either as an architect or craftsman. As to the dealing with an elaborate colour scheme or such sculpture as was referred to by Mr. Forsyth, that, he thought, was an exceedingly high branch of architecture, and in one's earlier days one rarely got near it, and, therefore, the number of men really qualified to get out a colour scheme, &c., for their own buildings was very limited. The selection of the craftsmen to decorate a building should be made with great care, and those selected should, as far as possible, have a free hand. He was in the Law Courts recently, and he saw a specimen of Street's scholarly decoration, now sadly neglected. Mr. Forsyth had a good deal to say about the sculptor and the architect, and had said that when a large group of sculpture was nearly finished that was the time for the architect to come in and give his direction, as then the sculptor was a little apt to go astray; but he (the speaker) thought that, on the other hand, the more advanced the work was the less the architect should have to do with it and the more the sculptor. When the sculptor put his work upon a pediment, say, surely he could judge as well as, or better than, the architect upon the faults he had made in detail. He did not quite agree with Mr. Ricardo as to Public Enthusiasm being wedded to Architecture. The allegory was a pretty one, but it would be difficult to prove, and he somewhat doubted its historical basis. But there was an important point in Mr. Ricardo's remarks, *i.e.*, as to personal charm in buildings. He did not think Mr. Ricardo was right in his exceedingly gloomy view of how things architectural were managed nowadays. He felt that if an architect liked to put his personal interest in his work, and went and saw more of the work as it progressed, and did less by means of writing instructions from the office, he could, as it were, get past the "contractor" and into touch with the craftsman or the work-



men who really did the work. One of the ablest men he knew made this a practice, and so always got into immediate touch with the men who did the work. In that way an architect could get things done his own way, and have them done properly, with a real feeling for architecture.

Mr. Gregory Collins said that, after what they had heard, he thought there was a huge mass of debris about, and the task was to get the Phoenix to rise from it.

Mr. W. A. Pite said they had had two most interesting views of the subject presented to them. Mr. Forsyth had taken them to the heights of what they ought to do, but it was not the fortune of most architects to have the opportunity of erecting pedimented buildings surmounted by groups of sculpture. Years ago men of the Gothic school, as G. E. Street and Wm. Burges, thought it necessary or wise for the architect to design the decorative parts of his buildings; it was even reputed that Burges designed his own nailheads. We were indebted for the other view to Mr. Halsey Ricardo for his interesting and suggestive remarks.

Mr. C. Tucker, a craftsman, said that Mr. Forsyth had been amazingly candid. The position of architect in relation to the craftsman had been drawn with a free and a very just hand. The craftsman, in the work which he produced, should not only have consideration for the work of the architect, but should subordinate his ideas to the main principles which the architect wished to embody in his building. This was, unfortunately, by no means always done, and that was why so many disasters occurred in decoration. A craftsman in one department was called in to exercise his craft in another. Some general idea of what the architect wanted was of great help to a craftsman, not only in suggesting to him the treatment of the subject, but also in helping him to understand what the architect's own ideas were with regard to his own building. He could not agree that Mr. Forsyth was telling the architect what to do. Mr. Forsyth merely said that the craftsman, in treating only a part of the building, should regard the whole and not sacrifice the whole to the part which came within his province. He could not help thinking that even in some of the best periods of architecture such mistakes had been made. He supposed that all agreed that the frieze of the Parthenon was one of the wonders of the world, but when it came to a consideration of the pediment he could not help thinking that the sculptor "kicked over the traces," and put his sculpture on a shelf. If the architect had kept a firmer hand upon the reins even the Parthenon might have been improved in the treatment of the sculpture of the pediment, for the sculpture was so extremely fine that he felt, as he saw it in the British Museum in all its mutilation, that we see more of it than the Greek people ever saw when it was in its original position. If such a thing could happen in the hey-day of architecture, it was very likely to occur in these days, which had been referred to by Mr. Ricardo in such pessimistic language. Out of chaos it was to be hoped that order would come, and he thought a ray of light was already shining. He thought that as to bringing the architect and the craftsman into closer relationship, instead of it being a retrograde step, it was what would be called in scientific language the reversion to type—the basis or beginning of a new life both for architecture and craftsmanship. They necessarily depended one upon the other, and certainly craftsmanship was dependent on many of the suggestions of the architect. Craftsmen must be well trained, of course, and be conversant with what had gone before; but so must the architect. He did not agree that the craftsman should be allowed a free hand, for he thought the result was often deplorable. On the other hand, consultation between the craftsman and the architect was often of great advantage to both. He had been on works where the architect had modified some of the proportions of his work—not the large structural features, but such things as mouldings, &c., which were to receive colour—as the result of a consultation with the craftsman at an early stage of the work, and the result had been most satisfactory. He welcomed a return of a brotherly sympathy between the architect and the craftsman.

The Chairman, in putting the vote of thanks, said he thought the discussion on the subject was opportune. There had been during the

last few years a very great revival in the crafts, so much so that at the present time there was a tendency for the crafts to be given rather more importance than they ought to have. Many buildings one saw—both actual buildings and illustrations—in which there was no architecture, and all craftsmanship; the building was simply a sort of shell to hold the works of so many craftsmen, and frequently these craftsmen worked without any co-ordination amongst themselves. Each man followed his own sweet will, and although each piece of work might be extremely beautiful in itself, each work suffered from the fact that it did not bear the relation to the others which it ought to do. Therefore, he thought that Mr. Forsyth's view was a valuable one, i.e., that all the work of the craftsman in any particular building should be, within certain limits, directed by one mind to some extent. One saw the necessity for this in the work of many sculptors. It was a very well-known fact that there was hardly a sculptor who could design a pedestal for his statue, and that was simply because, like other craftsmen, sculptors thought simply of their own piece of work. They thought of nothing but the figure, and they despised or ignored the allied arts and crafts, and had very little appreciation of scale; and in that matter of scale most pedestals to statues failed. Mr. Ricardo had given them a most entertaining little discourse, but he (the Chairman) had tried hard to make out what Mr. Ricardo meant, and he was hoping that he would sum up what he was leading to, but Mr. Ricardo did not do that, and he (the speaker) was left rather in a fog as to what the upshot of it all was. There could be no doubt that Mr. Ricardo was a dreadful pessimist. Architecture at the present day was, according to him, on the wrong lines altogether, and building, too, which, of course, was a great pity. No doubt what Mr. Ricardo meant was that we are wrong in attempting, to the extent we do, to follow tradition. To a certain extent he agreed with that. It was wrong for a man to copy a certain feature and introduce it into his building simply because somebody else had done it. It was wrong to do that unless attention were given to the adaptability and appropriateness of the feature to its position. Mr. Ricardo had given a very pretty picture of the way certain features of mediæval buildings grew; that was all very nice, but there was no evidence to show that such work was not guided by some master mind, some general director, and that the work was not evolved from some general scheme or idea. Then there was that fine illustration of architecture and the handmaidens. It was no doubt true to a certain extent that painting and sculpture had deserted architecture and had gone on independent lines of their own, but he rather gathered from Mr. Ricardo that this was a very bad thing for architecture. If that was so, he thought it was a much worse thing for painting and sculpture. The most effective, the finest and best, sculpture was that which was associated with architecture, and the same applied to painting. If the sculptors of the present day were content to do a little statue to stand by itself somewhere, so much the worse for them for they had not much appreciation for the greatness of their art. If a painter was satisfied to paint a picture to hang in some one's drawing-room, and if that was the highest aim and end of his art, so much the worse for him. There was a tendency at the present day for every one to specialise, and that did not seem to be a wrong tendency. A man who studied and followed one art or work was more likely to excel in what he undertook than the man who attempted to understand and excel in many things. If that were so, it was too much to expect an architect thoroughly to understand all the technicalities, &c., of different crafts, and therefore, in introducing the crafts into his building the architect ought to give the craftsman a free hand within certain limits. The architect, of course, should decide where the sculpture or modelling should be introduced, and, approximately, the size and scale in relation to the surroundings, but beyond that he did not think the architect should go, and if he employed a craftsman who was in sympathy with the architecture, a much better result would be obtained by giving the sculptor a free hand. Of course there were exceptional men who could take a more prominent part in the details of their work than that. There had been great architects in the past who had been able, practically,

to design every part of their buildings with great success, but the majority of men must be content to take a certain amount of the work in a building to the craftsman.

The vote of thanks having been heartily agreed to,

Mr. Forsyth, in reply, said he must first refer to the beautiful allegory which they had heard from Mr. Ricardo, though he was also at a loss to know how it applied. He did not understand, for he did not consider architecture the ugly mother of those beautiful handmaidens. [Mr. Ricardo: Pray do not call her ugly. I said adopted mother.] He thought the inference to be drawn was that architecture was the ugly adopted mother. The picture drawn by Mr. Ricardo as to the competition for a Town Hall indicated a very discouraging state of affairs, especially to the architect, whose work and the work of the decorator it affected injuriously. Cost, too, was another important restriction; but we had to frame our art and ideals on modern conditions, and it must not be forgotten that the time when the Parthenon was erected was very different from to-day. There was not that rush nor that search for inexpensive art that there is now. He quite agreed that craftsmen should have a good architectural grounding, for they could not understand how to apply their craft to a building unless they could appreciate the architectural points; and too many craftsmen were deficient in the requisite grounding. As to a free hand for the craftsman, that should be given only when the craftsman thoroughly understood the conditions. It was the architect's responsibility to instruct a decorator as to scale, light and shade, proportion, &c., but after that the decorator ought to have a free hand, especially as, in utilising material, the decorator found that his design altered itself, so to speak, and as he worked changes were suggested, so that it was impossible to have a set rule beforehand of what the result is to be. He hoped that in time to come the decorator would extricate himself from the debris referred to by Mr. Collins. He hoped he had shown in the paper that in his opinion a decorator must subordinate his ideas to the main idea. As to the Chairman's remarks that there were some buildings which were all craftsmanship, that was the very thing we wanted to avoid. The cheapness of material was to some extent responsible for that.

The Chairman said that the next meeting would take place on February 6, when Professor Baldwin Brown will read a paper entitled, "What is the Real Value of Greek Work to the Modern Artist?"

The meeting then terminated.

The Home Office has this week informed the hon. secretary of the Royal Architectural Museum, Mr. Maurice B. Adams, that the King has graciously consented to the continued use of the term "Royal" in the name of this museum after its transfer to the Architectural Association has been completed.

#### THE ARCHITECTURAL ASSOCIATION DISCUSSION SECTION.

The sixth meeting of the current session was held on Wednesday evening, January 7, at the Rooms of the Association, when the Chairman of the Section, Mr. Geo. H. Smith, presided, and Mr. J. Watson Moyes, Barrister-at-Law, attended as Special Visitor.

Mr. J. H. Pearson read a practical and carefully thought out paper on "Some Points in Ancient Light Practice," which was illustrated with some diagrams specially prepared by the author for this occasion. The acquisition, and next the loss, of a right to light were first dealt with, and many practical hints were conveyed in the next section of the paper, which consisted of suggestions as to methods of recording old buildings. Then, skating lightly over the thin ice of "compensation for damage," and avoiding in diplomatic language the tendency to make capital out of an alleged right to light by dominant owners, the author gave some instances from his own experience from town and country cases, which were more readily explained by reference to the wall diagrams. The importance of readily forming an opinion when surveying a building site was emphasised.

Then, referring to recent legal decisions and the inferences to be drawn from them, Mr. Pearson dwelt somewhat in detail on the principles which apparently guided the Judges,



and stated fairly what the law on the subject was, as it at present stood. Finally, dealing with the collection of evidence for a case, the author revealed his intimate knowledge of his subject, and gave most valuable suggestions for this all important branch of practice.

Mr. C. H. Brodie opened the discussion which followed, and proposed a very hearty vote of thanks to the author and the Special Visitor. Mr. Sidney Perks followed, and spoke feelingly on the prevailing ignorance of the architectural profession in matters of this kind, and the unpractical methods frequently adopted in protecting the rights of their clients. Mr. W. Wonnacott followed, and briefly recited the provisions of the proposed Ancient Lights Bill, to be laid before Parliament at an early date. This Bill had been approved by the Joint Committee of Architects and Surveyors, and at present was in the hands of the Incorporated Law Society for consideration. Mr. W. Williams (visitor) gave an interesting historical résumé of the legislation on this subject from early times, together with some valuable hints and opinions from the solicitor's point of view. Mr. Henry Lovegrove (visitor) dwelt on the importance of reliable drawings, and the anomaly of removing wooden hoardings, erected as obstructions, from the control of District Surveyors; and gave instances where on certain estates the acquisition of rights was forbidden in the lease, as, for instance, the Crown properties, the Bedford Estate, and those of the Ecclesiastical Commissioners.

Mr. G. H. Lovegrove asked a question as to skylights and other lights not vertical; Mr. J. Hout spoke on the importance of evidence revealed by consulting the rate-books of a district; and the Chairman then called on the Special Visitor, Mr. J. Watson Moyses, who spoke at length on the legal procedure in actions, the collection of evidence, and intelligence to be displayed in working up the technical data, the apparent contradictions of the numerous legal decisions, and the poor prospects before the new Bill when introduced into Parliament on account of the interests that would be prejudiced and affected in various ways. With conviction Mr. Moyses condemned the use of such phrases as "black-mail" and "barefaced robbery." Mr. Pearson briefly replied to the vote of thanks.

#### THE SURVEYORS' INSTITUTION.

AN ordinary fortnightly meeting of this Institution was held on Monday at No. 12, Great George-street, Westminster, S.W. Mr. Arthur Vernon, President, in the chair.

Mr. J. W. Penfold, hon. secretary, having read the minutes of last meeting, announced some donations to the Library and the Library Fund, and a vote of thanks was accorded to the donors.

Mr. Penfold also read the following list of candidates who satisfied the examiners at the Preliminary Examination of the Institution, held concurrently in London, Manchester, and Dublin, on January 14 and 15:—

O. H. Baker, Poole; A. P. Baldwin, Edgbaston, Birmingham; F. L. Ball, Southsea; R. A. Balls, Clapham Park, S.W.; M. D. Bannister, Hayward's Heath; A. W. Bentley, Regents Park, N.W.; S. W. Bettridge, Tonbridge; L. G. Bloomfield, Wincoburne, Dorset; B. Bradley, junior, Fladbury, near Pershore; J. S. Bray, Ogbear, near Tamerton, Holsworthy; K. V. Brierley, Fulwood, Preston; W. G. C. Britten, Halkwhistle; H. J. Brown, Tottenham, N.; J. E. Brown, Bilbrough Lodge, near York; H. S. Bryant, West Horsham; L. T. Burnett, Amburst Park, Stamford-hill, N.; C. J. F. Burr, Willesden Green, N.W.; A. C. Burstal, Wimbledon; D. C. Castell, Putney Hill; E. P. Caton, Shefford; R. G. B. Chase, Edgbaston; M. Clapham, Grimsby; W. H. B. Coates, Streatham, S.W.; D. H. Cox, Finchlev, N.; H. A. Coxon, Surbiton; A. H. Davis, Kensington Park-gardens, W.; A. G. Eastman, Beckenham; J. L. Easton, Eastbourne; B. S. Egerton, Chislehurst; C. E. Ellis, Bush Hill Park, Enfield; H. H. Ewin, East Ham; G. E. Falkner, Brooklands, near Manchester; P. Fitch, Highbury New Park, N.; R. D. L. Ford, Croydon; S. J. Fox, Crouch Hill, N.; A. S. France, Streatham Hill; F. A. George, Chiswick, W.; F. S. Gibson, Clapham, S.W.; S. L. C. Gilks, Putney, S.W.; A. F. Glover, Leeds; J. Goldberg, Gravesend; C. H. Gregory, Leytonstone; A. E. Grundy, Leicester; E. L. Gruning, Holland Park, W.; F. V. Hallam, Blackheath, S.W.; C. P. Harrington,

Clapham Park, S.W.; P. L. C. Haslam, Bolton; R. W. Hawke, New Barnet; J. D. W. Hayton, Highgate, N.; A. L. Hayward, Ramsgate; L. S. Hodgson, Finsbury Park, N.; R. E. Hooley, Streatham, S.W.; J. H. House, Monmouth; H. F. Hurcomb, Oxford; W. A. Jennings, Stratford, E.; F. F. Kendzior, Purley; H. J. Klosz, Hampstead, N.W.; T. H. R. Lavington, Marlborough; F. C. Loads, Morpeth; J. A. Loram, Pinhoe, near Exeter; F. W. Lord, Rochdale; C. Markhams, Culver, Sutton; R. H. Mills, Horsham; T. H. Moore, Tewkesbury; G. L. Nash, Hampstead; H. N. Nash, Swansea; G. Neame, Middleton Stoney, Bicester; C. F. Norman, Lee, S.W.; G. P. Nuttall, Bury; H. E. Ord, Sunderland; H. Page, Cheshunt; C. D. Palmer, Norwich; O. E. Farratt, Balham, S.W.; C. B. Parsons, Exeter; E. A. Payne, Southsea; S. B. Perkins, East Stonehouse; F. Peter, Berkeley; A. R. Petrie, Hadley, Barnet; J. R. Price, Elsworth, Sandbach; D. P. Pritchard, Sparkbrook, Birmingham; S. A. Ratcliff, Grosvenor-square, W.; H. S. Rulton, South Croydon; G. Richardson, Hunslet; E. G. Righton, Evesham; L. H. Rodwell, Bury St. Edmunds; H. E. Rowland, Aylesbury; W. J. W. Rowland, West Milton; G. B. Rowlands, Newton; H. G. Royston, East Finchley, N.; G. R. Russell, Herne Hill, S.E.; J. T. Ryde, Woking; D. B. Seatts, Great Ormond-street, W.C.; H. L. Small,\* Giggley, near Whitney; H. F. G. Smith, Southampton; H. Stevenson, Coventry; E. D. Symes, Newport Pagnell; J. F. Tallon, Chester; H. Thorne, Newport, Barnstaple; J. W. Trodd, Ryde, Isle of Wight; H. T. Ward, Leek; J. E. Ward, Bolton; N. B. Watson, Low Fell, Gateshead; J. D. Weguelin, Hove; R. S. White, near Stonehouse; G. M. Winder, Exeter; E. Winfield, Amersham; G. F. H. Wraight, Tunbridge Wells; E. H. Wright, Plumstead, S.E.

#### Rural Drainage and Sewage Disposal.

The discussion was then resumed on Mr. H. T. Scooble's paper, read at the last meeting,† on "Rural Drainage and Sewage Disposal."

The Chairman said that if any one wished to become a benefactor of the human race, a good opportunity was to be found in the need for the purification of our water supplies and the profitable disposal and use of our waste materials. He would call on Professor Robinson to resume the discussion on Mr. Scooble's paper.

Professor Henry Robinson said that as to drains, besides their ventilation, their testing was of the utmost importance. Last year there were two very well-known cases where an effort was made to establish the idea that old drains should not be subjected to the water test. Last year he was engaged in two cases of artisans' dwellings. In one case the drains stood the test; in another they did not, and it was still a subject of litigation whether those drains should be subjected to the water test or not. It was an important matter in rural districts especially, and he put it on record that in his opinion all house drains should stand the water test. Practically, the main point of the paper was as to what might be called the "conservancy" system of dealing with the refuse of a house and the "water carriage" system. He was strongly of opinion that the water carriage system is the one which will prevail. He thought so, not because the conservancy system—either the dry earth closet or the midden or pit—was not capable of being carried out successfully if it had the supervision which Dr. Poore advocated, and which, in Dr. Poore's work at Andover, it received. But in practice he had seen so frequently the misfortunes attendant on reliance on the conservancy system, whereas the water-carriage system, if properly carried out, enabled the refuse of a house to be carried away promptly and got rid of. By the conservancy system, however carefully they scavenged and disposed of the refuse, there were risks. Wherever he had had to do with drainage of small or large communities he had found that the water-carriage system tended more to the health of the community than the other. If the refuse of a house went into a cesspit and it was used by being spread upon a garden, there was bound to be a risk. In practice that meant that the environments of a house were subject to pollution, and that was not the case with the water-carriage system. As to Sir William Crooke's remarks that some 10,000,000 lb. worth of fixed nitrogen was annually lost to agriculture by the reckless

discharge of sewage into rivers and the sea, though they might get a bigger wheat crop by utilising that fixed nitrogen, would they not get bigger bills of illness and larger taxes? It was a visionary matter, quite outside the range of practical engineering. He had interested himself in a case where the conservancy system was proposed as an alternative to the sewerage of a large town, and he made a calculation of the amount of dry earth required to be brought into the town, the number of carts, &c., required for the purpose, and he found that the idea was visionary and impracticable. As to the Report of the Royal Commission of 1805, their conclusion was, practically, that the right way to dispose of town sewage was to apply it continuously to land, and that dictum was the cause of a great deal of expense and of a great deal of land being used for the purpose of sewage disposal when the conditions were unfavourable. The Local Government Board insisted on one acre of land per thousand people for the treatment of effluents. He would say that if an acre of clay land was required it was obvious that a much less area of porous land would do. A Report of the present Royal Commission stated that there were cases in which the Local Government Board would be justified in modifying, under proper safeguards, the present rule as to the application of sewage to land, but what the safeguards were was not made clear. And it was stated that each case must be considered on its merits! Was not that what they were doing all their lives? They had to vary the treatment as to sewage disposal of towns according to the conditions which prevailed. The methods of dealing with sewage by chemical or bacterial treatment were just as capable, under proper advice, of being used with advantage at the present time as ever, provided there was no fixed rule put forward in each case. We do not want it laid down as a matter of dogma that we must have bacterial treatment, any more than we wanted the rule about an acre of land to a thousand of the population. Each case must be treated on its merits by independent advice, free from personal interests. In his own practice he had to deal with sewage bacterially, and he had endeavoured to use the best known systems. He presided over a conference in 1901 on the pollution of rivers, and he said then, with a view of ascertaining whether the aerobic purification of foul fluid could be better accomplished by what is known as the "contact" system or by trickling.—"When sufficient land is not available, or where it is unsuitable for sewage disposal, then the further treatment of the liquid in aerobic beds enables any required standard of effluent to be attained. Inasmuch as the purification of foul fluid by aerobic action is dependent on aeration, it would appear best to subject the fluid constantly to exposure to the air. This would be better effected when the liquid trickles over open surfaces of hard stone, clinker, or other material in the aerobic beds than would be the case were the bed worked on the intermittent system, viz., first filled, then emptied, and then left to rest. I am aware that difference of opinion exists on this point, and prefer to keep an open mind on the subject at present." The trickling system he had carried out with great success, and he had done the same with the contact system. Some large towns were rushed hastily into the adoption of one system or another, but he advocated proceeding cautiously, whether for large or small towns, and he felt that where some system was put forward vehemently there was some personal interest to be served. Sewage was a nuisance to be got rid of at the least expense to the community and with the best sanitary results, and each case must be governed by its own conditions.

Mr. H. Alfred Roehling said the author had presented them with a very interesting paper, but while he agreed with many of the premises, he failed to discover between them and the conclusions that strong tie which made conclusions irresistible. On the contrary, he felt the author's conclusions must fall to the ground when critically examined. He agreed with the author in his remarks on Dr. Poore's system, which went to show the great value of land as a purifier of excrementitious matter; he sympathised with the author in his lament as to the waste in manurial value of sewage passing into rivers and streams; he agreed with the author in thinking that the food cycle was affected in allowing that waste to continue, but the author did not carry

\* Passed at head of list.

† See our issue for January 17 for report of the meeting.



those views to their logical conclusion and suggest the direct application of the sewage to the land. He suggested instead the interposition between the sewage and the land of an intermediary treatment—a treatment elaborate and expensive—and only after that treatment the application of the effluent to the land. As to Conclusions 1 and 2 of the First Report of the present Royal Commission, Conclusion 1 dealt with land treatment. The Commission did not inquire whether the land treatment was a correct principle, but only whether some kinds of land were unsuitable for sewage purification. It was perfectly clear that they were quite satisfied with the general principle, and only wished to get some information as to some forms of its application. What was their verdict? "We doubt," they said, "if any land is entirely useless," but in the case of stiff clay and peat lands the power to purify sewage seems to depend on the depth of the top soil. But even as to peat and clay there were facts to show that such land was used. Manchester disposes of a large part of its night soil on a heavy peat bog at Carrington Moss, and a portion of the Reading farm was on a peat soil. There were also sewage farms on stiff clay soils which had given good results. In Conclusion 2 the Commissioners dealt with artificial processes, and stated that an effluent could be produced by artificial processes which, according to ordinary chemical standards, could be classed as good, and they were of opinion "that there are cases in which the Local Government Board would be justified in modifying, under proper safeguards, the present rule as regards the application of sewage to land." They did not say that the rule should be abandoned altogether in every case, but that it could be modified under proper safeguards in some cases. On the other hand, he might say that nearly all independent observers had come to the conclusion that an effluent by artificial processes was bacteriologically raw sewage. Any other conclusion to any one acquainted with the nature of these processes would appear out of the question. How, then, could we get rid of the pathogenic germs in the effluent and in the sewage? The answer was supplied by the second report of the Royal Commission, where it was stated that land and artificial filters had the power of removing these germs. The report also stated that in some cases the effluent by land treatment did not come up to the standard required; but that did not prove that land had not the power of removing the germs, but that in some cases it left something to be desired. It seemed evident that land and other efficient means of filtration had the power of removing typhoid bacilli. On some of the sewage farms abroad—in Paris, for instance—the effluent water was so pure that it was drunk in preference to other sources of supply, and had been drunk in preference for many years. We know that pathogenic germs were in the crude sewage, and that the typhoid bacillus could live for fifteen days in a stream, but, in spite of that, the author said we could treat that as a negligible quantity. Ought we to do so? He should say, certainly not. All engineers had a factor of safety in their works, and should it go forth that in sanitary matters there was no need of such a factor? The victims from mechanical accidents were few as compared with those from sanitary accidents. If it was necessary to purify sewage at all—and he did not suppose any one would doubt that—it was absolutely necessary to rid it of its most dangerous constituents, and that could easily be done by pouring it over the land. The author's conclusion was: employ the bacterial treatment, and then use the effluent on the land; but the author had shown no necessity whatever for this intermediate elaborate treatment, which left the effluent bacterially in its crude condition. Land would do all that bacterial processes can do, and, in addition, it would remove the pathogenic germs, utilise a great part of the manurial elements contained in the sewage, and greatly reduce the quantity of the effluent. We could do away with the intermediate process. He thought it absurd to say that because the land treatment had failed in certain cases the principle was at fault. Accidents would sometimes happen, and a septic tank at Walton-on-Naze blew up the other day. Was it against common sense to place that system which gave the greatest benefits over a system that gave the least?

Mr. A. R. Stenning said he was anxious to learn more about the disposal of rural sewage, for he was much interested in that and also in rural water supply. The two subjects, he thought, must go together. What was the best way to deal with excreta and sullage water in a village where the cottages were dispersed? Sometimes outlying districts were made to have some scheme of water supply or drainage, and if one was provided the other must follow, and it would be useful to hear from the author what he advised as to that. Water was a difficulty to deal with, and some districts had to put up with indifferent supplies, and the great difficulty was to provide good water. If they had water laid on to the house, what were they to do with the excreta and sullage water? It was not so much the excreta as the sullage water, for nothing was better than mother earth for the disposal of excreta; but the difficulty was the sink waste, and that, mixed with the excreta, caused the difficulty of disposal. He would like the author to tell them how to deal with the sewage of a village community, of say, 300 people.

Dr. G. V. Poore said he was asked by the Royal Commission whether his system had been adopted by any District or Parish Council, and he said, "No, and never will be in the present state of the law." He put it to them that the great spur towards the sewage of rural districts was not so much sanitation as building. Wherever the sewer went, the way was prepared for the jerry-builder, who followed, and the consequence was that it was to the interest of many people to have a sewer. The labouring man, who was often a compound householder, and was never brought face to face with the rate collector, naturally voted for the sewer, for it meant wages—he (the speaker) should do the same thing himself in the same circumstances, for we all acted according to self-interest; the little shop-keeper saw that the borrowing of a large sum of money and the advent of the contractor and his merry men would bring more customers, and he also voted for it; and the man who happened to have stray little parcels of land by the side of the road where the pipes would go, he also voted for it; and then one saw those eligible sites to let and the owners made a lot of money. But there were a residuum who did not make any money, and the difficulty was to adjust the burden of rates equitably. The compound householder did not think of the future—he voted for the sewer and he got a temporary advantage—and he did not see that his house and the houses of the labouring classes generally was going to be dearer in the future, practically for ever, because of his reckless extravagance. The rates went up and the poor man's house was heavily rated, and the great reason why there was this great difficulty of housing the working classes was the increase in the rates and the increased cost of houses. He was doubtful whether, from the point of view of economy, sewers ought to be paid for out of loans, and for this reason: "You raise a loan and expect to pay some of the money back by earning something. A sewer never earns a halfpenny in this world. A sewer, and what is called a sewage system, is a financial cormorant; its mouth is always open, and it will swallow money for ever and ever. The sewer has done more to plunge the municipalities of this country into debt than any other single factor. The conduct of the municipal people is, to say the least, reckless." He had just given up a house in the Thames Valley. When he went there the rates were 4s. 2d., and the authorities had just borrowed money for their sewers. They began by borrowing 77,000l.; they had in the last ten years borrowed 133,000l. When he left the rates were 8s. 2d., and the authorities were at their wit's end to know what to do with their sewage, and were serving notices right and left to join on to send your sewage to their farm. They had literally manufactured a filthy quagmire in the middle of the place, which would go far to destroy its value. It should be remembered that once upon a time there was malaria in this country, and he thought we should get a sewage mosquito. In the place he alluded to, people had been bitten by insects, supposed to be flies from this sewage marsh, and they had had bad sores as a result. It was a question of dissemination of contagia. It was not safe, even, to put sewage into the tideway of a river. We treated our sewage; we strained it and made it better to look at, but there was no doubt that the bacteria were there and there was danger of

filters overrunning and the liquid going into the streams. Although the sewage was treated, the amount that was sent into rivers and down the coast had increased enormously, and unless we mended our ways and showed some consideration for our neighbours, he did not think it would be safe to send our children to the seaside. Who was going to send a child to paddle about in water which poisoned the oysters? The biological processes had shown that there was something in the old methods. What was an anaerobic tank? It was a cesspool, nothing more or less. Call it by any name, and it would smell as much. When the cesspool was emptied, it used to be a matter of surprise that there was not half the stuff one expected to find, and that was an observation as old as the hills. Why should we not in a village have the thing done piecemeal, and also have an equitable adjustment of the rates? In the Thames Valley during the thirteen years he was there he had not troubled the municipality with a single drop of foul water or with any excrement—and the sanitary cart never called at his house; but he had to pay the rates like any one else; and instead of it being said, "You give us no trouble, you shall be released of your rates," they said, "He pays his rates, why does he bother his head about the sewage?" The average person did not care. He (the speaker) had not fathomed how an equitable adjustment of rates could be brought about, but there was one thing perfectly clear, and that was that one charge for the payment of sewer rates should be a tax upon water-closets. Every water-closet should pay 1l. per annum, and what there remained to pay should come out of the general rate. If something like that were done the sewage difficulty would be greatly simplified. His little work at Andover had been entirely successful. For nearly twenty years he had dealt with the sewage or excrement of 100 people, and there had never been any diphtheria, and the health of the cottagers had been very good, although the cottages, to start with, had been old. The thing was not what he desired; but if one began *de novo*, it would be possible to improve on it. He had shown that the way to dispose of sewage was to bury it just below the surface, and that had been done from the time of Adam, though it had, like other things, been forgotten. The old idea was to bury the excrement deep. He also claimed to have proved that, if they acted properly, they could put the sewage at near the house as they chose; his own garden was not more than a few hundred yards from the cottages, and the place was in the very centre of the town. One could go into the garden directly after scavenging, and neither eye or nose could detect anything objectionable. The place was also of great beauty. He also had proved that there was no need to let manure lay in a heap to ripen. If they buried it at once and planted cabbages (for nothing else would do as a first crop) they got a crop of cabbages while the manure was ripening, and after the cabbages they got another crop they chose. If they put the stuff on the top of the soil, it was all oxidised, and he was sure excrement could not be washed downwards into the soil by rain; the harder it rained, the more the excreta got locked up in what became something like pudding crust. Why could what he had done not be done by other people? He did not know. The proper disposal of excreta was one of the first things that should be taught a child at school. If the proper thing were done, his system could be made to pay, as it had paid at Andover.

Mr. G. Beken said he did not agree that sewage ought to be regarded as a nuisance. We should take a more optimistic view of the matter, especially when we remembered Sir W. Crookes's estimates, already quoted. He did not know how Dr. Poore disposed of the sullage water; that seemed to be the great difficulty in connexion with drainage in country districts. It had occurred to him that if clay and peat lands were unsuitable for sewage, treatment other soil might be added to them in order to make them suitable. In these days of motors and light railways, soil could be brought to mix with clay so as to make it porous or more workable; and in the case of peat, more clayey soil could be brought and mixed with it.

Mr. C. John Mann said as to Professor Robinson's remarks about testing drains, he did not think any member of that Institution would think of passing drains unless they would stand the water test. There was no cgl-and-dried-



system for the treatment of sewage, but it always seemed to him that the best thing was to take it to the land as soon as possible, but in many districts this was difficult to do; the bacterial treatment certainly did facilitate the flow of sewage, and it was a tempting method to fly to. He agreed with what Dr. Poore said as to putting excreta just beneath the earth. It was difficult to carry out such a system, however. [Dr. Poore: No.] He had lived in a house with nothing but the earth system, because he was a great believer in it, and he believed it would be possible to deal with excreta in that way if children were taught to understand it from the beginning; but as things were, the system was not practicable without a very earnest effort to make it so. He had tried in many ways to make it practicable, but he had found many difficulties where people were determined to make it a failure. If people wanted to make the system a success they could; but there was so much prejudice, especially in favour of the water carriage system, which system carried things out of sight and so seemed to end matters without trouble. He should have thought that some satisfactory system would have been discovered by which the septic tank could be used and the matter afterwards put on the land so as to use all the valuable products on the land.

After a few remarks by Mr. E. W. Booth as to automatic gear and valves,

Mr. A. J. Martin said that the principal question raised by Mr. Scoble was whether anything had been done to reduce the burden caused by sewage disposal in small communities. While the cost of such work remained prohibitive the result would be detrimental to the community. While one could not fail to have the highest respect for the work Dr. Poore had done in demonstrating the possibility of dealing with faecal matter in upper layers of the earth, we had to recognise the fact that the water-carriage system was the one we have to work with at the present time. He did not think that any sane advocate of the bacterial systems would deny the possibility of dealing with sewage on land, but what they had to look at was what had been done. He thought it was unfair of Mr. Roechling to say that the instances of failures of sewage farms were of exceptional cases. There had been an attempt to create something like a panic in regard to bacterial methods and the escape of pathogenic germs, but the well-thought-out opinions of those who gave evidence before the Royal Commission should be read. As to the requirements of the Local Government Board as to land, they were a hardship to such towns as Manchester and Leeds, but not to the village communities, where land was cheap. But while the cost of land might be a small matter, the indirect consequences of the Local Government rule might involve the provision of a pumping station, which was an abomination and danger, besides adding greatly to the cost. Another important point was as to storm water; no matter how carefully they excluded from the sewer every drop of storm water, they were compelled to lay down a storm filter for dealing with three or four times the storm-water flow. The Institution might with advantage memorialise the Local Government Board to remove that requirement in cases in which the Board were satisfied that proper precautions had been taken to exclude storm water from the sewers. As to the standard of purity of effluents, seeing what a small volume of sewage some works had to deal with, it would be reasonable for the Local Government Board to be content with a less degree of purification in the case of works for village sewage disposal than is called for in the case of large towns discharging 10,000 times the volume of sewage.

Mr. Scoble, in the course of his reply to some of the remarks made during the discussion, said that as to Professor Robinson's remarks, it did not matter whether the purification were effected by contact beds or trickling beds; both were successful. Mr. Roechling seemed to think that the land treatment was the only way of treating sewage; but land had been tried and land had failed. At Leicester, for instance, they had had a large sewage farm and it had not been efficient, and an endeavour was now being made there to adopt the bacterial treatment. Mr. Mawbey, the Borough Engineer, had been carrying out a number of experiments, and he (the speaker) believed he had reported definitely in favour of bacterial treatment. Leicester was an in-

stance where it had been found that the purification was not sufficient on land, and the expense was enormous. As to what he should recommend for rural drainage on a very small scale, without knowing the details it did not seem possible or wise to give any indication in favour of one system or another. The difficulty of earth disposal was, to a great extent, the sink waste, and the advantage of disposing of excreta in the earth could not be doubted; but the village people let things slide and did not seem to care to trouble about emptying the tins or pails. Sewage must be regarded as a nuisance, and it must be got rid of. The way to solve the question was to purify the sewage and utilise the effluent. As a community, we should never return to earth-to-earth disposal, which was not so convenient as the water-carriage system. We should have to change human nature before people would bother and go back to earth closets. As to mixing soils, as had been suggested, that would be difficult on account of expense, and a considerable amount of under draining would be necessary in order to get the effluent away. With most of Mr. Martin's views he was in agreement; the Local Government Board asked too much.

The Chairman, in putting the vote of thanks to the meeting, said that there were those present who took exception to Mr. Scoble's remarks about Leicester and the land system. The land, he understood, had been overworked, but the system had not been a failure.

The vote of thanks having been agreed to, The Chairman announced that the next meeting will be held on February 9, when Mr. W. Woodward will read a paper entitled "Some of the Difficulties which Present Themselves to the Architect and Surveyor Practising in London."

The meeting then terminated.

#### COMPETITIONS.

**FREE LIBRARY, WORKINGTON.**—The seventy-three sets of designs in the competition for the new public library at Workington were displayed in the Edkin-street Drill Hall recently. The assessor was Mr. Sidney R. Smith, London, and he gave his award as follows:—First premiated design, Messrs. W. A. Mellon and Geo. Wittet, York; second premiated design, Messrs. Spencer W. Grant and Jas. O. Bowden, London; third premiated design, Messrs. Alfred Cox and F. D. Clapham, London; highly commended, 1, Messrs. Wills & Anderson, London; 2, Mr. H. A. Crouch, London; 3, Messrs. Hennell & Son, London. Three premiums were offered, viz., 25*l.*, 15*l.*, and 10*l.*

**NEW WESLEYAN CHURCH BUILDINGS, ILKLEY.**—In the competition recently decided for this scheme the plans of Messrs. Adkin & Hill, of Bradford, were placed first, those of Mr. Danby, of Leeds, and Messrs. Morley & Son, of Bradford, being second and third respectively. Messrs. Adkin & Hill have been instructed to proceed with the work.

**CAPE UNIVERSITY BUILDINGS.**—The Agent-General for the Cape of Good Hope, 100, Victoria-street, S.W., had been instructed to notify to competitors regarding new Cape University buildings that the time for sending in their plans, &c., was extended to the last day of February. We hear, however, that Mr. Aston Webb, the assessor, has objected to this, and the date will not be altered.

**FREE LIBRARY AND TECHNICAL SCHOOL, CHADDERTON.**—The following is the result of the recent open competition for Public Free Library and Technical School at Chadderton:—First, Messrs. Arthur R. Groome, A.R.I.B.A., and J. Lindsay Grant, joint architects, Manchester; second, Messrs. Woodhouse & Willoughby, Manchester; third, Mr. Richard Holt, Liverpool. The assessor was Mr. A. N. Bromley, F.R.I.B.A., Nottingham.

**ABERDEEN ELECTRICITY WORKS.**—New Corporation electricity works have been erected at Dee Village, under the supervision of Mr. J. A. Bell, the City Electrical Engineer. The contractors for the various works are:—Mason work, Mr. Leslie Smith; carpenter work, Mr. George Jamieson; plaster and tile work, Messrs. James Scott & Son; plumber work, Mr. Walter Simpson; slater work, Messrs. Alexander Adam & Co.; painter and glazier work, Messrs. George Donald & Sons; iron works, Messrs. Wm. McKinnon & Co. and Messrs. James Abernethy & Co.; subway, Mr. Peter Tawse and Messrs. Sellar & Co.; and for the chimney-stack, Messrs. Gall & Walker, all of Aberdeen.

#### APPLICATIONS UNDER THE LONDON BUILDING ACT, 1894.

The London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses:—

##### *Lines of Frontage and Projections.*

**St. George, Hanover-square.**—Twenty pilasters and four oriel windows to proposed premises, St. George's-place, Knights'ridge (Mr. W. D. Caroe).—Consent.

**Fulham.**—Eight houses, with shops, on the eastern side of Fulham-road, Fulham, to abut upon St. Munster-road (Mr. A. H. B. Ellis).—Refused.

**Wandswoth.**—An iron and glass shelter over the entrance to the A-sembly-rooms at the Star and Garter Hotel, Lower Richmond-road, Putney (Messrs. Weatherall & Green).—Refused.

**Whitechapel.**—A projecting wooden shop front at the first floor level of Nos. 95 and 96, High-street, Whitechapel (Messrs. Harrington & Ley for Sir John Baker).—Refused.

##### *Line of Frontage and Temporary Building.*

**Marylebone, West.**—A range of luncheon and store sheds at Lord's Cricket-ground, to abut upon St. John's Wood-road, Wellington-road, and Wellington-place, St. John's Wood, without a layer of concrete over the site of such sheds (Mr. F. E. Lacey and Mr. W. H. Slatter for the Marylebone Cricket Club).—Consent.

##### *Width of Way and Lines of Frontage.*

**Southwark, West.**—A deviation from the plan approved by the Council for the erection of a steel and concrete gangway across New Park-street, Southwark, to form an approach from Southwark Bridge-road to buildings on the west side of New Park-street, so far as relates to an alteration in the design of the iron railings and the fixing of the steel girder supporting the gangway at a higher level (Mr. H. Ward).—Consent.

**Strand.**—Buildings upon the site of Nos. 156 and 158, Regent-street, Nos. 1 to 13 (odd numbers only), inclusive, Beak-street, and Nos. 6 to 70, King-street, St. James, Westminster (Messrs. Crickmay & Sons for Messrs. Robison & Cleaver, Limited).—Refused.

##### *Width of Way and Construction of Building.*

**Southwark, West.**—An additional story, constructed in iron, on No. 11, Marshalsea-road, Southwark (Messrs. Humphreys, Limited, for Messrs. J. J. Keliher & Co., Limited).—Refused.

##### *Width of Way and Deviation from Certified Plans.*

**Southwark, West.**—Certain deviations from the plans certified by the District Surveyor, so far as relates to the proposed erection of a stable with loft over on the site of Nos. 1 and 2, Eve's-place, Borough High-street, Southwark (Messrs. Battley, Sons, & Holness, for Mr. F. Redman).—Consent.

**Strand.**—Certain deviations from the plans certified by the District Surveyor, so far as relate to the proposed erection of a building on the site of Nos. 108, 109, and 200, Piccadilly, and Nos. 2, 3, 4, and 5, Church-place (Mr. R. Sawyer for Mr. J. W. Lorden).—Refused.

##### *Height of Buildings and Projections.*

**Holborn.**—Erection at the proposed men's lodging house, Drury-lane, Holborn, of a projecting staircase on the north side of the building, and to the erection in Drury-lane of a projecting staircase and oriel window (Mr. R. Robertson for the Housing Committee of the Council).—Consent.

##### *Formation of Streets.*

**Hampstead.**—That an order be issued to Mr. C. J. Bentley, sanctioning the formation or laying out of a new street for carriage traffic to lead from Glen-chest-street to Glenia-street, Haverstock Hill, Hampstead (for Mr. J. C. Hill and himself).—Agreed.

**Leamham.**—That an order be issued to Mr. E. Van Patten, sanctioning the formation or laying out of a new street for foot traffic only to lead from Adelaide-road to Ivy-lane, Lewisham (for the Council of the Metropolitan Borough of Lewisham).—Agreed.

**Wandswoth.**—That an order be issued to Mr. W. C. Poole sanctioning the formation or laying-out of a new street for carriage traffic, to lead out of the eastern side of Alston-road, Wandswoth, to a new street to be known as Thurso-road, and to continue eastward to a new street to be known as Rostella-road (for Mr. G. F. Darby).—Agreed.

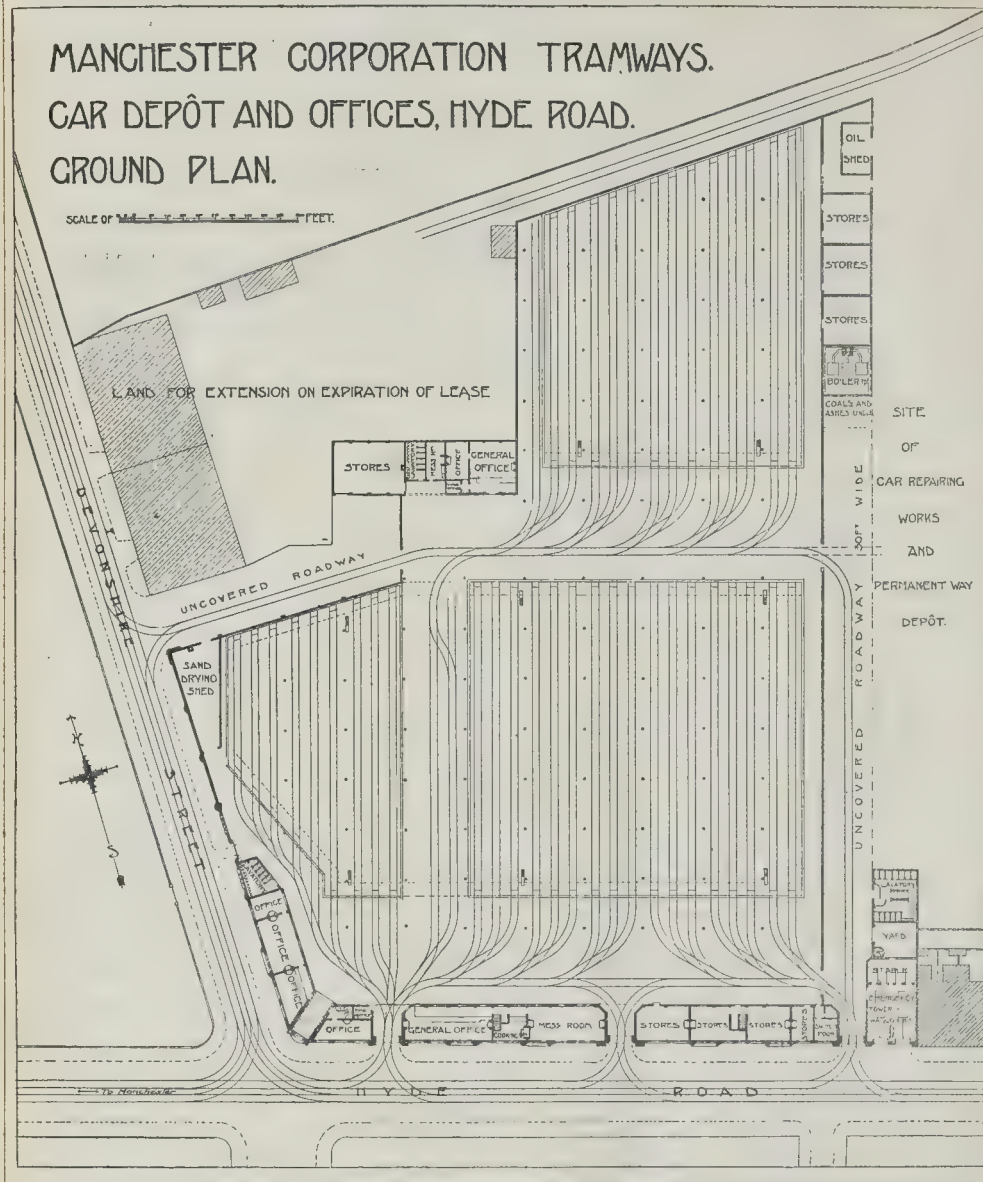
##### *Means of Escape at Top of High Buildings.*

**Westminster.**—Means of escape in case of fire proposed to be provided in pursuance of section 63 of the Act on the top story of No. 4, Whitehall-gardens, Westminster (Messrs. Aston Webb and E. J. Bell for the Crown Agents for the Colonies).—Consent.

\* \* \* The recommendation marked † is contrary to the views of the Local Authority.



# MANCHESTER CORPORATION TRAMWAYS. CAR DEPÔT AND OFFICES, HYDE ROAD. GROUND PLAN.



## Illustrations.

### REREDOS, GRANTHAM PARISH CHURCH.

**R**REREDOS previously existed here, but it was considered as being too small for its place, and, although the painted subjects and figures have been retained, they have been surrounded by an oak frame and canopies on entirely different lines. The whole thing has been enlarged and placed on a "verde antique" marble base. The frame is carved with a large running pattern, the stem of which is so arranged as to form niches and canopies for kneeling angels at intervals. The insertions on either side of the central subjects have canopied niches containing angels. The oak-work is stained, and the carving and detail brought out by means of gold and colour.

The wings are of green and gold tapestry hung on wrought iron rods parcel gilt. The reredos was made by Mr. R. Bridgeman, of Lichfield; the marble base and footpath, with the alabaster restable, by Messrs. Flint Brothers, of Clapham; and the decorative painting by Mr. W. O. Powell, of Lincoln.

W. J. TAPPER.

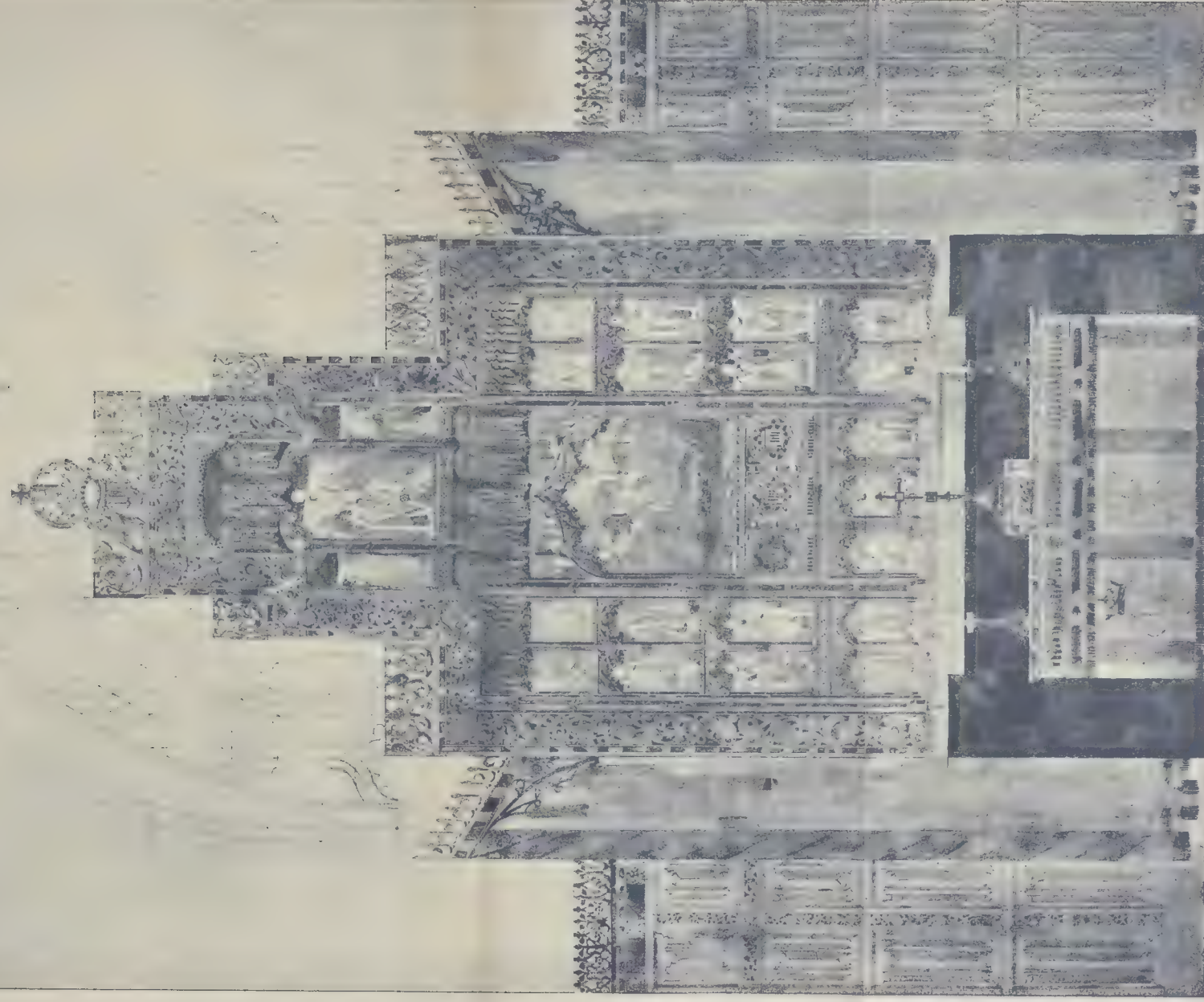
### MODEL OF A PROPOSED DESIGN FOR VAUXHALL BRIDGE.

This model, which is exhibited in a rather out of the way corner of the Arts and Crafts Exhibition, was made in reference to the first engineer's design for Vauxhall Bridge as a proposed structure of concrete faced with granite; a scheme which is understood to be now abandoned in favour of a design with granite piers and steel spans.

One span of the engineer's design is shown above the photographs of the model. The

objects proposed in the design as shown in the model were these; (1) to treat the projection of the pier as a buttress not as an immense column carrying nothing (a mistake adopted from Blackfriars Bridge, which in these matters has been the parent of ill); (2) to substitute a corbel table for the large cornice, so as to allow more apparent depth to the centre of the arch—the lines both of roadway and arch being unalterable; (3) to stop the raking lines of the span against the pier, instead of carrying them round it, keeping the pier cornices truly horizontal; (4) to give a certain degree of simple decorative treatment to the arch face, by fluting the alternate courses of voussoirs, so as to give the impression of it being a revêtement and not the real construction; and (5) to design the plinth with a receding instead of a projecting moulding, so as to present nothing under which a boat's prow or gunwale can be caught; a matter of some practical importance which engineers who are unused



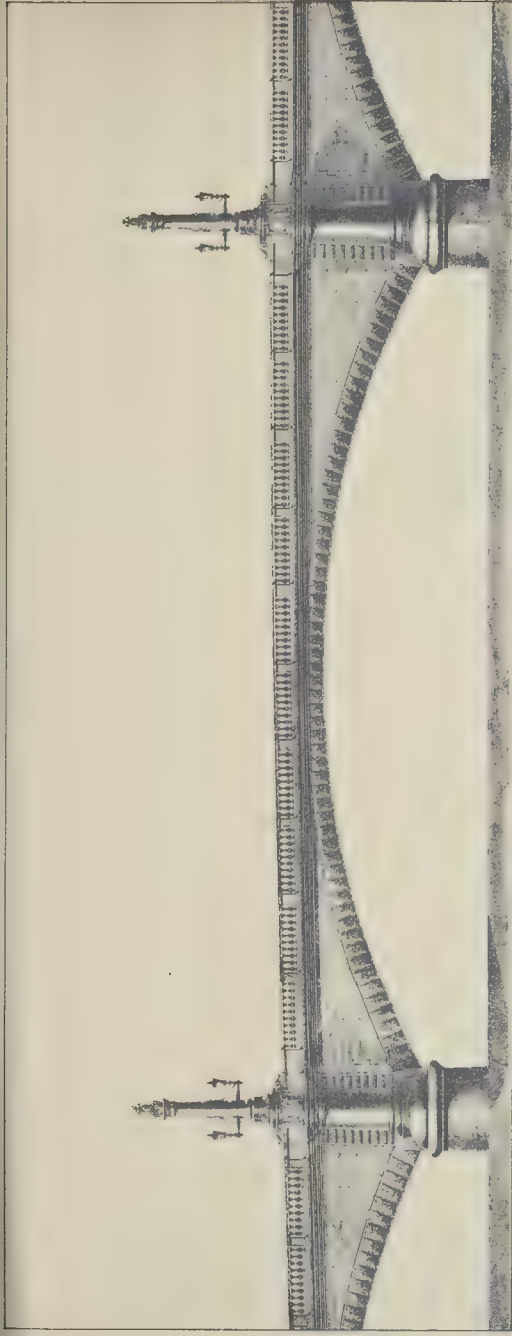


GRANTHAM TAIJUSHI HALL  
 PHOTO BY J. H. PETERSON  
 1000 N. 10TH ST. S.W. ALBUQUERQUE, N.M.









ONE SPAN OF ORIGINAL DESIGN BY THE L C C ENGINEER FOR THE SAME BRIDGE



MODEL OF PROPOSED TREATMENT OF VAUXHALL BRIDGE, AS A CONCRETE BRIDGE FACED WITH GRANITE  
 BY MR H H STADMAN, F.R.I.B.A.  
 (ON VIEW AT THE ARTS AND CRAFTS EXHIBITION.)

















GENERAL VIEW OF HOUSE AND LODGE.



PRINCIPAL ENTRANCE.



THE HALL.



THE DRAWING ROOM.

MA PHOTOGRAPHIC & C. L. 4 & 5, EAST HARDY STREET, FETTER LANE, E.C.



further empowered to require that the corner of a new building situated at the corner of two streets be rounded off or splayed off to the height of the first story or more, in which case they might pay compensation. Where compensation was to be paid, if it was found that the improvement would be for the benefit of the owner of the building as well as the public, the arbitrator could take account of that and apply the principle of betterment. Another important provision related to the height of chimneys of manufactories and other similar buildings. Formerly the only question as to the construction of these chimneys was that of stability. A chimney might be of sufficient stability and yet be a nuisance to the neighbouring buildings. Where the owner of such chimney was summoned and fined for a nuisance and ordered to have the chimney raised, it might frequently happen that the existing chimney was not strong enough to allow of its being raised, and in order to avoid this the revised by-laws provided that such chimneys must in future be of such a height as the Corporation may require, having regard to the neighbouring buildings. Hitherto blocks of working-men's dwellings had had to be designed in accordance with the rule for ordinary dwellings, but the Corporation could now relax or modify the building regulations on condition that the Medical Officer of Health, the City Engineer, and the City Building Surveyor certify that sufficient provision is made for air space and ventilation. The first building to be dealt with under this new provision was the Working-men's Home, Bevington Bush, where a very large addition was now being made to the premises. A section of the new Act also dealt with the nuisance caused by posts placed in or near the kerbstone to support awnings which stretched across the footway. These were particularly noticeable in front of places of business in Church-street and Queen's-square. There was a statutory power allowing owners to put the awnings in that fashion, but that power has been repealed, so that in future the nuisance in question could not happen. Another street nuisance would be done away with by the occupiers of shops and offices being made liable to place all the refuse from their respective places of business in dust boxes provided by the Corporation. Referring to the new powers as to drainage by-laws Mr. Goldstraw said that in the past where an owner, contractor, and sub-contractor were concerned, it had been difficult to discover who was personally responsible for bad workmanship in the construction of drains; but in future if a water-closet or a drain was so constructed as to be a nuisance or injurious to health, the person who had so constructed it was liable to a penalty not exceeding 20*l.* unless he could prove that it was not due to any wilful neglect or default. The section also carried the principle further by making the workman liable. On the whole the revised by-laws were, Mr. Goldstraw maintained, drafted for the benefit and health of the city, and he trusted the good results would justify them.—Mr. J. Woolfall thought the question of the 80-ft. street required very serious consideration. He cordially approved of the regulation as to the construction of drains.—Mr. T. Myddleton Shallcross said it was a matter for congratulation that building surveyors throughout the country seemed in practical accord as to the necessity for the reform of the Public Health Acts affecting building by-laws, and that Mr. Goldstraw had set so excellent a precedent. If discussions took place between the officials of each sanitary authority throughout the United Kingdom and the architects affected by their respective jurisdictions, the result of their joint deliberations would probably be that substantial improvement in building, not excluding economies therein, would be effected. [Mr. Shallcross was proceeding to point out the necessity for various reforms in building generally, when, at the suggestion of the chairman, he agreed to reserve his comments for another meeting.] Mr. Grayson, in proposing a vote of thanks to Mr. Goldstraw, said it was advisable that great discretionary power should be given to officials like the Building Surveyor of Liverpool. Mr. Eccles seconded. The chairman, in supporting, remarked that it was only advisable to give discretionary power where the officials could be implicitly relied upon. Fortunately this was the case in Liverpool, and no one would be allowed to succeed Mr.

Goldstraw and the other officials except those who could be relied upon to exercise a fair discretion and justice. The resolution was carried with acclamation, and Mr. Goldstraw responded.

**THE ROYAL INSTITUTE OF ARCHITECTS OF IRELAND.**—A special meeting of the Council was held at the Institute Rooms, 20, Lincoln-place, Dublin, on the 19th inst., Mr. G. C. Ashlin, F.R.I.B.A., President, in the chair. The matter before the Council was a communication from the Architectural Association of Ireland having reference to a proposal submitted by the Association that the Institute should set on foot a qualifying examination as a condition precedent to admission to the ranks of membership of the Royal Institute. The question gave rise to an animated discussion, and the hon. secretary was instructed to communicate with the Secretary of the Royal Institute of British Architects on the subject, and to report to the next regular Council meeting.

**ARCHITECTURAL ASSOCIATION OF IRELAND.**—This Association held the second technical demonstration at the premises of Mr. Edmund Sharp, 42, Great Brunswick-street, on Thursday, the 22nd inst., the subject being "Building and Decorative Stones." Many specimens of Irish, English, and foreign limestones, sandstones, granites, and marbles had been prepared, and the lecturer dealt fully with their comparative durability, stating that limestones and sandstones should always be rubbed smooth to stand the Irish climate. Any hammered or other rough dressings held the water, and the stone rapidly deteriorated. Speaking generally of Irish stone, Mr. Sharp said there were numerous beds of durable stone through the country, but owing to lack of energy and capital most of these were unworked. If a quarry was opened the top layer of stone was placed on the market, which would be porous and not nearly as durable as the deeper strata, and which consequently obtained for the stone a bad name in the profession. Glass mosaics were next shown, and the skill required in cutting and forming into patterns was demonstrated. This work is extensively carried on in the premises, and some charming specimens were exhibited. The students were next conducted round the workshops to see the altar and pulpit carvings in various stages, also the large labour-saving plant for cutting, rounding, and polishing shafts and bases. Work was in hand for England, Scotland, Australia, and the West Indies.

#### ENGINEERING SOCIETIES.

**THE JUNIOR INSTITUTION OF ENGINEERS.**—A large number of the members paid a visit on January 17 to the new electricity works of the Metropolitan Borough of Shoreditch, Whiston-street, on the banks of the Regent's Canal. They were shown round by the chief electrical engineer, Mr. C. Newton Russell, and members of his staff. Following so close upon Mr. Rounthwaite's paper on "Marine Boilers," read before the Institution on January 2, particular attention was directed to the boiler-house plant, in which are installed four water-tube Babcock-Wilcox marine boilers. Each has a heating surface of 2,720 square feet, and is fitted with an economiser containing 350 square feet of heating surface. Three of the boilers are hand fired, the other is fitted with a double 4-ft. chain grate stoker. A total of about 50,000 lbs. of steam per hour is generated. Coal is supplied from an overhead coal store of 750 tons capacity. A special feature is the Hunt Co.'s arrangement, by which the coal is lifted from barges on the canal, and conveyed to the bunkers. The hoist is driven by two electric motors of the enclosed type, supplied by the Westinghouse Co. There are three feed-pumps of Weir's make. The feed-water storage tank of cast iron, holding 12,000 gallons, is divided into two sections. The capacity of the hot well, consisting of a galvanised iron tank, is 1,500 gallons. It is placed on a weighbridge so as to afford a ready means of measuring the water discharged from the plant. The engine-house plant consists of two vertical low-speed Corliss compound engines, made by the Wallsend Slipway and Engineering Co., each direct coupled to a continuous-current Westinghouse generator, of 800 k.w. capacity; speed, 90 revolutions per minute; engines, 1,300 to 1,400 indicated horse-power.—At the next

meeting on February 6 a paper on "Calorimetry" is to be read by Mr. W. Garnet Wernham; on February 14 the eighteenth anniversary dinner takes place at the Hotel Cecil, the President, Colonel Edward Raban, C.B., in the chair; and on February 21 a visit is to be paid to the East Greenwich works of the South Metropolitan Gas Co., through facilities kindly extended by Sir George Livesey.

#### THE LONDON COUNTY COUNCIL.

The usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring Gardens, Sir J. McDougall, Chairman, presiding.

**Loans.**—On the recommendation of the Finance Committee, it was agreed to lend Battersea Borough Council 15,000*l.* in connection with lodging-houses on the Lachmere allotments, and 5,750*l.* for street improvements; Fulham Borough Council, 35,000*l.* towards cost of acquisition and laying out of Southfields, Fulham; and 25,000*l.* for electric lighting, street lighting, and meters; Camberwell Borough Council, 1,000*l.* for reconstruction of canal bridge; and 4,000*l.* for purchase of land; and the School Board for London, 200,000*l.* for new schools, &c. Sanction was also given to the following loans:—Hackney Borough Council, 16,037*l.* for street improvement and 5,000*l.* for reconstruction of bridge.

**Widening of Roads for Tramways.**—A discussion took place on a recommendation of the Improvements' Committee not to undertake the widening of Queen's-road, Peckham, authorised by the Tramways and Improvements' Act of 1902 until the Local Authorities of Camberwell and Deptford agreed to contribute one-third of the net cost.

Mr. Goddard Clarke protested against the Local Authorities being asked to contribute to a widening which was only necessary for tramway purposes. He moved that the recommendation be referred back.

Mr. Hardy seconded the amendment, and said that the Camberwell members were being continually taunted in the Borough that they did not get much for Camberwell.

Mr. Sidney Low said the subject under discussion touched a large principle which the Council would have to deal with sooner or later. The question was whether the Council was to widen the roads of London, or leave them in the present position. He was one who looked on the extension of locomotion in London as one of the first duties of the Council, and no means of locomotion was so important as that by means of the roads. The duty of the Council was to see that these arteries were preserved, and were not choked and congested. So long as they maintained the principle that each of these main roads only concerned a particular district, they would never get any real improvement. These roads were the property of the people of London, whom the Council represented. The roads were not of mere local importance, and it was the duty of the Council as the guardian of the larger, and not the merely local, interests of London, to watch over the facilities for locomotion in London as a whole. How could they maintain that the construction of a tramway in one particular district concerned that district alone? Every time they had a tramway scheme brought before the Highways Committee they were confronted with this question of local contribution, and he could not help thinking that, if they were to have a comprehensive system, they would have to abandon the hard and fast rule they had hitherto laid down. He failed to see what right they had to go to a poor district like Deptford or Bermondsey and say, "We require a tramway here for the people of London, and you must contribute one-third of the cost of widening the road."

The amendment was defeated, and the recommendation of the Committee adopted.

**Housing.**—The following recommendations of the Housing of the Working Classes Committee were agreed to:—

"That the estimate of 7,500*l.* submitted by the Finance Committee be approved; that the freehold of the site in Brixton Hill, near The Avenue, be acquired by the Council under Part III. of the Housing of the Working Classes Act, 1900.

"That the estimate of 30,000*l.* submitted by the Finance Committee be approved; that the offer of Messrs. Holloway Bros. to build Hythe and Safford and the remaining portion of Winchelsea Buildings, Swan-lane Estate, Rotherhithe, at the same reduction on the prices contained in their tender for the first portion of Winchelsea Buildings as they made



for the erection of Rye and Sandwich Buildings, be accepted."

**Theatres, &c.**—On the recommendation of the Theatres and Music Halls Committee the following proposals were agreed to:—

Fire-resisting curtain, Canterbury Music Hall (Messrs. Wyllson & Long).

Re-arrangement of the seating in the stalls and balcony of the Chelsea Palace of Varieties, now in course of erection in King's-road, Chelsea (Messrs. Wyllson & Long). This arrangement will, when carried out, result in an increase in the number of seats from 1,470 to 1,490, but the exits provided are of sufficient width for this increased number.

Alterations which have been made to the seating arrangements at the Excelsior Hall, Bethnal Green (Mr. Emden).

Arrangements for additional dressing-room accommodation at the London Hippodrome (Mr. F. Matcham).

A fire-resisting curtain which it is proposed to erect in the proscenium opening at the Paragon Music-hall, Mile End (Messrs. Wyllson & Long).

An alteration in the arrangement of the lateral staircase from the basement to the ground floor at the Hotel de l'Europe, Leicester-square (Mr. W. Emden).

A corrugated iron screen in front of one of the

of legislation to remove the difficulties arising from questions of trespass in the administration of the Factory and Workshop Act, 1901.

**District Surveyors.**—The same Committee reported with regret the death of Mr. H. Hart, District Surveyor for the District of Kensington, North-West. They stated that owing to the death of Mr. J. Tolley the District of Sydenham is also vacant. They also recommended that the resignation of Mr. A. Williams (who had asked to be allowed to resign) of his appointment as District Surveyor for the District of Kensington, South, be accepted as from January 31, 1903.

The Committee propose submitting recommendations to the Council as soon as possible in regard to the appointment of district surveyors for these districts.

**Precipitation Operations, 1902.**—The Main Drainage Committee reported as follows:—

"We submit, for the information of the Council, the following table, showing the quantities of sewage treated, chemicals used, and sludge sent to sea, as well as the quantity of sewer refuse intercepted by the gratings, at the Barking and Crossness outfall works during the year ended December 31, 1902:—

	Barking.	Crossness.	Total.
Sewage treated.....	49,508,200,000	35,325,432,000	84,923,632,000 gallons
Daily average .....	135,585 170	96,782,005	232,667,484 "
Maximum daily flow .....	287,811,000	163,207,954	—
Minimum daily flow .....	62,210,840	64,101,255	—
Lime used .....	14,586	7,808	22,394 tons
Proto-sulphate of iron used .....	3,259	2,138	5,388 "
Sludge sent to sea .....	1,784,000	823,000	2,607,000 "
Average per week .....	34,307	15,827	50,134 "
Refuse from gratings .....	3,787	960	4,747 "

side shows at the Royal Aquarium (Mr. J. W. Wilkinson).

New exit to Gloucester-crescent, Royal Agricultural Hall (Lalington Empire; Mr. R. Venner).

A fire-resisting curtain which it is proposed to erect in the proscenium opening at the South London Music Hall, Southwark (Messrs. Wyllson & Long).

A fire-resisting curtain at the Variety Theatre, Hoxton (Messrs. Wyllson & Long).

**Richmond Hill View.**—The following resolution was agreed to without discussion:—"That an indemnity against costs be given to any subscribers towards the purchase of Marble Hill who may be willing to join the Council as plaintiffs in the pending action against Sir J. Whittaker Ellis, provided that such co-plaintiffs agree not to be separately represented apart from the Council in such action, and that it be referred to the solicitor to take any necessary steps in the matter."

**Old Kent-road Bridge.**—On the recommendation of the Bridges Committee, it was agreed:—

"(a) That the estimate, amounting in all to 68,000*l.*, approved by the Council on January 28, 1902, in respect of the reconstruction for electrical traction of certain portions of the London County Council Tramways, be cancelled to the extent of 3,000*l.*, being the amount included therein for the purpose of the reconstruction of Old Kent-road Bridge.

"(b) That the estimate of 5,500*l.* submitted by the Finance Committee be approved; and that the expenditure of a sum not exceeding the amount of the estimate be sanctioned in connexion with the reconstruction of Old Kent-road Bridge."

**Protection from Fire.**—The Building Act Committee reported to the Council the result of the proceedings taken under the Factory and Workshops Act in regard to the City Mills Buildings, Upper Thames-street. The Committee stated that the effect of the judgment would appear to be to make it practically impossible for the Council to deal with any "old" factory premises, other than those which are wholly in one occupation, and those which are tenement factories within the definition contained in the Act, as construed by Mr. Justice Buckley, *i.e.*, premises the whole of which is occupied as factories; the mechanical power for which is supplied from one common source. It will be easy for the owner of a factory building, by letting such building to more than one occupier, to nullify the provisions of Section 14 of the Factory and Workshop Act, 1901. It was recommended that the facts of the case be communicated to the Home Secretary, with an intimation that the Council will in future remit to him all cases with which it is unable to deal effectively under the present law, and that the Home Secretary be asked to receive a deputation to urge the necessity of the introduction

of legislation to remove the difficulties arising from questions of trespass in the administration of the Factory and Workshop Act, 1901.

By comparing the above figures with the returns for the previous year, we find that there is a decrease of 917,460,000 gallons in the quantity of sewage treated."

The Council adjourned at seven o'clock.

## Correspondence.

### THE QUANTITY SURVEYOR.

SIR,—I regret that so little interest appears to be taken by the profession in establishing a home for themselves, as I had hoped that ultimately the Builders' Federation would have refused to tender on quantities not prepared on a "thorough" system adopted by representatives of the builders and surveyors, which would get rid of the slovenly and happy-go-lucky bills of quantities, often prepared by people whose experience is somewhat limited or whose duties are so multifarious that they have not time to undertake the detail work required in carefully prepared quantities, as well as to arrange differences and remove injustice between the builder and the building owner, in addition to having one meaning for one word; for at present no wise London architect would employ a south country quantity surveyor for any work he had in the north or midlands unless his client had unlimited means.

I do not think much of the argument of one of your correspondents who considers that an association would enable quantity surveyors to obtain 2½ per cent. commission, as every quantity surveyor will get what he is worth exactly as an architect or solicitor would. Nor do I think many responsible men would adopt the extraordinary reasoning of another correspondent, who seems to think that the object of my ambition is to add to my name some more mysterious initials to puzzle mankind. Personally, I have never used the letters I have a right to use with anything like the ostentatious professional parade with which your correspondent has used the initials of the Surveyors' Institution. His contention that the latter association—which is largely composed of auctioneers and estate agents, whose ideas of quantities generally are most elementary—is sufficient for the profession is unworthy of serious notice.

I have had several letters myself and a few have appeared in your widely-read journal, but only one from a London surveyor, and as it is necessary that any association should have its centre in the metropolis, I shall be glad if all surveyors reading this letter will write to Mr. F. B. Hollis, 17, Bedford-row, W.C., who very wisely suggests that some of the leading surveyors should interest themselves in it, stating their views respecting the formation of an association.

W. HOFFMAN WOOD.  
Leeds.

**FIRE STATION, RUSHDEN.**—A new fire-station has just been opened at Rushden. The architect was Mr. Madin.

### BOOKS RECEIVED.

CHINESE PORCELAIN. By W. G. Gulland. Vol. II. (Chapman & Hall.)  
THE CATHEDRAL CHURCH OF NOTRE DAME, PARIS. By Charles Hatt. (Geo. Bell & Sons. 2s. 6d.)  
THE COLLEGIATE CHURCH OF STRATFORD-ON-AVON. By Harold Baker. (Geo. Bell & Sons. 1s. 6d.)  
THE ABBEY AND TOWN OF MONT ST. MICHEL. By H. J. L. J. Massé, M.A. (Geo. Bell & Sons. 2s. 6d.)  
SPIRALS IN NATURE AND ART. By Theodore A. Cook, M.A., F.S.A. (John Murray.)  
PICTURESQUE OLD HOUSES. By Allan Fea. (S. H. Bousfield & Co. 10s. 6d.)  
THE ROCK TOMBS OF DEIR EL GELAWI. (Archæological Survey of Egypt.) By N. de G. Davies. Eleventh and Twelfth Memoirs. (Kegan Paul, Trench, Trübner, & Co.)  
ST. PAUL'S CATHEDRAL: AUTHORISED GUIDE. By Louis Gilbertson, M.A. (Chiswick Press. 6d.)  
FARM COTTAGE HOLDINGS. By H. B. M. Buchanan. (County Gentlemen's Association. 3d.)

## The Student's Column.

### BUILDERS' TOOLS AND THEIR USES.

#### CHAPTER 2 (continued).

#### Bricklayers' Tools: Accessories and Plant.

THE foregoing (see last issue) might be supplemented by the following articles employed by the bricklayer, which articles more properly come under the head of accessories and plant:—

1. Banker.
2. Chopping block.
3. Screen and sieve.
4. Wheelbarrow.
5. Mortar and concrete boards.
6. Concrete box.
7. Watering-pot.
8. Shovel.
9. Larry.
10. Measures.
11. Hod.
12. Bucket and brush.
13. Squares, &c.
14. Templates.
15. Trammel.
16. Rods.
17. Pulleys.
18. Winches.
19. Scaffolding, &c.
20. Mortar mills.
21. Centering.
22. Carts.
23. Office on works.
24. Crane.

The **Banker** is a wooden bench, some 8 ft. long by 3 ft. wide by 2 ft. 8 in. high, at which the bricklayer cuts and rubs his bricks for gauged and other work.

The **Chopping Block** is about 8 in. square, and made from any rough piece of timber. It supports a brick in an angular position convenient for cutting and axing, and is generally rested on a temporary brick pier about 2 ft. 6 in. from the ground (fig. 39).

**Screen and Sieve.**—The former is for separating coarse gravel from hoggin or small gravel, and for screening lime, sand, breeze, rubbish, &c. Lime and sand may be most efficiently mixed by screening them together. The screen is placed at an angle of 60 deg. from the ground, and the material to be screened is forcibly dashed against it by means of a shovel, the finer particles passing through and falling beyond, while the large stones roll down its surface and come down on the nearest side. The best size is 6 ft. by 3 ft., with the sides and corners of the frame strongly clamped with iron, and strong iron bars at the back (fig. 40). The iron wires should be wrapped round the iron cross-bars, so that the meshes cannot be displaced or wear loose, the usual mesh for general purposes being  $\frac{1}{8}$  in., but it varies from  $\frac{1}{16}$  in. up to  $\frac{1}{2}$  in. For large quantities a rotary gravel-screen machine may be employed, worked by hand power.

The sieve is chiefly used for riddling gravel, &c., often to a greater fineness, and is worked by hand, a good size being 22 in. or 24 in. diameter, the meshes ranging from  $\frac{1}{8}$  in. to  $\frac{1}{2}$  in. (fig. 41). The circular frames or rims should be of oak, 6 in. deep. A sieve is sometimes termed a riddle, and it is generally the most satisfactory mode of sifting small quantities of sand, gravel, &c.

The **Wheelbarrow** is similar to that of the excavator, and is needed for wheeling bricks, rubbish, sand, &c., to and fro on the works.

**Mortar and Concrete Boards.**—The mortar-board is about 3 ft. square, and used for mixing mortar on, as well as to contain mortar during the process of building by the side of the bricklayer on the scaffold as he lays his bricks. Sometimes a small hawk, like that of the plasterer, is wanted for the same purpose when jointing. For mixing concrete on a boarded stage, 15 ft. by 8 ft. is convenient



to prevent the intrusion of clay or other deterioration.

The *Concrete Box*, as required for measuring the ingredients of concrete previous to mixing, is depicted in fig. 42. They are both with and without bottoms, a suitable size being 5 ft. 6 in. by 5 ft. 6 in. by 1 ft. 4 in. deep =  $1\frac{1}{2}$  yd. cube, for large quantities, with two handles at either end. Other sizes of boxes for measuring sand, cement, &c., are 13 $\frac{1}{2}$  in. by 13 $\frac{1}{2}$  in. by 13 $\frac{1}{2}$  in. = 1 bushel, and 3 ft. by 1 ft. 6 in. by 1 ft. 6 in. =  $\frac{5}{8}$  bushels, but these vary according to the proportions of materials required.

Bottomless boxes are the handiest, as when they are filled up they are simply lifted, leaving the materials ready for mixing on the wooden platform. A good size for gauging materials is 5 ft. 6 in. by 3 ft. 4 in. by 1 ft. 6 in. = 29 ft. cube, which is a little more than a yard cube to allow for shrinkage of the materials when made up into concrete. Besides this there may be a smaller box for measuring cement according to the proportions specified, from which the aggregate is made up and filled into the larger box. In fact, the boxes may be of various convenient sizes to get the required capacity.

The *Watering Pot* is used for sprinkling the water when making concrete, which should find an outlet through a large copper rose, and in the form of a spray.

The *Shovel* is for mixing up mortar and concrete, and has a long, straight handle, while the blade is pointed.

The *Larry*, or mortar larry, is a kind of rake employed for mixing and chopping up mortar, it differing from the plasterers' larry in having no prongs (fig. 43). A shovel is, indeed, more often requisitioned for this purpose than a larry.

*Measures* for lime, &c., of wood, are illustrated in fig. 44. A common capacity is one bushel, or one cubic foot.

The *Hod* is used by the labourer for carrying mortar as well as bricks to the bricklayer (fig. 45). The ordinary size is 16 in. by 9 in. each way, and it is fixed at the top of a long handle or leg about 3 ft. 6 in. long, upon which it is supported during the process of filling and emptying. It commonly holds twelve bricks (more than this would be too heavy), though it is reputed to have a capacity for sixteen or twenty, and it will contain two-thirds cubic foot, or nearly half-bushel of mortar. Part A rests upon the shoulder of the hodman, who grasps the shaft, and that portion is made thicker by means of a wooden roll for this purpose. The other part is supported by an angle stay. B is a piece of wood to clean the hod with, and it is kept in a small leather strap. Iron hods are sometimes in demand, though rarely.

*Bucket and Brush*.—The former is needed to contain the water necessary for wetting the bricks, as well as for the making of mortar. It should be of galvanised iron, hooped at top and bottom, with strong riveted sides and about 12 in. diameter, capable of holding three or four gallons. Bricks ought to be well wetted before being laid, in winter as well as in summer, for if laid dry the mortar will not adhere to them, as their surfaces are coated with dust, which prevents the adhesion of the mortar. This is dangerous during frosty weather, and the wetting of stocks should then be carried on with discrimination, though in the United States, where frosts are severer than in this country, the risk is avoided by executing work with heated bricks and heated mortar. It is all the more necessary to moisten bricks where cement mortar is used or the materials will not be adhesive, and in this connexion the fact that wet bricks make the fingers of bricklayers sore has probably something to do with the frequent neglect.

The brush for the above process is an ordinary nailed stock whitewash brush (fig. 46), though as often as not the bricks themselves are dipped in the pail as it rests on the scaffold beside the bricklayer. This brush is also handy for moistening mortar that is too stiff when sent up to the bricklayer, and for wetting the tops of brick courses.

*Squares, Triangles, and Bevels* are of wood, and are used for setting-out work at right angles, pitches of gables, &c. Tee-squares are employed for accurately marking vertical joints on brick facing.

*Templets* are likewise required for setting out work, and such a piece of plant constitutes a kind of mould made of thin pieces of wood nailed together to the requisite form. For

instance, fig. 47 illustrates a templet for setting out a bay window, made out of 4 in. by  $\frac{3}{4}$  in. stuff. This is placed on the ground, and the walls are built round it. Profiles serve a similar purpose to gauge work to.

*Trammels* are more often used by the mason and carpenter than by the bricklayer, and are needed for striking out ellipses and other curved work. (For full description see "Carpenter.")

*Rods*.—A rod is a strip of wood, about 1 $\frac{1}{2}$  in. square, and some 10 ft. long, marked in feet and parts of feet, and affording a ready means for setting out walls, heights, &c. Thus the plan of a building is laid out by means of these rods, two or more being employed if the length of one is not sufficient. On them are marked the various widths of the walls, recesses, &c., full size, and these are taken as guides to set out the work. The mode of procedure is sketched in fig. 48, the rod being applied from time to time as the work proceeds to see that the widths, &c., are carried out accurately. An upper floor would be laid out in a similar manner.

In the same way story rods, which are approximately 12 ft. high (according to the height of the story), are used for accurately setting out all vertical portions of work in that story. The heights of doors, windows, sills, string courses, &c., as well as every brick course, are exactly worked on the different sides of the rod in pencil, as in figs. 49 and 50. A different rod, worked in the same style, is required for each story.

*Pulleys*, also variously termed whip-pulleys, gin-blocks, or contractors' rubbish-wheels, are necessary adjuncts to the scaffolding for the purpose of hauling up materials. They are of iron, from 8 in. to 18 in. diameter, fitted in a light iron frame with hooks to hang up by (fig. 51). Pulley-blocks of iron or wood, and with brass, iron, or wood sheaves, are in similar employ; likewise Weston's patent differential pulleys, which consist of an endless chain passing round two blocks, the upper one being double, the mechanical advantage arising from the difference in the diameter of the pulleys, whence the name.

*Winches and Crabs*, single and double purchase; *Scaffolding* and accessories; *Mortar Mills*, driven by engines, and either portable or standing; *Centering*, including turning pieces; *Carts*, drays, and wheelbarrows; *Contractor's Office on Works*, a small temporary structure, and resting on sleepers or wheels; *Fib Cranes*, to lift one to ten tons, all come under the category of plant, as well as box trestles, walings, wooden shoots for concrete, temporary shores, large tool-chests, &c.

\* \* A correspondent has kindly drawn my attention to the bow saw, which is superseding the tin saw for cutting bricks; also to the substitution of wood moulds for zinc ones. While thanking him, it is only right to state that I have drawn my descriptions and sketches from observations made actually on the spot, and my object was to describe general usages and terms rather than special processes.—THE WRITER OF THE ARTICLES.

#### OBITUARY.

MR. NEWTON.—We have to record the death, at his residence, Quarry Farm, Northfield, near Birmingham, on the 15th inst., of Mr. Thomas Walter Francis Newton, aged forty years. Mr. Newton was the senior member of the firm of Messrs. T. W. F. Newton & Cheattle, architects and surveyors, of Birmingham. Mr. Newton, having practised independently during a few years at Birmingham, took Mr. Alfred Edward Cheattle into partnership. The firm were engaged as architects for the development of the New-street quarter in Birmingham by the erection of the New Midland and City arcades by the City Arcades Co., and for extensive improvements upon the Colmore Estate in that city. For the two arcades, the contract for the first section of the scheme was let to Mr. E. J. Charles, of Moseley, in November, 1898. They were opened on October 18, 1901, the cost, with that of the adjoining premises amounting to some 250,000l. The Midland Arcade runs from New-street to the City Arcade, which begins in High-street (where it adjoins the Louvre) and continues to near the junction of Union and Corporation streets, with a branch into New-street. Thus the two arcades connect those four streets, and have subways beneath them, for the delivery of goods to the shops, and comprise about 200 shops and offices. The façades are of terra-cotta, by Messrs. Doulton & Co., of Lambeth, and the style of design is Renaissance. Last year the firm prepared the plans and

designs for a separate company for a range of buildings fronting New-street, and consisting of four large shops, about one hundred offices, and five sets of warehouses in the rear, upon a site between the two arcade entrances in New-street; considerable extensions of the Louvre, in High-street, were also carried out as part of the earlier scheme as undertaken by the City Arcades Company. The improvements, begun four or five years ago upon the Colmore estate, include blocks of offices, suites of rooms, and chambers, for doctors and other professional men, residential houses, &c.; in Newhall, Edmund, Church, Cornwall, and other streets.

MR. GIBSON KYLE.—The death is announced of Mr. Gibson Kyle, at his residence, 2, Roseville, Bensham, Durham. Born at Ponteland in 1820, Mr. Kyle served his apprenticeship as an architect with his uncle, Mr. John Dobson, and acted as clerk of works at the building of the Central Railway Station. He also carried out the work of erecting the first of the now existing buildings in Grainger-street West—then St. John's-lane—for Mr. Grainger. Subsequently he was appointed architect for the Dean and Chapter of Durham, and some of the public buildings, as well as a training college in Durham City, were from his designs. In partnership with Mr. John Dobson, the deceased gentleman erected a suite of offices on Newcastle Quay, and also designed a large number of churches and other buildings in the district. One of the founders of the Northern Architectural Association, he was probably at his death the last of the members who saw its inception. His last work was the Gallowgate Corporation Baths some five years ago, the position of architect for which he won in open competition. He is survived by a son, who carries on business as an architect in Newcastle. The funeral took place at Elswick Cemetery.

#### GENERAL BUILDING NEWS.

ST. THOMAS CHURCH, EASTVILLE, BRISTOL.—The nave of St. Thomas Church, Eastville, has been extended. From the transepts the nave has been carried almost to the main road, the work being in keeping with the style of the original building. The length from east to west walls is 135 ft., an extension of about 70 ft., and there are now seats for about 900 people; double the previous sitting accommodation. Roughly, the expense has been 4,500l. In addition to the extension of the nave, the old vestry has been done away with, a morning chapel taking its place, and new vestries and classrooms will be added on another occasion. Until then the clergy will robe in a temporary vestry in the organ chamber, and a temporary covered way has also been provided from the church to the parish rooms. A bell-turret with two bell-cots is constructed over the west end of the chancel, new chairs are being placed throughout, and the building will be lighted by electricity. The outer doors will be of oak, and there will be inner doors of pitch pine. A memorial window in the north side to the memory of Mr. Alonzo White, who fell in the South African war, is also in process of construction. The extension has been carried out according to plans prepared by Mr. H. C. M. Hirst, architect; the clerk of works has been Mr. R. Bennett; the builders, Messrs. R. Wilkins & Sons; and the electric light installation has been effected by Mr. Winter.

CATHOLIC CHAPEL AND SCHOOLS, Tooting.—New Roman Catholic buildings have been erected at Tooting. The new schools, which are situated in Undine-street, Mitcham-road, have been erected from the design of Mr. R. Chalmers Neal, and the building arrangements were carried out under the supervision of Mr. F. J. Webster (the secretary of the committee). The ground floor will for the present be used as the temporary chapel for the Catholics living in the district, until such a time as a suitable church can be erected on the site of the present building.

WESLEYAN CHURCH, DARLINGTON.—On the 21st inst., the foundation-stone was laid of a new Wesleyan church in Corporation-road, Darlington. At present there is a large school-chapel, which will be used for a Sunday-school, the new church and additions to the school being estimated to cost about 7,000l. The architects are Messrs. W. J. Morley & Son, Bradford. The new church will be of pressed brick, with stone dressings. There will be a tower and spire rising nearly 100 ft. Besides the main building, there will be classrooms, vestry, and a gallery at one end. There will be accommodation for about 800 people. The interior woodwork of the wagon-headed roof, pews, &c., will be of pitch pine, and the windows will be open tracery, with ornamental leaded lights.

CHURCH, VICTORIA DOCKS, E.—The foundation-stone of the new Church of the Ascension has just been laid at Victoria Docks. The architects are Messrs. Cutts. The building is in the thirteenth-century style, resting on arches of brick and concrete piles, which go down to a depth of 14 ft. in the soft marlbank before they find a solid foundation.

RESTORATION OF WOTTON-UNDER-EDGE CHURCH, GLOUCESTERSHIRE.—A special service was held at the parish Church of St. Mary the Virgin, Wotton-under-Edge, recently, to commemorate the restoration of the tower and the re-hanging of the peal of eight bells. The pinnacles of the tower had become



so unsafe that before the work was actually taken in hand two of them had to be taken down to prevent accident. The battlements were also very much decayed, and all of them were more or less loose and very unsafe. Mr. Walter B. Wood, of Gloucester, was the architect, and the firm of Messrs. A. Estcourt & Son, also of Gloucester, carried out the work. The carving of the pinnacles was done by Mr. F. Frith, of Gloucester.

**HOTEL, SHEFFIELD.**—A new hotel is to be built in Sheffield with frontages to Leopold-street and Orchard-lane. It is to be built under the auspices of the Yorkshire Hotels Syndicate, and, including site, building, and equipment, the cost is estimated at 120,000l. The main front in Leopold-street will extend from near the end of Johnson & Appleyard's premises to Orchard-lane. To Orchard-lane there will be a front of 200 ft. The ground plan shows the accommodation downstairs, where all the public rooms will be located. The large dining hall will accommodate 250 guests. There are to be two coffee rooms, a grill-room, private dining-room, commercial room, smoke-room, billiard-room, reading-room, drawing-room, and a large conference-room for company meetings and arbitrations. The bedrooms for visitors are to number 100. The architects are Messrs. Chorley, Connon & Chorley, of Leeds. Mr. James Fidler is the general contractor.

**PUBLIC OFFICES, ULVERSTON.**—Recently the Urban Council purchased a block of buildings in Queen-street, formerly the Westmoreland Bank, having its main frontage to Queen-street, and abutting on to Benson-street and Theatre-street. Arrangements have recently been effected for the conversion of this property into offices for all the public officials of the town, and board rooms for the Urban and Rural District Councils, School and Cemetery Boards, Guardians, &c. The plans have been prepared by Messrs. James Grundy & Son, architects, the contract let to Mr. Nelson Wearing, builder, and the work of conversion is now in hand.

**ROYAL NORTHERN CLUB, ABERDEEN.**—Alterations and additions are being made to the Royal Northern Club, Union-street, Aberdeen, by Messrs. Fordyce & Co., builders. The plans, prepared by Mr. A. Marshall Mackenzie, A.R.S.A., provide for a new wing being built at the corner of Huntly-street, corresponding to the one on the other side.

**CONGREGATIONAL CHURCH, NORTHAMPTON.**—The new Congregational Church on Primrose Hill, Kingsthorpe-road, Northampton, was opened recently. The building has been erected from the designs of Mr. Alexander Anderson. The chapel is entered through a vestibule supported by stone pillars, and stretching across the front of the chapel above the vestibule is a stone panel carved with eight life-sized figures symbolical of joyful worship. At one end of the vestibule is a deacon's vestry, and at the other is a staircase leading to the gallery which stretches along the bottom of the chapel. The total length of the interior is 90 ft., and there is accommodation for 500, the seating consisting of pitch pine pews. The chapel is in octagon shape, the dome roof being supported by four angle arches. The building was erected by Mr. G. W. Souster, and the total cost is about 2,800l.

**EXTENSION OF ABERDEEN ART GALLERY.**—Plans have been prepared by Mr. A. Marshall Mackenzie, A.R.S.A., of the proposed extension of the Aberdeen Art Gallery. In order to carry out the new scheme an arrangement will be come to with the Governors of Robert Gordon's College for the acquisition of a piece of ground which will enable the gallery building to be carried some 30 ft. back beyond the present limit. A large extent of floor space will be required for the display and exhibition of the projected sculpture section, and under the new scheme this will be provided for. The whole of the present central hall and the additional space which will be obtained behind will be devoted to sculpture, and the small east and west rooms will also be extended and used for museum and other necessary purposes. The roof of the main gallery will be heightened, and the proposed scheme is to build new galleries, constituting a suite of rooms extending round the entire structure.

**CHURCH, SWINDON.**—A new church has been erected at Swindon from plans prepared by Mr. Ponting, of the District Office.

**PROPOSED SCULPTURE GALLERY, ABERDEEN.**—At a meeting of the Aberdeen Art Gallery Committee, on the 22nd inst., a letter was read from the trustees of the late Mr. John Clark, sometime in Aberdeen, intimating a donation of 7,000l. for the purpose of altering and enlarging the gallery so as to provide a sculpture hall. The committee received the intimation of this offer of Mr. Clark's trustees with pleasure, and resolved to take steps to enable them to comply with the conditions on which the grant is made. Mr. A. Marshall Mackenzie, A.R.S.A., submitted plans of the proposed enlargement, and instructions were given to apply to the governors of Gordon's College for the necessary ground behind the gallery.

**NEW OFFICES, NEWCASTLE SCHOOL BOARD.**—New offices have been erected in Northumberland-road for the use of the Newcastle School Board. The office and pupil teachers' centre form a complete group of buildings, divided into two blocks, the accommodation for the members and the Board's staff being arranged in one, and that for the

pupil teachers in the other block. The entrance, which is in the centre of the Northumberland-road elevation, opens into an entrance hall and staircase. On the ground and semi-basement floors are the various offices, the general or inquiry offices being in a convenient position, and communicate with the rooms occupied by the chiefs of departments, the typists, and the inspector. In the basement are the attendance offices, a room for the clerks, strong-rooms, stores, &c., including lavatories. On the first floor and to the front is the Board-room, about 32 ft. by 27 ft., lighted by four windows, panelled in oak. Opening off the dais end of the room is a lobby with book-lifts to general offices and basement, and telephonic communication to every office, and beyond a waiting-room. The Chairman's room and the committee-room face on to Northumberland-road. Cloak-rooms for the members complete the accommodation on this floor. The caretaker, whose apartments are on the second floor, has a private stairway which surrounds a lift reaching from basement to roof. The pupil teachers' centre is arranged at the back of the main block, the girls entering from Northumberland-road and the boys from the side street. The ground floor is occupied by two class-rooms, the cloak-rooms, and entrance passages. On either side is a staircase for males and females, and on the first floor three large classrooms divided by glass partition, which can be removed and the room thrown into one. There are also rooms for the teachers, &c. The second floor is devoted to chemical and physical laboratories, with the necessary preparation, dais, rooms and stores, the whole fitted with the usual demonstration tables, benches, suites, fume closets, &c., and ventilated by means of an electric fan. The classroom and staircase have glazed brick dados. The whole of the buildings are warmed by steam, and lighted by electricity. The general works have been executed by Messrs. J. & W. Lowry, contractors, the warming by Dinning & Cooke, and the electric light by Mr. Usher. The marble work is by W. Wear & Sons, and the oak furniture by Mr. Ralph Hedley, the remaining offices being by Mr. Sopwith. The whole works have been carried out from the designs and under the supervision of Mr. W. H. Knowles, architect, Newcastle.

**HIGH SCHOOL FOR GIRLS, CLAPHAM.**—A new building has been erected on South Side, Clapham Common, for the Girls' Public Day School Co. The new school occupies the site of one of the old Clapham residences, known as The Lawa, and it has a frontage of 150 ft. It is built of red brick, with stone facings, and will provide accommodation for about 450 scholars and eighty student-teachers. It is principally divided into three departments, viz., an kindergarten department, a department for the ordinary schoolgirl, and a students' department. Whilst the area and ground floor are devoted to the usual offices, such as kitchens, cloakrooms, lavatories, rooms for staff, the secretary's room, stationery, cupboards, &c., the two floors above that are divided into a large assembly hall, with some fifteen classrooms, all facing the sunny side of the building, and each accommodating about thirty scholars; two art studios, two science rooms, and three sound-proof music-rooms, with the housekeeper's and servants' sleeping quarters above. At the rear is a gymnasium, with tennis courts and playgrounds for the girls. Mr. J. Osborne Smith, of Westminster, is architect to the company; the building has been erected by Messrs. Kilby & Gayford, of Finsbury, under the superintendence of Mr. Constanline as clerk of works. The cost of the building has been between 14,000l. and 15,000l.

**BRIDLINGTON GRAMMAR SCHOOL.**—New buildings have just been added to this school. The first part of this extension—a detached building for science and art instruction, comprising laboratories for physics and chemistry, lecture-room, preparation-room, and art-room—was opened by Lord Wenlock in July last. The new buildings now to be opened form a considerable extension to the north of the original buildings, which were opened in August, 1899, and provide additional accommodation for day boys as well as boarders. On the ground floor two additional classrooms are provided, completing the group of six arranged around three sides of the central hall; two day rooms for the boarders; nine studies for the boys; four masters' sitting-rooms; and masters' common-room. There are also a changing-room, fitted with lockers and lavatory basins; a lavatory fitted with basins on one side and a range of shower baths on the other side; and a boot-room. On the first floor there are five new dormitories, four for six boys each and one for ten boys, and as one of the dormitories in the original building which had been temporarily converted into matron's rooms will be now made available, the total accommodation for boarders will be increased to nearly seventy. Separate lavatories are provided near the new dormitories, with a separate basin for each boy; also four new bathrooms, one of which is fitted with two shower-baths, and housemaids' closets and water-closets. On the first floor there are also four masters' bedrooms, sitting-room and bedroom for the matron, and a large linen-room. On the second floor are three sickrooms, with separate bathroom, housemaid's closet, and water-closet. The new buildings have been designed by Mr. John Bilson,

F.S.A., of Hull, and have been carried out by Messrs. John Jaram & Sons, of Scarborough. Messrs. Wright Bros., of Sheffield, have executed the heating apparatus, and Messrs. Illingworth, Ingham, & Co., of Leeds, have made most of the fittings.

**HULL BUILDING TRADE.**—During the first nine months of the past year average activity, says the *Eastern Morning News*, prevailed in the building trade of Hull. The last quarter, however, witnessed a diminution in operations. This was especially noticeable in connexion with speculative building, and is attributed to over-production. In some quarters it is stated that certain clauses in the proposed Omnibus Bill, relating to the erection of property and the construction of streets, have also acted as a slight check upon the trade. The number of houses erected of the smallest type was slightly below the average of previous years. Notwithstanding this, however, the number of plans passed by the Corporation was practically equal to that of 1901. The price of materials underwent little change, and no trade disputes arose. The outstanding features of the year were the progress made with the Mayor's extension scheme, the demolition of dilapidated buildings, and the extensive developments of the city to the north and east. Without doubt, when the new public hall has been erected, the view that will present itself from the Whitefriar Gate Bridge will be at once striking and imposing. Amongst the many buildings that have been completed, or are nearing completion, in the immediate neighbourhood, are the Lancashire and Yorkshire Railway Co.'s offices at the corner of Savile-street and King Edward-street, and on the opposite side of the road the structure of the Prudential Assurance Co. Rapid progress was made with the extension of the Royal Infirmary. In Alfred Gelder-street, the most noteworthy feature is the new police-station. In Charlotte-street a new building, the Alexandra Theatre, was erected. Ecclesiastical enterprises were also undertaken during the year. A new church was opened at Dairycoates, and the foundation-stones of two others were laid at Newington and Wilmington. Amongst the projected developments may be mentioned the Public Hall; seventy artisans' dwellings, which will bring the total number of such houses in Hull up to 117; the Rowton Homes; improvements at Paragon Station; the School of Art; the extension of the Town Hall, for which designs that will not entail the expenditure of more than 100,000l. are being advertised for by the Corporation; and the new central Post Office. The outlook for the present year is not altogether promising, as the large number of empty houses in irrefutable evidence that the number of dwellings erected on the outskirts of the city has been considerably above the requirements.

**NORWICH BUILDING TRADE.**—The building trade of Norwich had a sorry experience in 1902. The strike, which lasted for eighteen months previously, had the effect of literally paralysing operations which, under more fortunate conditions, would have been undertaken, and those who had work to be done postponed it indefinitely. Consequently, when the men desired to go to work, they found that there was nothing for them to do. The principal jobs in the city were the alterations and additions to the General Post Office, the erection of the new Norwich Union Life Office, and the building of premises in Orford-place. A new church is in course of erection in St. James's Parish, and a Board school is to be built on Silver-dor. Another big job is the new theatre in St. Giles's. Cottage building in the suburbs of Norwich during the past year was moderately brisk, but in no proportion to that of previous years. The streets then laid out have been filled in with houses, and these have readily found tenants.

**TENEMENT DWELLINGS IN BIRMINGHAM.**—Mr. W. B. Cregoe Colmore and his trustees have decided to build, as an experiment, a block of tenements on a piece of land at the corner of Hospital-street and Henrietta-street, near the bottom of Snow Hill. The building, which will have a frontage to Hospital-street of 95 ft., will be four stories in height, and will contain twenty-four tenements, sixteen of which will be two-roomed and eight three-roomed tenements. The tenements will not be all communicating, as in some flats, by an internal corridor or outside balconies, but they will be divided into three separate blocks, under one roof, each having one staircase. The staircases will be constructed of stone. Each tenement will be what is known as "self-contained." The living-rooms will measure in each case 140 superficial feet; the window will be recessed, and the space thus formed will contain a dresser, with a ventilated food cupboard. Leading from each living-room is planned a scullery, containing a sink, a copper, a bath, a plate rack, and a chopping block. Beyond the scullery-closet, one being provided for each tenement. In the disconnecting area space is found for a coal bunker, and there will be also arranged a shoot for ashes which will discharge into a recessed space on the ground floor. The bedroom will measure 120 superficial feet. In the three-roomed tenements the second bedroom will be smaller, but each will be provided with a fireplace. Ample space will be left at the rear of the building, which will be paved and used as a drying-ground. The



top story will be partly in the roof, the roof being of Mansard shape. The design of the elevation is considered an important matter, and an attempt has been made to free it from the usual ugly appearance of such buildings and retaining a distinctly domestic character. The buildings will be faced on all sides with red brick, the slates of the Mansard roof will be green, and the external wood-work will be painted. The sills of the windows will be made to receive flower-pots. The roof will be boarded, felted, and slated. The floors of the living rooms will be laid with small hard red quarries, and the bedroom floors will be of wood block. The floors of the building throughout will be fireproof, and special precautions will be taken to make them as far as possible soundproof. An important point in the plan is that every room can be entered separately from the entrance lobby without going through another room. The greatest care will be taken in all matters of detail; the walls will be plastered and "Dureco" coloured, a cement painted dado will be provided for the living rooms, door frames will be iron, doors will be strongly made, window-frames will be solid, wrought iron opening casements will be provided to each window hinged on pivots top and bottom to facilitate window cleaning. The architect is Mr. Arthur Harrison, of Colmore-row—*(Birmingham Post)*.

**HYDRO, ST. ANNE'S, LANCASHIRE.**—The Building Committee of the St. Anne's Council has just sanctioned plans for a hydro-pathic establishment to be erected by a private company on a site bordering Fairhaven and St. Anne's. The building, which is to be called the Dunes Hotel, will have a frontage of 100 ft. to Clifton Drive, and be five stories high. It will be equipped with needle, electric, Russian, vapour, German, and plunge baths, and lighted throughout by electricity, and contain seventy-two bedrooms. The architects are Messrs. Woodhouse & Willoughby, of Manchester.

### FOREIGN.

**FRANCE.**—The crematorium at Père Lachaise cemetery is to be entirely rebuilt under the direction of M. Formigé. A monument is to be erected at Montmartre, on the Place Saint-Pierre, in memory of the part played by astronauts during the siege of Paris. The monument, the model for which has been made by M. Bartholdi, will consist of a group in bronze surmounted by a luminous balloon.—The prize founded by M. Léonard, the architect, and which is awarded to a sculptor and to an architect in alternate years, has been awarded this year to M. Ernest Barrias, the sculptor, for his monument to Victor Hugo. The first year the prize was awarded to Dalou, for his "Triumph of the Republic," and the second year to M. Girault for his *Petit Palais*.—The annual exhibition of the Cercle Volney has been opened. Among the exhibits are a pretty work by M. Bouguereau, sea-pieces by M. Léon Ruffe, a "Vieux Mâleto" by M. Tattegrain, and some fine portraits by MM. Bonnat and François Flameny.—A new bridge is to be built over the Seine, between Courbevoie and Levallois-Perret.—M. Cave, architect, of Argenteuil, has been commissioned to build a new municipal theatre at Vannes, on the site of the former Mairie.—A new church is to be built at St. Jean-la-Ruelle, from the designs of M. Farcinade.—The Government has decided on promoting an international exhibition of "l'habitation des Industries" to be held in the Grand Palais on the Champs Elysées, from July to November of this year.—A municipal theatre is to be erected at Bagneres de Bigorre.—An international fine art exhibition is to be opened at Hyères on February 15.—The death is announced, at the age of sixty-three, of M. Litoux, architect, of Paris.

**SWITZERLAND.**—The assessors appointed to adjudicate upon the designs sent in by twenty-four artists for the mosaic work to be put into the National Museum at Zurich have selected the designs by the following three artists: M. Johann Bosshard, of Charlottenburg; M. Werner Bichli, of Basle; and M. Auguste Giacometti, of Florence. These gentlemen have now to furnish coloured drawings, and the assessors will make their final award in three months' time.

**INDIA.**—Extensive improvements are about to be made at the Chinsura station of the East Indian Railway Co. The estimated cost is 24,000 rupees.—The district agent of the East Indian Railway is about to recommend the construction of water supply works at Mokameh, Dinapur, Sutta, and Cawpore.—The Government of India has sanctioned a survey being made for a line of railway from Khurja station on the East Indian Railway to Hapur station on the Oudh and Rohilkhand Railway, a length of about thirty-seven miles. A water supply scheme for the South Suburban Municipality of Calcutta has been sanctioned.

### MISCELLANEOUS.

**PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.**—Mr. Robert Hammond, consulting engineer, 64, Victoria-street, Westminster, has taken into partnership his son, Mr. Robert Whitehead Hammond, and has also given an interest in his business to Mr. John May, and to Mr. G. W. Spencer Hawes, who

have been his chief assistants for many years. The business will in future be carried on under the style of Robert Hammond & Son.—Mr. Charles H. Mead, architect, has removed his offices from 8, Mortimer-street to 64, Berners-street, London, W.

**DISTRICT SURVEYORS' ASSOCIATION.**—Mr. Alexander Payne has been elected President of this Association (composed of the surveyors under the London Building Act), and Mr. T. H. Watson, Vice-President. Mr. F. Wallen, who has for some years filled the post of hon. Secretary, has retired, taking the post of Treasurer, and is succeeded by Mr. Henry Lovegrove.

**A CASE FOR FILING PAPERS.**—The Library Supply Co. send us a specimen of their "Auto-fix Case" for loose papers. It is a strong case in the form of a small but thick folio book, hinged to open at the edge for inserting papers, and which can be placed on a bookshelf. It seems a convenient receptacle for keeping together loose papers so that they can be easily referred to.

**THE LATE MR. TAGG-ARUNDELL.**—In reference to the obituary notice of this architect in our issue of January 10, a correspondent who was formerly a resident in India writes that we were mistaken in the statement that Mr. Tagg-Arundell was on the Madras Council. It appears to have been a case of mistaken identity in regard to two similar names.

**THE CEMENT TRADE AT RIO.**—The British Acting Vice-Consul at Rio de Janeiro reports a considerable decrease in the importation of cement, the quantity imported having fallen from 144,698 barrels in 1900 to 89,509 barrels in 1901. Of the latter total 7,093 barrels were sent from the United Kingdom, as compared with only 3,925 barrels in the preceding year. Belgium sent 61,093 barrels (against 123,387 barrels in 1900), and Germany 19,200 barrels (against 17,144 barrels in 1900).

**THE CONISTORY COURT OF LONDON.**—At a sitting of the Court at St. Paul's Cathedral on the 21st inst. Dr. Tristram, K.C., Chancellor of the Diocese of London, granted faculties in respect of the churches of St. John, Bethnal Green, and St. Luke, Holloway. In the former instance the faculty relates to the erection of a chancel screen of marble as a memorial to the late vicar, the Rev. E. Raven Hollings, and a side chapel to be used for early Communion and daily prayer, when only small congregations are present. The church, being one of ten district churches that were supplied, mainly through the exertions of Dr. Blomfield, Bishop of London, was erected for 2,000 sittings in 1828 from designs in the quasi-Italian manner by Sir John Soane. After the fire on February 16, 1870, the fabric was restored, as we read in Charles Mackeson's "Guide" of 1891, by Mundy, and the church was re-opened in March of the following year. The organ, by A. W. Coleman, 1871, having three manuals and thirty-four stops, was removed to the east end and reconstructed by Eustace Ingram six years afterwards. In the case of the church of St. Luke, Holloway, it is proposed to build, at a cost of 500l., a choir vestry and a church room adjoining the chancel and transept, with an entrance from the choir vestry into the church. The new building will serve also for church meetings and similar purposes, and will stand upon unconsecrated ground. The church was erected for 1,080 sittings, after plans and designs in the Early English style by Lee, and was consecrated in 1860. The organ, rebuilt by Bevington forty years ago, had been originally in St. Paul's, Covent Garden.

**HAINGOLD FOREST, AND ITS PROPOSED PURCHASE.**—As we announced last week, the London County Council, under conditions, to subscribe 10,000l. to complete the purchase-moneys for this open space, to be vested in them, and will take charge of the Bill. The Corporation of the City of London expressed their inability to contribute 10,000l.; they are charged with the maintenance of Epping Forest, and their resources are now diminished by reason of the termination in November last of the grain dues which yielded about 20,000l. per annum. The Bill enables the Corporation, London County Council, Metropolitan Borough Councils, Essex County Council, West Ham Corporation, and District Councils of Dagenham, Ilford, Leyton, Woodford, and Wanstead, or four or more of them jointly or severally, to acquire for public purposes Lambourne Forest or Common, the 52-acre piece and Fox Burrows Farm in Dagenham parish, and Grange Hill Forest in Ilford parish. The several lands appertain to four ownerships; they extend over an aggregate area of 803 acres, and negotiations for their purchase at a price of 21,850l. are open. They lie on the ridge or watershed which rises to an altitude of 300 ft. on the east side of the valley of the river Roding; Fox Burrows Farm, 475 acres, for which 16,000l. it seems is asked, and of which the Commissioners of Woods and Forests own the freehold, was formerly waste of Hainault Forest enclosed by the Crown under the Act *ad hoc* of 1851, and since let for tillage. The price of Lambourne Forest, 188 acres, which has of late years been sadly ill-used by gipsies and vagrants, is 600l.; the rights of Colonel Lockwood, M.P., and Captain Ethelstone, as lords of the manors, over Lambourne Common, about 315 acres, could be purchased for, it is stated, 3,600l.; a sum of 1,730l. is asked for the fifty-two acres, now under cultivation, adjoining the farm, and 1,300l. for an

equal enclosed piece skirting Lambourne Forest E. of North Buxton, to whom Epping Forest owes much, taking a leading share in the movement for re-afforesting those woodlands. They comprise, besides, a charming piece, about 70 acres, of the ancient forest, near Claybury. Chigwell Manor has been enclosed during a long period, and has not greatly suffered; the south-western portions are well timbered and their pristine state is commemorated by the Roes' Well. A further area of 12 acres at Grange Hill might be secured, and Lord Grosvenor's trustees will, under conditions, dispose for 150l. of their interests in the two greens, 44 acres, at Woodford Bridge. The neighbouring population is rapidly increasing: West Ham has 300,000 inhabitants, East Ham has trebled its population to 95,000 in the last ten years, and Ilford counts 41,000 as contrasted with 10,000 in 1891. Leyton and Romford are extending quickly. Stations will be made at Chigwell and Chigwell Row on the Great Eastern Railway new loop line from Woodford to Seven Kings, and there is one at Grange Hill on a new branch of that company's system.

**INCORPORATED SOCIETY OF BRITISH DECORATORS.**—Before the Glasgow branch of this Society, on the 23rd inst., James Falcon, superintendent of the Museums and Art Galleries, in the Faculty Hall, West George-street, delivered a lecture on "Mosaics in History and Art." After defining and describing the various classes of work to which the name of a mosaic is given, and limiting his attention to pictorial mosaics made up of small cubes of colored enamel, he pointed out that mosaic is the most powerful decorative medium which has ever come into the hands of the artist. The practice of mosaic working is one of high antiquity which came into extended use at the most interesting stage of human progress, and therefore its history has intimate relation to a subject of the deepest interest to the student of art, the introduction and early growth of the Christian religion. Mosaic working is a costly and difficult art, requiring on the part of its successful practitioner very high artistic and technical skill, but when composed and properly fixed a mosaic picture is practically unchangeable and imperishable. The fundamental condition in the employment of mosaic is that the medium, as the lecturer pointed out, is that it be used with moderation, sobriety, and reticence, the risk of a mosaic being that it may dazzle more than permanently delight. The historical development and vicissitude of mosaic art were subsequently dealt with, and recent efforts to revive the art, especially on a great scale in St. Paul's Cathedral, under the guidance of Sir William Richmond, were alluded to.

**THE VALUE OF HOUSES AT HYDE PARK CORNER.**—Mr. Under-Sheriff Burchell and a special jury, at Red Lion-square, Holborn, recently heard the case of Elliott's Trustees v. the Great Northern and Brompton and Piccadilly Railway Co., a claim for nearly 40,000l. compensation in respect of the compulsory sale to the company of the two freehold residences, 6 and 7, St. George's-place, Hyde Park Corner, and for damage done to the adjoining four houses in the same ownership, by the opening of a railway station on the site of the two houses. Mr. Edward Boyle, K.C., of the Great Northern, claimed that the houses were worth 100,000l. each, and were undeniably high worth, and that the claimant occupied one of the most fashionable positions in the West End. The rental being so well secured should be capitalised on the 3½ per cent. tables, thirty-one years' purchase, or 29,760l., to which the customary addition of 10 per cent. for compulsory sale should be made, 2,976l. bringing the amount for the property actually taken to 32,736l. The remaining residences could not fail to be seriously depreciated by the proximity of the tube station, with its noise and smell and crowds of passengers, and in respect of such depreciation about 6,000l. was claimed. Witnesses having been examined, a consultation took place between the learned counsel, and the case was settled, it being agreed that the claimants should receive the sum of 30,750l. for the freehold of the two houses and all such rights as they possessed over adjacent land shown in the notice to treat. Mr. Douglas Young (vice-president of the Auctioneers' Institute), Mr. Alexander R. Stenning, and Mr. Leslie R. Vigers (members of the Council of the Surveyors' Institute), with Mr. George A. Wilkinson, were among the experts retained for the railway company.

**ROCKINGHAM HOUSE, CO. ROSCOMMON.**—Some extensive alterations and repairs are being carried out at Rockingham House in preparation for its occupancy as a Vice-regal residence by the Lord Lieutenant of Ireland. The estate, formerly the seat of Robert Lord Lorton, second son of the Earl of Kingston, is situated about two miles distant from Boyle, and extends over 2,000 acres, richly planted, on the south-east side of Lough Key. The mansion is built in the Classic style, after the Ionic Order. The main facade comprises a hexastyle portico, on each side of which is a smaller colonnade, forming along the north front a colonnade of six Ionic columns.

**BUILDING SOCIETIES.**—There has just been issued as a Parliamentary paper an abstract of the annual accounts and statements of building societies in the



United Kingdom for the year 1901. It is rather a belated report, but, having regard to the mass of figures to be dealt with, the delay is not very surprising. It appears that in England there are 1,850 incorporated building societies making returns to the Chief Registrar, and the aggregate number of members of these societies is 464,086. The total receipts during the last financial year were 16,651,831; 1,427 societies made advances on mortgage to the extent, during the year, of 7,759,707. The liabilities of the 1,850 societies amounted to 40,128,317. (59,507,083) to holders of shares and 1,021,743 to depositors and other creditors, whilst the assets amounted to 43,546,860, viz., balance due on mortgage securities (not including prospective interest) 40,407,871, and amount invested in other securities and cash 3,138,973. Wales has 106 societies making returns, with 22,249 members, whose total receipts during the year were 426,338. Eighty of the societies advanced 109,752, on mortgage during the year. The liabilities of the 106 societies amounted to 1,327,057, and the assets to 1,406,715. The foregoing figures refer to the incorporated societies, but there are also in England (none in Wales) sixty-six unincorporated societies with 54,119 members, whose total receipts during the year were 17,505,181. Sixty-two of these societies made advances on mortgage during the year to the amount of 715,494. Their liabilities are returned at 13,440,031, and assets at 14,291,227. By far the largest of the unincorporated societies is the Birkbeck, with 15,129 members, and total receipts during the year of 16,134,126. Taking England and Wales together, 1,759 societies held balances of undivided profit amongst them amounting to 3,439,586; whilst, on the other hand, 218 societies had deficit balances amounting in all to 143,598. In the County of London there are 106 societies, 106 societies, with 111,091 members; in Lancashire, 362 societies, with 66,168 members; in Durham, 106 societies, with 22,764 members; and in Yorkshire, ninety-six societies, with 62,081 members. Scotland has 129 incorporated building societies, with 33,832 members, and total receipts during the year of 623,624; liabilities, 1,640,280; assets, 1,747,501; undivided profits, 107,409; balance deficit of two societies, 169. Ireland has seventy-seven incorporated building societies, making returns, with 15,997 members, and total receipts during the year of 549,268; liabilities, 1,062,531; assets, 1,144,820; undivided profits, 82,518; balance deficit of two societies, 211. The following is a general summary both of incorporated and unincorporated societies for the United Kingdom for the year 1901, the figures for the preceding year being given for comparison in parentheses. Number of societies making returns, 2,233 (2,307). Total number of members, 591,283 (598,329). Total receipts during the last financial year, 35,816,280. (37,771,262.). Number of societies making advances on mortgage, 1,742; amount advanced on mortgage during the year, 9,110,675. Liabilities to the holders of shares, 59,288,051. (57,701,890); to depositors and other creditors, 23,371,250. (21,876,041). Undivided profit, 3,623,513. (3,518,575). Assets: balance due on mortgage securities (not including prospective interest), 47,866,207. (46,617,043.). Amount invested in other securities and cash 14,311,635. (14,177,037.).

**ST. JAMES'S HALL.**—We give, in the next column, a full account of the sale of St. James's Hall, now concluded, and that the property will soon be taken over by a syndicate for the erection of a hotel upon the site. The Hall was established at the instance of Messrs. Chappell & Co., the music publishers, and built by Messrs. Lucas after designs by Owen Jones, who also prepared the scheme of decoration. The cost amounted to 70,000, as much difficulty was presented by the watery nature of the soil. The Hall was opened on March 25, 1858, by the late Prince Consort. During a long period it has formed the scene of the classical performances which took their name from some "Popular Concerts" which were given there during the "Cattle Show" week of December, 1858. In the *Builder* of October 4 and 18, 1856, will be found illustrations of the interior of the Great Hall, and of the former entrance in Piccadilly; on February 24, 1883, we published a view of the new entrance and front as built of red Mansfield stone and Luton brick, with mosaic work, which with additions and interior improvements were executed under the superintendence of Mr. Walter Emden. Since that period Messrs. Walter Emden & Co. have carried out for the St. James's Hall Company at different times further alterations. The latter works, begun last summer, comprise provisions by way of precaution against fire, an additional scheme of decoration after the Byzantine manner, enlarged lobbies and stairways, and a remodeling of the entrance, with the vestibule, in Regent-street. The restaurant and dinner-rooms were added twenty-eight years ago.

**PROPOSED THAMES OVERHEAD RAILWAY.**—A project is being formulated for the construction, at an estimated cost of five millions sterling, of an electrical overhead railway along the Thames along its southern side from Barnes bridge to Southwark bridge, somewhat after the system adopted for the Elberfeld Overhead Railway in Prussia, the cars being hung from a double track carried by girders supported by piers resting upon foundations laid

in the bed of the river and (in places) in the shore. The promoters of the scheme contemplate the building of stations, with lifts, at the present intervals of bridge, on the road—the railway bridges excepted, and the construction of a new bridge across the Thames from Pimlico to Nine Elms, and two more bridges from Chelsea to Battersea, with lifts communicating with the proposed railway at each of the three new bridges. The line would thus be between eight and nine miles in length, a distance to be covered in twenty-three minutes, at a uniform fare of 2d. between any two stations. The Elberfeld and Barmen line has been laid over about six miles of the River Wupper, and it is stated, proves to be a successful venture from both the engineering and financial points of view.

**NON-SLIPPING MANHOLE COVER.**—The Carlton Iron Foundry Co. send us an illustration and description of a non-slipping and non-wearable manhole cover, which they have designed in order to do away with the nuisance of borough surveyors and Councils having so frequently to renew the wood blocks in the roadway covers, in some cases as much as every two or three months where the traffic is exceedingly heavy. In place of the wood blocks, they propose specially hardened metal blocks made to such a degree of softness as to prevent slipping, while to avoid concussion when struck by horses' hoofs, a sheet of indiarubber is inserted between the metal blocks and the casting. To prevent the metal blocks from being tampered with, they are fastened underneath with a special eye-bolt and pin, and they can be easily taken out if required. It is claimed for these that they will last the lifetime of the manhole cover, and that in districts where they have the usual traffic they will last as long as an iron-top manhole cover.

**"THE LOCAL GOVERNMENT ANNUAL."**—The "The Local Government Annual for 1903" is the twelfth issue of a very useful and reliable work. The directory portion gives the names and addresses of the chief officials of all Corporations, London Borough Councils, County Councils, Boards of Guardians, Urban and Rural District Councils, County and Borough Asylums, &c., throughout the kingdom, as well as the public libraries, public parks, and City Companies of London. The names of the Chairmen of Committees in the Metropolitan Boroughs, also the Chairmen and Vice-Chairmen of the London County Council Committees have been inserted, as well as the telegraphic addresses and telephone numbers of all those London Borough Councils which have adopted them. There is also information relating to the public libraries, baths and washhouses, and electric light undertakings in the boroughs of London. The book is sold at 1s. 6d., and is published at 27A, Farringdon-street, E.C.

#### LEGAL.

##### ACTION FOR DAMAGES AGAINST A BUILDING OWNER.

THE case of Goldberg v. Browne came before Mr. Justice Jelf and a common jury in the King's Bench Division on the 23rd inst.

This was an action for damages by the plaintiff against the defendant, the plaintiff alleging that the defendant, in the execution of his work in the house adjoining his, damaged his premises, and that by the negligence of his servants and agents she did the work in such a manner as to render plaintiff's premises unsafe. Plaintiff also claimed damages for alleged trespass.

The defendant denied the alleged negligence and trespass, and said that what she did was done in pursuance of a notice from the London County Council. Defendant also counterclaimed against the plaintiff for rent and the cost of pulling down and rebuilding a wall.

Mr. Montague Lush, K.C., and Mr. Hancox appeared for the plaintiff; and Mr. J. Eldon Bankes, K.C., and Mr. Lewis Thomas for the defendant.

From the opening statement of counsel it appeared that the plaintiff was a tenant of the defendant, who was a lady living at Castleton, Mayo, Ireland, who owned considerable property in London. Plaintiff's lease from the defendant was for ten years, commencing September, 1899. Plaintiff was a picture frame maker, and carried on his business at No. 461, Commercial-road. During the plaintiff's occupation the adjoining houses Nos. 463 and 465 were empty. Defendant wanted to make extensive alterations at No. 463, and the work was given to a contractor named Lindsey. He began the work by making an extremely deep and wide trench from the back of this house through the ground floor and so out into the front. This trench was 12 ft. deep and 6 ft. wide, and only 3 ft. from the wall of plaintiff's house. This was a very dangerous operation unless great care were taken, and great care should have been taken to prop and support plaintiff's house, but this did not appear to have been done. One morning the plaintiff was seated in his office when he heard a great commotion, and a number of men rushing out from next door in a tremendous hurry. Just afterwards, down came the whole of No. 463, and with it a considerable portion of No. 465. The next thing plaintiff knew was that the contractor was beginning to pull down the party wall between his house and No. 463.

Plaintiff protested, but the contractor refused to take the slightest notice of his protests, and pulled down a portion of the outside of plaintiff's house and his chimneys, leaving the house in such a condition that the plaintiff had to pack up and go. The entrance to plaintiff's house was then boarded up rendering access to his shop impossible. In the beginning of May, plaintiff found that his building was uninhabitable, and he took other premises. After complaining to the defendant, he commenced the present action.

The plaintiff having given evidence in support of counsel's statement.

Mr. Justice Jelf suggested that the parties should endeavour to come to terms and

In the result Mr. Bankes stated that the plaintiff had agreed to accept a sum of money to be paid by the defendant in full satisfaction of all claims on both sides, the plaintiff agreeing to surrender his lease to the defendant.

A juror was accordingly withdrawn. The terms were not stated in court.

##### EMPLOYERS' LIABILITY ACT.

QUESTION AS TO CONTRIBUTORY NEGLIGENCE.

JUDGE STONOR, on Monday at Marylebone County Court (London), delivered judgment in the case of Waite v. Johnson, the hearing of which was reported in our issue of November 15 last.

The plaintiff in the action was William Waite, bricklayer, 40, St. Margaret's-road, Kensal Rise, N.W., and he claimed 200l. damages, under the Employers' Liability Act, from Messrs. J. E. Johnson & Son, builders and contractors, High Cross-street, Leicester, the claim being in respect of personal injuries, said to have been sustained by the plaintiff owing to negligence on the part of the defendants or their servants.

Mr. Chester Jones, counsel, appeared for the plaintiff, and Mr. C. B. Marriott, counsel, for the defendants.

From the evidence, it appeared that the plaintiff met with his accident whilst in the defendants' service on April 20 last, at some building works in Acton-lane, Wille den, N.W. He was working in a hole, and an iron bar, belonging to Heliwell's Patent Glazing people being hoisted by one of the defendants' servants, fell upon him, seriously injuring his back. The jury returned a verdict in favour of the plaintiff, assessing the damages at 238l.

Application was subsequently made for a new trial.

His Honour, in delivering judgment, now said: This is a motion for a new trial on the following grounds:—1. That the finding of the jury that the plaintiff did not know the danger of working in the hole near the lift was against the weight of evidence and contrary to the plaintiff's own evidence relative thereto; 2. That the finding of the jury that the plaintiff did not voluntarily and willingly run the danger of working in the hole near the lift was against the weight of evidence and contrary to the plaintiff's own evidence relative thereto; 3. That the damages awarded by the jury to the plaintiff, viz., 238l., was unreasonable and excessive. With regard to the finding of the jury that "the plaintiff did not know the danger" in question, it appears to me that this finding is ambiguous and admits of two constructions—first, that the plaintiff did not know of the danger at all; and, secondly, that he did not know it fully or sufficiently to estimate it—using the word "know" emphatically—and I think, but with some doubt, that the finding ought to be read in the second sense, especially as there could be no doubt that the plaintiff had some knowledge of it, inasmuch as he said in his examination-in-chief, "I thought at the time that the men ought to have been protected against it," and also that he did not complain for which he did not give any reason, although no doubt afterwards, on being recalled at the end of the case, he suggested a reason, to which I shall presently refer. With regard to the finding of the jury that "The plaintiff did not voluntarily and willingly run the danger" in question, it is to be observed that the issue involved in this finding, which is certainly the main issue in this case, was never raised, or at all events never distinctly raised, until the speech of the defendant's counsel after the evidence had been closed. I then permitted the plaintiff to be recalled and further examined, and in answer to the defendant's counsel he said, "Of course I did the work voluntarily, because I did it"—a very natural and a very suggestive answer—but afterwards in answer to his own counsel he said, "I did the work because I knew the foreman would send me off the works if I refused." Now, upon this evidence, and according to the case of "Smith v. Baker," H.L. 1891, A.C. 325, I think that the jury were clearly at liberty to find either that the plaintiff, after having had sufficient opportunity of fully ascertaining the danger in question, and also of considering the probability or possibility of loss of employment, in the exercise of his judgment and free will, determined to accept the danger rather than the probable or possible loss of employment, and therefore that he did incur such danger voluntarily and willingly; or that the plaintiff being under fear and pressure did not do this work voluntarily and willingly; and I think that there is no ground for setting aside their verdict, because



they have adopted the latter view; and that, on the authority of the case I have already cited, the verdict ought to stand. With regard to the third ground on which a new trial has been asked, viz., that the damages awarded by the jury—£281—were excessive, there was no doubt some miscalculation as to the amount, and the plaintiff has consented to reduce the damages to the sum of 200*l.*, and on the evidence and findings of the jury, I cannot say that the damages so reduced are technically excessive. I therefore refuse the motion.

Counsel for the defendant said he desired to have an opportunity of considering his position, and consulting with his clients as to the advisability of appealing. He was quite willing that a portion of the 200*l.*, which the defendants had paid into Court, should be handed over to the plaintiff to go on with for a few weeks, pending an appeal.

His Honour made an order as follows: 2*5**l.* to be paid out to the plaintiff with taxed costs, plaintiff's solicitor undertaking to return the amount in the event of an appeal being successful; the balance of 175*l.* to remain in Court for twenty-one days, or until further order of the Court.

#### THEATRICAL BUILDING DISPUTE.

THE CASE of *in re* an arbitration between Kirk & Randall and Sir Charles Wyndham came before a Divisional Court of King's Bench, composed of the Lord Chief Justice, Mr. Justice Wills, and Mr. Justice Channell, on the 28th inst., on a motion by Sir Charles Wyndham, the actor, to set aside the arbitrator's award in the arbitration between himself and Messrs. Kirk & Randall, the well-known contractors.

Mr. Spencer Bower appeared for Sir Charles Wyndham, and Mr. English Harrison, K.C., and Mr. Clavel Salter for the builders.

Mr. Bower said that this was a motion by Sir Charles Wyndham on an award made in certain matters by Mr. Runtz in October last to set it aside on the ground that at the time Mr. Runtz had no jurisdiction. The learned counsel said that last year Sir Charles was minded to build another theatre in St. Martin's-lane, and, therefore, a contract was entered into with Messrs. Kirk & Randall, and it contained a clause that any difference or dispute as to the withholding of any certificate should be dealt with by a Mr. Goodwyn, and, if he could not serve, by Mr. Runtz. A dispute arose in July or August last year, due to the withholding of a certificate by Mr. Sprague for 2,000*l.* The services of Mr. Goodwyn were requisitioned, but as he was away and the matter was urgent Mr. Runtz was applied to. Mr. Runtz appointed August 26 to hear the parties. Before the day arrived, Sir Charles found that other work had been done, and he consented to the application and paid the amount demanded. Thereupon the arbitration became unnecessary. Then Messrs. Kirk & Randall found that their work had entitled them to another 2,000*l.*, and on September 2 they made formal application for a certificate for 2,000*l.* Kirk & Randall said they would go to Mr. Runtz, but Sir C. Wyndham said that Mr. Goodwyn, who had then returned, was the proper arbitrator. Kirk & Randall said that this was in the nature of a postponement of the original dispute, so that Mr. Runtz, having got jurisdiction over the original dispute, retained jurisdiction over it. The learned counsel contended that it was a fresh dispute. They went to Mr. Goodwyn, and Kirk & Randall, who appeared, protested and retired. He awarded that nothing was due. The other side went to Mr. Runtz, and Sir C. Wyndham's representatives appeared, protested, and retired, and Mr. Runtz awarded the full amount claimed. There was also a motion by Kirk & Randall to set aside Mr. Goodwyn's award, and the one case would depend on the other. The money had long since been paid.

The Lord Chief Justice suggested that the parties should agree on somebody to settle their disputes.

Mr. Bower said that Kirk & Randall were bringing an action against Sir Charles Wyndham, and practically taking possession of the theatre. He would consent to all the disputes being referred to a person to be named by the President of the Institute of Architects.

In the result, it was agreed that the two awards should be set aside, and the matters in dispute referred to an architect and surveyor to be agreed on, or in default, to be nominated by the Court.

#### APPEAL IN AN ANCIENT LIGHT DISPUTE.

In the Court of Appeal, composed of the Master of the Rolls and Lords Justices Romer and Cozens-Hardy, on the 27th and 28th inst., the case of *Avery & Wolmerston v. Lewis* came on for hearing, on the appeal of the defendant from a judgment of Mr. Justice Joyce in the Chancery Division, dated March 4 last. The case was fully reported in the issue of the *Builder* of March 8, 1902.

This was a light and air case having reference to premises in the New Cross-road, S.E., the plaintiffs alleging that the new building which the defendant had then recently erected materially diminished the light to two windows at the rear of their premises, such lights being ancient. They claimed a mandatory injunction and damages. The defence was a denial that the plaintiffs' light had been materially or substantially interfered with.

The alleged obstruction was to the access of light to two windows in the plaintiffs' offices. The windows were 4 ft. 3 in. in height and 3 ft. in width, and the sill of which was 7 ft. 2 in. from the ground. The windows looked due east, and a little to the south was a high building which obstructed the light to these windows. There was, however, no lateral obstruction, and the light to these windows except by the building to the south was practically unobstructed. The building containing these windows was leased in July, 1887, for a term of sixty years, of which there were about forty-three years still to run, at a rent of 6*0**l.* a year. In 1802 this lease was assigned to the plaintiffs, a firm of solicitors, who used the room in which the lights mentioned were as the private room of the partners, or one of them. The obstruction the plaintiffs complained of was a building erected by the defendant only 5 ft. 6 in. away from the wall in which the windows in question were placed. Mr. Justice Joyce, after hearing a great deal of expert evidence at the trial, held that there was a sensible and material obstruction to the plaintiffs' two windows, especially the northern one—not very great, but still sufficient to be awarded. In these circumstances he declined to make a mandatory order, but awarded the plaintiffs 10*l.* damages and the costs of the action. From this decision the defendant now appealed.

Mr. Younger, K.C., and Mr. Jolly appeared for the appellant, and Mr. Hughes, K.C., and Mr. Humphreys for the respondent.

Mr. Younger contended, on behalf of the appellant, that the learned judge in the Court below should have given judgment for the defendant, as the obstruction was so slight. The learned judge's finding of fact that the obstruction was sensible or material was contradictory of his estimate of the damage to be awarded. If the pecuniary damage the plaintiffs had suffered could be measured by a sum of 10*l.*, they had really suffered no material injury at all. Here the obstruction was 22 deg. only, and the windows which the plaintiffs complained were obstructed were high up in the room, and therefore the obstruction was not nearly so serious as though the obstruction was to a window lower in the room.

Mr. Jolly followed on the same side. He argued that the damages awarded by the learned judge to the plaintiffs showed that the plaintiffs had suffered no substantial diminution of light to their windows. There must be a certain amount of give and take in these matters, and this Court had held that a plaintiff must not be too fastidious in these matters. The plaintiffs had not been reasonable in the way they had launched their case. They had all along contended that the defendant had no right to take away a single ray of light or a single breath of air from them.

Without calling upon counsel for the respondents the Master of the Rolls in giving judgment said he was of opinion that there was no ground for interfering in this case. The decision was one on a question of fact. Mr. Justice Joyce had had the witnesses before him on both sides. Some of them he did believe, and some he did not. The learned judge was the best judge of the facts, having had the advantage of seeing the witnesses in the box. He had not said that the damage to the plaintiffs was only nominal or theoretical. He found that it was substantial as distinct from nominal. Having done that he assessed the damages at 10*l.* only, but that did not negative the conclusion he had arrived at. He (the Master of the Rolls) thought that the learned judge might very well have given the plaintiffs 50*l.* damages, and the defendant was to be congratulated on getting off with only 10*l.* against him. The learned Counsel for the appellant had been unable, in the judgment of the learned judge, to point to anything which would have been a misdirection if the case had been tried in the King's Bench Division with a jury. It was impossible to get an exact rule as to what constituted "substantial" and what did not. In this case the learned judge had found that the diminution to the plaintiffs' light was substantial, and he (the Master of the Rolls) could not differ from his conclusion.

The Lords Justices concurred, and the appeal was accordingly dismissed with costs.

#### PATENTS OF THE WEEK.

##### APPLICATIONS PUBLISHED.\*

3,543 of 1902.—J. STEWART: *Roof-Light Frames.*

This invention has reference to roof-light frames such as are fitted with hinged sashes, and the object of the invention is to secure a rain and snow proof joint between the sash and the frame. The invention is carried into effect by forming the roof-light frame—otherwise much of the usual construction—with a turned-over edge or flange all round the upper edge of its vertical flange on which the sash rests. This turned-over edge or flange is preferably flat on its upper surface for the sash to rest on, and has a slightly angled or bevelled outer rim to make a tight joint with the bevelled edge of sash frame. The groove is preferably formed in the under side

\* All these applications are in the stage in which opposition to the grant of a Patent upon them can be made.

of the flange all round to intercept any rain or snow which may be blown against the vertical flange of the frame, and so prevent it being carried by the wind through the meeting joint of sash and frame. The sash is preferably hinged to brackets formed on the frame at its upper end so as to open easily, and is also fitted with the ordinary opening lever or handle.

3,776 of 1902.—C. E. DOULD: *Construction of Draught Preventer.*

A draught preventer for doors, windows, and the like, whereby on the shutting of the door or window, action is made upon a nose for forcing a strip of flexible material out from the door or window to press upon the floor jamb or stile and close the opening between same.

3,877 of 1902.—W. TAYLOR: *Catch for Securing Folding Doors.*

This invention relates to a catch for securing one of a pair of folding-doors, and automatically releasing same when the other door is opened. It is intended to be applied to the door (or half-door) which is not provided with the lock (usually the left-hand door), and is applicable to the doors of cabinets, bookcases, and other like double doors. It consists of a box fitting which is let into the edge of the door, and supports horizontally a pivoted S-shaped catch, one end of which projects inward and the other end projects beyond the edge of the door as a rounded projection. Within the box is a spring having the tendency of drawing the engaging end of the catch inward of connexion with the catch-plate, which is secured to the body of the cabinet or other article. When the door with the catch is pushed to the hooked end of the catch enters the opening in the catch-plate but does not engage, but when the other door is being closed it comes in contact with the rounded projection of the catch, before mentioned, turns it upon its pivot and causes the hook to engage, and retains it in that position until it is reopened, when the spring immediately causes the catch to disengage.

5,896 of 1902.—C. D. ABEL (Deutsche Steingezeug-Fabrik für Canalisation und Chemische Industrie, of Friedrichsfeld): *Stop Cock.*

This consists in the combination with a metal outer casing or barrel of a lining piece of earthenware in which is fitted an earthenware plug, so that the part in which the plug works is proof against acids and the like, and is protected by a strong outer casing of metal.

11,854 of 1902.—C. HART: *Pivot Hinges for Use on Closet Seats.*

A pivot hinge for use on closet seats, consisting of an outer part comprising a horizontal plate to be screwed on to the back rail of the seat; a vertical, upwardly-projecting cheek at the outer edge, with a pivot horizontally projecting from the inner surface of said cheek; an inner part to be screwed on the upper surface of the lid, having a vertical cheek extending downwards from the outer edge and provided with an opening in the centre for the passage of the pivot and of a centre piece screwed on the upper surface of the seat, having a vertical cheek extending upwards from its outer edge, with a pivot opening in the centre for the passage of the pivot.

9,407 of 1902.—W. SMITH and J. SMITH: *Gas Heating Apparatus for Heating Rooms, Cooking, and the like.*

A burner for gas-heating apparatus, having horizontal coils in which the gas and air are mixed and pass to the burning nozzles, a box or case for the admission of air, projecting from the burner, and having a sliding door over its end, and a gas supply cock or valve within it, the operating part or arm of which is adapted to be operated by the said door.

25,028 of 1902.—A. KEMPER and F. DAMHORST: *Water Heating Apparatus.*

A water heating apparatus consisting of a principal heater having a narrower cylindrical upper portion, a cap-shaped feed-heater or preliminary heater fitted over the said upper portion, and a suitable burner, the gases for which flow over the walls of the heater from the inside to the outside.

3,516 of 1902.—F. J. FARRELL: *Apparatus for Softening Water.*

This consists in the combination of a pair of tanks for measuring the softening solution, of a pair of tanks for measuring the water, of a rocking arm adapted to be actuated by floats in the water measuring tanks, of a free ball or weight adapted to slide on the said rocking arm, of a compound cock connecting the two solution measuring tanks with both the supply for the reservoir and the discharge-pipe, of means for operating the said cock by the oscillations of the rocking arm, of a deflector adapted to divert both the flow of water from the source of supply and the flow of softening solution into one or other of the water measuring tanks, of means for operating the said deflector by the oscillations of the rocking arm, and of valves in the water measuring tanks connected directly or indirectly with the said tanks so that they are opened and closed by its oscillations.

18,773 of 1902.—J. S. REEKIE: *Spigot and Socket joints.*

Spigot and socket joints for pipes, consisting in



forming pipes with a continuous lead ring or collar of suitable shape cast or otherwise tightly fixed upon the spigot end, so as to make a tight joint between the socket and the inner end of the spigot.

22,349 of 1902.—A. DE MAN: Pavement Lights.

A vault light in which a self-sustaining concrete slab contains embedded diverging lenses, the invention consisting in the arrangement of each lens having a hollow extension at its underside, the opening of the extension increasing in size towards the bottom, the top of the lens being so constructed relative to the extension opening that the downward rays emerging from the inner face of the top will pass in diverging beams through the extension opening, the extension having prismatic ribs in step form and running crosswise of the axis of the lens at the inner surface of the extension walls.

24,608 of 1902.—H. J. HADDAN (J. H. WEISENAAR, P. H. ROMEY, and A. A. J. VERKERK): Tiled Roofs.

This invention relates to a method of rendering tight roofs covered with flat or curved tiles. The principal feature of the invention consists in the arrangement of a support of metal, wood, or other suitable material under the butt joints of the tiles, the said support being adapted to hold or contain suitable material for rendering the roof water-tight, such as mortar, cement, and the like. For curved roof tiles, of which hitherto only one edge rests on the roof, these supports are bed or trough-like, and form at the same time a support for the otherwise unsupported edges of the tiles. The supports either correspond with the length of the tiles, and are arranged in steps, or they are connected to each other to form a step-shaped frame or body, which can reach from the ridge to the gutter.

13,561 of 1902.—A. E. WOODS: Draught, Dust, and Weather Excluder, and Door or Window Wedge.

A draught, dust, and weather excluder, and door or window wedge, consisting of a device formed of a V-section, and with or without a flange along the edge of one or both of its jaws for the purpose of being supported and fixed to the door or window.

## MEETINGS.

FRIDAY, JANUARY 30.

Royal Institution.—Professor W. E. Dalby, M.A., on "Vibration Problems in Engineering Science," 9 p.m.  
Institution of Civil Engineers (Students' Meeting).—Mr. J. R. Macintosh on "The Design of the Electrical Equipment of a Light Railway," 8 p.m.

SATURDAY, JANUARY 31.

Incorporated Association of Municipal and County Engineers.—Midland District Meeting, Birmingham. Papers on "The Ventilation of Sewers and Drains," "Builders' Foremen's Association (Memorial Hall, Farringdon-street).—Annual meeting. Mr. E. Trent on "Constructional Ironwork as Applied to Buildings," 8.15 p.m.

MONDAY, FEBRUARY 2.

Royal Institute of British Architects.—Seventh general meeting (ordinary): To announce the name of the person the Council propose to submit as a fit recipient of the Royal Gold Medal, 1903. 2. To hear an address to students by Mr. Aston Webb, A.R.A., F.S.A., President; and a criticism of the designs and drawings submitted for the prizes and scholarships, 1902-1903, by Mr. Walter Millard. 3. At the conclusion of the above the presentation of prizes will be made by the President. 8 p.m.  
London Institution.—Mr. E. W. Maunders on "The Royal Observatory, Greenwich," illustrated, 8 p.m.  
Society of Arts (Cantor Lectures).—Mr. Julius Hubner on "Paper Manufacture," I. 8 p.m.  
Society of Engineers.—The President for the past year, Mr. Percy Griffith, will present the premiums awarded for papers read during the year. 2. The President for the year 1903, Mr. J. Patten Barber, will deliver his inaugural address. 7.30 p.m.  
Liverpool Architectural Society.—1. Special meeting to consider and approve the revised schedule of charges, clauses 20 et seq. 2. Ordinary meeting: Mr. J. Smithies on "Decorated Metal Work," illustrated by examples. 6 p.m.

TUESDAY, FEBRUARY 3.

Institution of Civil Engineers.—Discussion on the paper "The Nile Reservoir, Assuan," by Mr. M. E. Maurice, and "Sluices and Lock-gates of the Nile Reservoir, Assuan," by Mr. F. W. Scott Stokes. 8 p.m.  
Society of Arts (Applied Art Section).—Mr. D. Cockerell on "Technical Education in Connection with the Book-producing Trades," 4.30 p.m.  
Royal Victoria Hall, Waterloo-road, S.E.—Mr. Howard on "Garden Cities," 8.30 p.m.  
Glasgow Architectural Association.—Smoking concert. 8 p.m.

WEDNESDAY, FEBRUARY 4.

Royal Archaeological Institute.—Mr. A. C. Fryer, F.S.A., on "Fossils with Representations of the Holy Eucharist and Baptism," 4 p.m.  
Society of Arts.—Mr. W. L. H. Hamilton on "Methods of Mosaic Construction," 8 p.m.  
Institution of Sanitary Engineers, Ltd.—Special meeting of the Council. 7 p.m.  
Builders' Foremen and Clerks of Works Institution.—Ordinary meeting of the members. 8 p.m.  
Edinburgh Architectural Association.—Mr. A. Hunter Crawford on "The Building of a House," II. Illustrated. 8 p.m.  
Northern Architectural Association.—Mr. Allan Greenwell, F.G.S., on "Bauingen," its Application in Architecture and Engineering, with lantern illustrations. 7.30 p.m.

Institution of Civil Engineers.—Students' visit to the Electrical Standards Laboratory of the Board of Trade, 8, Richmond-terrace, Whitehall, S.W.

THURSDAY, FEBRUARY 5.

Institution of Electrical Engineers.—Adjourned discussion on the Metric System. 8 p.m.  
Architectural Association of Ireland (Technical Department).—No. IV: Conversion of timber, at the works of Messrs. T. & C. Martin. 3.30 p.m.

FRIDAY, FEBRUARY 6.

Architectural Association.—Paper by Professor G. Baldwin Brown, M.A., entitled: "What is the Real Value of Greek Work to the Modern Artist?" 7.30 p.m.  
Royal Institution.—Right Hon. Sir H. Maxwell, Bart., on "George Romney and his Works." 9 p.m.  
Institution of Junior Engineers (at the Westminster Palace Hotel).—Mr. W. Garnet Wernham on "Calorimetry," 8 p.m.  
Birmingham Architectural Association.—Paper by Mr. J. S. Gibson.

SATURDAY, FEBRUARY 7.

Sanitary Inspectors' Association.—Twentieth Annual Dinner, Venetian Chamber, Holborn Restaurant. 6.30 p.m.  
The Craft School (137, Globe-road, Bethnal Green).—Miss C. E. Collet on "The Occupations of our Great Grandmothers." 8.30 p.m.  
British Institute of Certified Carpenters.—Visit to the London-wall Estate at 3 p.m. After which the monthly meeting will be held in the Carpenters' Hall at 6 p.m.

## SOME RECENT SALES OF PROPERTY: ESTATE EXCHANGE REPORT.

JANUARY 14.—By VICTOR VAUGHAN (at Camden Town).

Kentish Town.—197, Weedington-rd., u.t. 59½ yrs., g.r. 7½, y.r. 35. 435  
Holloway.—386, Camden-rd., u.t. 39½ yrs., g.r. 12½, w.r. c.t. 80½. 598

By H. J. WAY & SON (at Newport).

Newport, Isle of Wight.—Ryde-rd., Odessa, residence, with shipwright's yard adjoining, area 2,700 ft. 2, y.r. 82. 400  
Ryde-rd., four freehold houses, w.r. 32½, 105. 250

JANUARY 15.—By WALTER LUDLOW & BRISCOE (at Birmingham).

Olton, Warwick.—St. Bernard's-rd., Olton Court and 12 a. 3 p. 38 p. p. 7,100  
St. Bernard's-rd., a freehold building estate, 14 a. 3 p. 3 p. p. 2,500

JANUARY 19.—By THOMAS, PEYER, & MILES.

Bradford-on-Avon, Wilts.—The Dravon Brewery, with twelve tie houses, &c., &c. 20,200

JANUARY 20.—By H. J. BROMLEY.

Sydenham.—14 to 25 (even), Prospect-rd., u.t. 63 yrs., g.r. 12½, w.r. 132½, 105. 970

By FIELD & SONS.

Peckham.—63 to 73 (odd), Acorn-pl., u.t. 52½ yrs., g.r. 10½, w.r. 157½, 65. 1,080  
14, 15, and 16, Upper Hall-st., u.t. 59 yrs., g.r. 12½, w.r. 132½, 105. 560  
5 and 6, St. George's-ter., u.t. 23 yrs., g.r. 9½, w.r. 83½, 45. 370

By NOTLEY & CO.

Balham.—Hazelbourne-rd., f.g.r. 28½, reversion in 94 yrs. 675  
Hastings-rd., a plot of freehold building land 430

Westlands-rd., f.g.r. 62, reversion in 76 yrs., together with a plot of freehold land 430

By FOX & FERRIS (at King's Lynn).  
Stow Bardolph, Norfolk.—Ten and Widder Farms, 367 a. 1 r. 38 p. f. 12,100

JANUARY 21.—By ALLAN BOOTH.

Kilburn.—Kilburn Park-rd., f.g.r. 82½, reversion in 74½ yrs. 2,275  
Somers Town.—43 and 44, Barclay-st., u.t. 17½ yrs., g.r. 82½, w.r. 63½. 350

By FOSTER & CRANFIELD.

Notting Hill.—Ladbroke-rd., The Ladbroke Arms p-h., profit rentals of 105½ for 19½ yrs. 1,190

By DOUGLAS YOUNG & CO.

Commercial-rd., East.—Nos. 751 and 753 (S), f. 1,680  
Battersea.—86 and 89, St. John's Hill (S), u.t. 92 yrs., g.r. 40½, y.r. 140½. 1,100

By N. EASTON & SON (at Louth).

Louth, Lincs.—Louth Park Estate, 367 a. f. p. 9,125  
January 22.—By DANIEL WATNEY & SONS.

Westminster.—2, 19, and 20, Marsham-st. (shop, houses, yard, and stabling), area 9,200 ft. 2, y.r. 105½. 3,000

By H. J. BLISS & SON.

Holborn.—10, Leather-lane (S), and 3, Robinhood-yard (stabling and workshops), f., w.r. 175½, 105. 2,250  
Old Kent-rd.—2 to 24 (even) and 27, Brynmor-rd., u.t. 79½ yrs., g.r. 17½, w.r. 61½, 125. 400  
also 30 and 32, Longcroft-rd., u.t. 79½ yrs., g.r. 17½, w.r. 107½, 125. 400  
Victory-pl., u.t. 42½ yrs., g.r. 50½, w.r. 282½, 125. (in one lot) 650

By CHERTSTON & SONS.

Kensington.—14, Vicarage-gdns., u.t. 50½ yrs., g.r. 11½, 105, c.t. 115½. 1,100

By C. C. T. MOORE.

Hackney-rd.—No. 253, f., y.r. 50½. 1,210  
Southwark.—37 to 45 (odd), Thrawl-st., u.t. 11 yrs., g.r. 16½, w.r. 154½, 125. 400

By NEWBORN, EDWARDS, & SHEPHERD.

St. Pancras.—2 to 10, Burton-cres., u.t. 3½ yrs., g.r. 15½, y.r. 220½, 105. 400  
Hackney-rd.—Holm-st., f.g.r. 16½, 65, reversion in 20½ yrs. 650  
Holm-st., f.g.r. 11½, 45, reversion in 22½ yrs. 490

Stratford.—Broad-st., f.g.r. 21½, 155, reversion in 62 yrs. 4535  
Canning Town.—Tucker-st., f.g.r. 30½, reversion in 66 yrs. 575  
Greenwich.—Dutton-st., f.g.r. 23½, reversion in 96½ yrs. 575

By STIMSON & SONS.

Islington.—15 and 15, Dagmar-ter., u.t. 43 yrs., g.r. 12½, w.r. 170½, 65. 860  
Clapton.—1, Gilpin-rd., and 45, McLaren-st. (S), u.t. 79 yrs., g.r. 18½, y.r. 80½, 45. 475

Southwark.—Law-st., f.g.r. 50½, u.t. 16½ yrs., g.r. 23½, 105. 285

Old Kent-rd.—No. 412, u.t. 24½ yrs., g.r. 11½, c.t. 60½. 360

Stockwell.—8, Andalus-rd., u.t. 72 yrs., g.r. 6½, c.t. 30½. 310

Forest Hill.—24, Agnew-rd., u.t. 95 yrs., g.r. 6½, y.r. 33½. 305

Wandsworth.—Nursery-st., f.g.r. 20½, u.t. 24½ yrs., g.r. 5½. 210

Beckenham.—7 to 13 (odd), Clock House-rd., u.t. 87 yrs., g.r. 28½, y.r. 140½. 1,270

By S. WALKER & SON (at Brighton).

Brighton.—6, Alfred-rd., f., y.r. 66½. 828

JANUARY 23.—By FRITH, GARLAND, & CO.

Harringay.—121, Hewitt-rd., u.t. 94½ yrs., g.r. 11½, y.r. 33½. 480

89, Seymour-rd., u.t. 94 yrs., g.r. 8½, c.t. 48½. 350

131, Wightman-rd., u.t. 89 yrs., g.r. 7½, c.t. 42½. 380

Hornsey.—34, Hampden-rd., u.t. 78½ yrs., g.r. 7½, 105, c.t. 38½. 350

Wood Green.—23, Frame-rd., u.t. 98 yrs., g.r. 7½, y.r. 32½. 305

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beer-house; p.h. for public-house; o. for offices; s. for shops.

## PRICES CURRENT OF MATERIALS.

\* \* Our aim in this list is to give, as far as possible, the average prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.		
	£ s. d.	
Hard Stocks	1 14 0	per 1,000 alongside, in river.
Rough Stocks and Chalks	1 11 0	"
Facing Stocks	2 12 0	"
Shippers	2 5 0	"
Flettons	1 7 6	" at railway depôt.
Red Wire Cuts	1 12 0	"
Best Fareham Red	3 12 0	"
Best Red Pressed	"	"
Rushon Facing	5 0 0	"
Best Blue Pressed	4 5 0	"
Staffordshire	4 11 0	"
Do. Bullnose	4 11 0	"
Best Stourbridge	"	"
Fire Bricks	4 8 0	"
GLAZED BRICKS.		
Best White and Ivory Glazed	"	"
Stretchers	13 0 0	"
Headers	12 0 0	"
Quoins, Bullnose, and Flats	17 0 0	"
Double Stretchers	19 0 0	"
Double Headers	16 0 0	"
One Side and two Ends	19 0 0	"
Two Sides and one End	20 0 0	"
Splays, Chamfered, Squints	20 0 0	"
Best Dipped Salt Glazed Stretchers and Headers	12 0 0	"
Quoins, Bullnose, and Flats	14 0 0	"
Double Stretchers	15 0 0	"
Double Headers	14 0 0	"
One Side and two Ends	15 0 0	"
Two Sides and one End	15 0 0	"
Splays Chamfered, Squints	14 0 0	"
Second Quality White and Dipped	"	"
Salt Glazed	2 0 0	" less than best.
Thames and Pit Sand	"	" o per yard, delivered.
Thames Ballast	"	"
Best Portland Cement	30	" o per ton, delivered.
Best Ground Blue Lias Lime	21	" o

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 10s. 6d. per yard, delivered.

Stourbridge Fire-clay in sacks 75s. 6d. per ton at rly. depôt.

STONE.

	s. d.	
Ancaster in blocks	1 11	per ft. cube, deliv. rly. depôt.
Beaumont	1 7	"
Farleigh Down Bath	1 8	"
Beer in blocks	1 6	"
Grinshill	1 10	"
Brown Portland in blocks	2	"
Darley Dale in blocks	2 4	"
Red Corsehill	2 5	"
Cloaburn Red Freestone	2 0	"
Red Mansfield	2 4	"

[See also page 127.



## COMPETITIONS, CONTRACTS AND PUBLIC APPOINTMENTS.

(For some Contracts, &amp;c., still open, but not included in this List, see previous issues.)

## COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered
Designs for University Buildings, Cape of Good Hope.....	Agut-Gen. for Cape of Good Hope	400l. 200l. 100l.	Jan. 31
*Infectious Diseases Hospital .....	Chelmsford Joint Hospital Board.	250 and 100l.	Mar. 31
*Proposed Technical School .....	Blackpool Corporation .....	600, 250, and 100l.	April 30
*Public Free Library .....	Preston U.D.C. ....	600l. and 300l.	do.
*Alterations and Additions to Victoria Hall .....	Sunbuletal Corporation .....	1000, 500, and 250l.	do.
*Proposed New Hospital .....	Maitland-street, &c. Hosp. Skin Disease	750, 300, and 150l.	do.

## CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c., supplied by	Tenders to be delivered
Additions, &c., to Stoke School .....	Devonport School Board .....	Hine & Odgers, Architects, Lockyer-street, Plymouth.....	Feb. 3
Kerbs, &c., .....	Leyton (Essex) U.D.C. ....	W. Dawson, Civil Engineer, Town Hall, Leyton .....	do.
Esplanade Works, Newburn Bridge .....	West Hartlepool Corporation .....	J. W. Brown, Borough Engineer, West Hartlepool .....	do.
Sewer Houses, Grafton-street, Barnsley .....	.....	Wade & Turner, Architects, 10, Pitt-street, Barnsley .....	do.
House, St. John's-road, Birby .....	.....	J. H. Hall, Architect, Milton-place, Partown .....	do.
*Footpath Paving Works, Wealdstone .....	Middlesex County Council .....	County Engineer, Middlesex Guildhall, S.W. ....	Feb. 4
Ten Houses, Oventien, Yorks .....	.....	J. Gouling, Architect, Blyth .....	do.
Club Premises, Newham, Northumberland .....	Congregational Ministers .....	H. B. Davies, 15, Commercial-street, Nantymoor .....	do.
Yestry, &c., Fricke-awn, Nantymoor .....	Edinburgh School Board .....	Mr. Carnegie, Architect, 3, Queen-street, Edinburgh .....	do.
Additions to School, Leth-awalk .....	Kingston Railway Waggon Co. Ltd. ....	T. B. Simpson, Architect, Custom House Buildings, Hull .....	do.
Workshop, Seuloates .....	Tynesmouth R.D.C. ....	J. Waters, Surveyor, Long Benton, Newcastle .....	do.
Bridge Works, Long Benton .....	Handsworth U.D.C. ....	The Surveyor, Council House, Handsworth, Town Hall, Burton-on-Trent .....	do.
Additions to Branch Library .....	Barton-on-Trent Corporation .....	C. T. Lyman, Borough Engineer, Town Hall, Burton-on-Trent .....	do.
Sewers .....	Isle of Ely County Council .....	H. F. Simpson, Civil Engineer, Wisbech .....	Feb. 5
Road Metal, &c., .....	Tipton School Board .....	A. Long, Architect, 21, New-street, West Bromwich .....	do.
Schools Park-lane .....	Swansea Harbour Trustees .....	A. O. Schenk, Civil Engineer, Harbour Offices, Swansea .....	do.
Sinking six shafts at Docks .....	.....	H. Morfoll & Son, Architects, 22A, Commercial-street, Halifax .....	do.
Altering Clare Hall into Two Houses, Halifax .....	.....	T. Bottnelley, Architect, 16, Prince-street, Haworth .....	do.
School, Haworth, Yorks .....	.....	G. Moxon, Architect, 25, Church-street, Barnsley .....	do.
Hall and Schools, Denby Dale, Yorks .....	Swansea Corporation .....	J. B. Abbey & Sons, Architects, 34A, New-street, Huddersfield .....	Feb. 6
House and Stables, Lockwood .....	The Director of Work .....	Borough Surveyor, 13, Somerset-place, Swansea .....	do.
Police Station, &c., Pleasant-street .....	Flintshire County Council .....	Superintendent Engineer, Portsmouth Dockyard .....	do.
Coast Guard Buildings, Isle of Wight .....	Building Club .....	J. H. Davies & Sons, Architects, 14, Newgate-street, Chester .....	Feb. 7
Police Station, &c., Gargwe .....	Chelmsford Joint Hospital Board .....	J. & E. J. Hurley, Architects, 10, Bridgand-road, Tondri, Glam. ....	do.
Twenty Houses, Cefn Cribbar, near Bridgend .....	Chard R.D.C. ....	A. S. Duifield, 50, High-street, Chelmsford .....	do.
Additions to Hospital, Baldow-road .....	do.	C. Combes, Engineer, Tisbury, Wilts .....	do.
Water supply, Works, Macton, Somerset .....	Londonerry R.D.C. ....	M. A. Robinson, Civil Engineer, Richmond-street, Londonderry .....	do.
Sewerage Works .....	Flintshire County Council .....	J. H. Davies & Sons, Architects, 14, Newgate-street, Chester .....	do.
Water Supply Works, Shantallow .....	Chelmsford Corporation .....	P. J. Sheldin, Civil Engineer, Chelmsford .....	do.
Police Station, Gargwe .....	Londonerry R.D.C. ....	M. A. Robinson, Civil Engineer, Richmond-street, Londonderry .....	do.
Road Metal, &c., .....	.....	W. R. Herring, Engineer, New-street Works, Edinburgh .....	Feb. 9
Cemetery Works, Claudy, Ireland .....	Edinburgh and Leth Corporation .....	Borough Engineer, Town Hall, Paisley-road, N.W. ....	do.
House, &c., Reynolton, Pembrokeshire .....	Borough of St. Pancras .....	C. F. Dawson, Civil Engineer, Public Offices, Barking .....	Feb. 10
*Annual Contracts .....	Barking (Essex) U.D.C. ....	S. Segar, Architect, Union-street, Newton Abbot .....	do.
Road Works, Boundary-road West .....	Newington Abbot (Devon) Local Board .....	Borough Engineer's Office, Town Hall, Stratford, E. ....	do.
Additions to Workhouse .....	County Borough of West Ham .....	Boro' Eng'rs Office, Central Eng'rs' Bldg., Abbey Mills, W. ....	do.
*Annual Contracts .....	do.	Central Public Library, Richmond-street, Londonderry .....	do.
*Engine Road Works .....	do.	Medical Superintendent, Council's Hospital, Western-road, Plaistow .....	do.
*New Books .....	do.	H. D. Seale-Wood, 157, Wood Exchange, Coleman-street, E.C. ....	Feb. 11
*Meat, Bread, Flour, &c., .....	Ej-on Union .....	Borough Surveyor, Town Hall, Fulham, S.W. ....	do.
*Boiler House, &c., and Union Infirmary .....	Borough of Fulham .....	Borough Surveyor, Lavender Hill, S.W. ....	do.
*Making-up W-w-lawn road .....	Battersea Borough Council .....	J. W. Lord, Gas Offices, Henley-in-Arden .....	do.
*Supply of Materials and Execution of Works .....	Henley-in-Arden Gas Co. ....	C. Law-Green, Civil Engineer, Wigton-road, Ormskirk .....	do.
*Gasholder and Tank .....	West Lancashire R.D.C. ....	Engineer, Park Square West, Regent's Park, N.W. ....	do.
*Surveyor's Materials, Grimsby .....	Crown Estate Paving Commissioners .....	Borough Surveyor, Town Hall, Broadway, Hammersmith, W. ....	do.
*Removal of Dust, &c., from Houses, Regent's Park .....	Borough of Hammersmith .....	W. Matthews, Civil Engineer, 18, French-street, Southampton .....	Feb. 12
*Annual Contracts .....	Southampton Corporation .....	J. Kirk & Sons, Architects, Huddersfield .....	do.
*Four Boreholes, Otterbourne .....	Hackney Borough Council .....	Engineer, Town Hall, Leicester .....	Feb. 13
*Alterations to Ravensden, Edgerton, nr. Huddersfield .....	Leicester Corporation .....	H.M. Office of Works, Storey's Gate, S.W. ....	do.
*Public Underground Convenience, Kingsland High-st. ....	Commissioners of H.M. Works .....	Sterling & Swann, Engineers, Town Hall, Chapel-en-le-Frith .....	Feb. 14
*Generating Station, &c., .....	Chapel-en-le-Frith R.D.C. ....	Townsend & Fortham, Architects, Cross-street, Peterborough .....	Feb. 16
*Enlargement of Oxford Head Post Office .....	.....	Council's Surveyor, Public Offices, Long Sutton .....	do.
*Reservoir, Bamford, Derby .....	Hendon U.D.C. ....	Engineer to the Corporation, Guildhall, E.C. ....	Feb. 17
*Supply of Materials, &c., for one year .....	Corporation of L. ....	Surveyor to the Council, 242, High-street, Acton, W. ....	do.
*Pipe Sewer, South-lane, Ws. ....	Acton District Council .....	S. S. Mossop, Council Offices, Long Sutton .....	do.
*Annual Contracts .....	Long Sutton (Lincs) U.D.C. ....	County Surveyor, Derby .....	Feb. 18
*Granite Road Metal .....	Devon Corporation .....	Guarantee B and R, Brook Street, Kennington, S.E. ....	do.
*Road Improvement Works, Trough Brook Hill .....	Parish of Lushell .....	Borough Surveyor, Town Hall, Hove .....	do.
*Alterations to Laundry at the Infirmary .....	Borough of Hove .....	Borough Engineer, 81, Borough-road, S.E. ....	do.
*Boundary Walling .....	Southwark Borough Council .....	H.M. Office of Works, Storey's Gate, S.W. ....	Feb. 19
*Electric Lighting of Town Hall Extension .....	Commissioners of H.M. Works .....	Borough Engineer, 1, Great East, near Bury Road .....	do.
*New Post Office, Burton-on-Trent .....	Woolwich Borough Council .....	C. L. Morgan, Architect, 45, Cannon-street, E.C. ....	Mar. 2
*Supply of Road Materials, Stores, Forge, &c., .....	Wallasey U.D.C. ....	County Engineer, Middlesex Guildhall, Westminster .....	Mar. 3
*Chimney and Main Flue at Electric Supply Works .....	Crayford School Board .....	.....	N. date
*Erection of School .....	Middlesex County Council .....	.....	do.
*Supply of Road Materials .....	do.	.....	do.
*Carriage of Road Materials .....	do.	.....	do.
*Business Premises, Lancaster .....	Messrs. W. Atkinson .....	.....	do.
*Alterations to House, Montpellier Parade, Harrogate .....	Mr. R. Vick .....	.....	do.
*House, Sully, Wales .....	.....	.....	do.
*Additions to Wesleyan Church, Nottingham .....	.....	.....	do.
*Thirteen Pairs of Houses, Long Eaton .....	.....	.....	do.
*Ten Cottages, &c., Whittington Moor, nr. Chesterfield .....	.....	.....	do.

## PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Required.	Salary.	Application to be in
*Inspector of Sewers .....	Corporation of London .....	£200 p. m. and 100 p. m.	Feb. 10
*Architectural Draughtsman .....	Coventry Corporation .....	No stated .....	No date.
*Assistant Surveyor of Public Works in Ireland .....	Commissioners of Public Works in Ireland .....	2nd .....	do.

Those marked with an asterisk (\*) are advertised in this Number. Competitions, iv. Contracts, iv. vi. viii. &amp; x. Public Appointments, xv.







LONDON.—For alterations and additions to No. 19, Upper Park-road, Hampstead, N.W., for Mr. F. J. Thairwall. Mr. Percy A. Boulton, architect, 30, John-street, Bedford-row, W.C. —  
 Clark & Co. .... £385 | Anley & Sons ..... £278  
 Jacob Cleverly ..... 85

NEWSHAM (Northumberland).—For providing and laying about 600 lineal yards of 4-in. diameter sanitary pipe sewer, building manholes, and other works, for the Rylth and Cowpen Urban District Councils. Mr. Robert Grieves, Engineer and Surveyor :  
 Glen & Moffitt. .... £84 13 4 | J. Robson. .... £602 18 0  
 G. Thornton. .... 844 3 0 | D. D. Hall .... 684 6 0  
 J. Thompson. .... 775 4 0 | G. E. Simpson,  
 Coxon & Co. .... 757 15 3 | Newcastle-on-  
 J. Hollins. .... 739 15 8 | Tynef. .... 634 15 9  
 McLaren & Sons ..... 739 4 6 | J. McLaren. .... 635 5 0  
 S. Miller. .... 727 19 6 | J. Spark ..... 515 6 6  
 McLaren & Co. .... 711 13 3

NOTTINGHAM.—For alterations to the Foresters' Arms, situated in St. Ann's-street. Mr. Fred C. Martin, architect, Angel-row, Nottingham :—  
 W. M. Maule ..... £235 | F. Messom\* ..... £220

WALTHAMSTOW.—For the erection of a new school, with central hall, at Selwyn-avenue, Hale End, for the Walthamstow School Board. Mr. H. Prosser, Architect to the Board. Quantities by Mr. G. T. G. Wright, 3, Great Winchester-street, E.C. :  
 A. G. Barton ..... £8,052 | H. J. Carter ..... £7,145  
 A. Porter ..... 7,026 | J. & J. Dean ..... 7,435  
 Foster Bros. .... 7,810 | Sands, Palmer, & Co. .... 7,125  
 Pollard & Brand. .... 7,800 | Kerridge & Shaw ..... 7,175  
 Appleby & Sons ..... 7,666 | Knight & Son ..... 7,173  
 Battley, Sons, & Hol-  
 ness. .... 7,494 | F. J. Coxhead. .... 6,867  
 Sims & Woods. .... 5,890

WALTHAMSTOW.—For carrying out alterations with nine new classrooms, and adapting old rooms for central halls, at the Maynard-road schools, for the Walthamstow School Board. Mr. H. Prosser, Architect to the Board. Quantities by Mr. G. T. G. Wright, 3, Great Winchester-street, E.C. :  
 A. G. Barton ..... £8,101 | Foster Bros. .... £6,725  
 Sims & Woods. .... 7,960 | H. J. Carter ..... 6,715  
 A. Porter ..... 7,140 | Battley, Sons, &  
 Knight & Son. .... 6,973 | Holmes ..... 6,337  
 J. S. Scott. .... 6,935 | J. & J. Dean ..... 6,219  
 Sands, Palmer, & Co. .... 6,216 | Kerridge & Shaw ..... 6,150  
 Appleby & Sons ..... 6,535 | Pollard & Brand. .... 6,040  
 A. G. Crisp ..... 6,750 | F. J. Coxhead. .... 5,989

WALTHAMSTOW.—For stables, loft, &c., for Messrs. Silk & Co., Essex-grove, Walthamstow. Mr. Geo. B. Jerram, architect. No quantities :—  
 G. Barker ..... £334 10 | Hes & Son. .... £338 0  
 A. Fairhead ..... 367 11 | Castle & Sons ..... 335 0  
 J. Stewart ..... 357 3 | Lower Clapton\*  
 WATERFORD.—For the erection of a free library, for the Committee. Mr. A. E. Murray, architect, 37, Dawson-street, Dublin :—  
 J. P. Pile ..... £4,800 0 | J. Hearne. .... £3,802 2 1  
 Hamilton ..... 4,400 0 | G. Nolan ..... 3,746 6 4  
 Titterton ..... 4,178 0 | P. Costen ..... 3,710 0 0  
 J. Hemingway ..... 3,853 3 9 | Waterford  
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### PUBLISHER'S NOTICES.

THE INDEX (with TITLE PAGE) for VOLUME LXXXIII (July to December, 1902) was given as a supplement with the number for 4 January 1903.  
 CLOTH CASES for Binding the Numbers are now ready, price 2s. 6d. each, and  
 READING CASES (Cloth, with Straps, price 9d. each).  
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# The Builder.

VOL. LXXXIV.—No. 3157.

FEBRUARY 7, 1903.

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Proposed Church, Millbrook .....	Mr. G. H. Fellowes Prynne, F.R.I.B.A., Architect.
Design for a Church .....	By Mr. F. C. Eden.
Japanese Ornament.—II. ....	From Photographs.

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### The Church of Worstead.



THE lordship of Worstead formed part of the gift of Canute to the Abbey of St. Bennet of Hulme. In the days of the Confessor it was a place of some importance, and possessed two churches. The manor continued in the hands of the great Benedictine Abbey after the Conquest; but the principal church of St. Mary, together with the second church of St. Andrew, which was treated as a chapel of the former, was appropriated early in the thirteenth century to the cathedral priory of Norwich. The church or chapel of St. Andrew stood to the north-east of the great church. In 1291 the appropriated rectory was returned as of the annual value of 16*l*. 13*s*. 4*d*., whilst the vicarage was only worth 5*l*. per annum.

Worstead has now for many years been but a village, chiefly of a single street; but it was for a long period far more populous, and was at one time the chief local centre of the woollen manufactures of East Anglia. It is one of the very few places in England that has given its own name to the material there produced; a name that seems never likely to die out in connexion with textile fabrics, and is to-day used by thousands of persons who never even heard of this somewhat remote Norfolk village, whose past glories are now centred in its church.

Blomefield, the great Norfolk authority, was of opinion that some Dutch weavers, driven out of their country by an inundation in the reign of Henry I., settled at Worstead, and thus early introduced the web of stuff weaving into that place, from whence in due course it made its way to Norwich. It seems doubtful whether Blomefield does not assign too early a date for this introduction, but there is no manner of doubt that the produce of this town became well known in the thirteenth century. Among the accounts of the City Chamberlain of Norwich from 1293 to 1305, there is an annual entry of presents made to the King's Judges when on

circuit. Among these presents occur *panni de Worstede*. The cloths woven at Worstead, as well as those of Aylsham, were thought worthy of being offered to the King's justices at a time when nothing is entered about Norwich fabrics. The supremacy of Worstead cloth is further shown by the fact that in the reign of Edward II. one of the Norwich market rows was called "The Worstede Rowe." Worstead cloths were also expressly mentioned in legislation of 1329, and the trade of the place was doubtless for a time furthered by the stringent legislation of 1337, as nearly all export of English wool and all import of foreign cloths were forbidden, whilst every man, woman, and child in England, save royalty, were compelled to wear nothing but clothes of home manufacture.

From another source something tangible can be gleaned of the comparative wealth and position of the town of Worstead in the fourteenth and fifteenth centuries. Among the many valuable monuments of the City of Norwich is a volume that gives the assessments of all the townships of Norfolk for the King's tenths and fifteenths as settled in 1334, and also as they stood in 1449. In 1334 Worstead was assessed at the then considerable sum of 14*l*. 10*s*. 1*d*., which was far in excess of all other townships in the hundred of Tunstead, save that of North Walsham, which stood at 15*l*. At that date Worstead was nineteenth on the list of the most wealthy towns of Norfolk, such towns as Aylsham and Wymondham being a long way below it. The upheaval of the awful Black Death of 1349 gave the county a shock from which she never quite recovered; but Worstead regained her prosperity quicker than some of her neighbours, and in the next century out-distanced several. In 1449 Worstead's reduced assessment was 12*l*. 10*s*. 2*d*., whilst North Walsham had dropped to 11*l*. There were at that time only fourteen townships in the county at a higher assessment.

About the close of the reign of Edward III., when the architecture that had characterised that period was dying out, the well-to-do merchants and weavers of Worstead bethought them that their church

was not worthy of the prosperity of the town. A great scheme of rebuilding, or rather of the gradual erection of a new church, was devised. The work began with the chancel in 1379, when John de Kynneburle was vicar. The prior of Norwich granted thirteen oaks out of Plumstead Wood, and also timber out of St. Leonard's Wood for the roof and woodwork, and the expenses in money amounted to 24*l*. 4*s*. 4*d*.

The church of St. Mary, when completed, was one of the finest in the county, and now consists of chancel with north vestry and north and south chape's, clear-storied nave with north and south aisles, south porch, and western tower. A clean sweep was made of all older work. The only remnant of anything earlier than the reign of Richard II. is the broken bowl of a former octagon font, which now lies at the west end of the north aisle, and which was rescued in recent years from under a pump in the village. The rebuilding of so great a church would certainly be undertaken in stages, for there were no school-rooms or temporary structures for worship during the restoration in Mediæval days. It seems likely that the work, which began with the chancel, finished with the western bay of the nave and noble west tower about 1400. There is more of true "Perpendicular" feeling in parts of the south porch and enriched north doorway than in any other part of the building (save the vestry and a little obviously late work); but another possible theory may be mentioned with regard to the tower, viz., that it was built out beyond the old church before the new building had reached the west of the nave. This, however, seems highly unlikely when the junctions of the tower with the body of the church are studied.

This church was not overlooked by the earlier writers on ecclesiastical architecture of last century. There is a good description of Worstead church, so far as the study of church architecture had then advanced, in Neale's and Le Keux's "Collegiate and Parochial Churches," published in 1823-4, with engravings of the tower and font, and some careful letterpress, chiefly descriptive of the remains of its



splendid fittings. The beautiful character of the work of the tower and the south porch is specially mentioned. It was only natural that Worstead should be included in the two score churches commemorated in Neale and Le Keux's two volumes, irrespective of its intrinsic worth; for J. P. Neale, the celebrated architectural draughtsman, born in 1780, was a native of Worstead, a fact which is omitted in the account of him in the "Dictionary of National Biography."

In Brandon's "Analysis of Gothic Architecture" (1847), Worstead Church is singled out for special and not infrequent mention. Attention is directed to the tower as "a peculiarly magnificent example," the panelled flint work and the sunk quatrefoils having a very good appearance; to the embattled label and rich carvings of the spandrels of the north door; to the single design shown in the combined effect of the west doorway and window above it; to the grandeur of outline of the tower buttresses; and to the enrichment of the font steps with quatrefoils. Brandon's "Parish Churches" (first issued in 1846) gives a ground plan, north-west and south-west views, and a view of the interior looking west. It is described, as "a spacious and magnificent church, with a tower of 'superior beauty.'"

The dimensions of the church are:—chancel, 39 ft. by 29 ft. 3 in., and nave, 89 ft. by 29 ft. The width of the north aisle is 11 ft. 11 in., and that of the south aisle 11 ft. 8 in.

The south porch, drawn carefully by Cotman in 1817, is a noble example of flint and stone work—flush-work is the usual and expressive local term—and is one of the finest porches in a county where so much skill and judgment were often displayed on the southern or chief entrance. It has a beautiful triple group of niches, with crocketed canopies over the entrance, having shields in quatrefoils (the foils alternating with points) below them. There are similar shields in the spandrels of the doorway. The buttresses are exceptionally bold and good, and the double line of base moulding remarkably effective; the lower of these stone and flint panellings is of a usual fifteenth century trefoil-headed character, but the upper one has a beautiful and unusual arrangement of trefoils placed diagonally. The latter ornament, taken apart from the rest, would certainly be styled Edward III. at latest. A handsomely-groined roof supports a parvise, or upper chamber, access to which is gained by a stairway from the church. The central boss of the groining represents the Holy Trinity, whilst the four subsidiary ones bear the symbols of the four Evangelists. The hollow mouldings of the entrance are ornamented with small alternate flowers and masks.

The remarkably rich character of the south porch should not be allowed to divert attention from the north doorway, of which Cotman made a drawing in 1817. It is of considerable beauty. The angular pinnacles, the enriched cornice, and the two shields in quatrefoils (with alternate points and foils) of the spandrels are all well designed, and, in the absence of a porch, produce a singularly good effect. A small round flower, a sort of reminiscence of the ball-flower of earlier architecture, is introduced into the cornice and dripstone of this entrance. It is found elsewhere in this church, more particularly round the bell-chamber windows of the tower. Taken



Worstead Church: Exterior.

by itself, this round flower seems to speak plainly of fairly early fourteenth-century work; but in this doorway it is found in combination with small upright panels that are certainly of the end of the fourteenth century, if not later.

The tower is one of best and most beautiful examples of flint and stone work of the opening of the fifteenth century to be found in the county. Its height is 109 ft.; at the base are panelled narrow trefoil headed arcades of but usual design, above them is a band of large quatrefoils filled up with dressed flints. The large square sound-holes of the second stage are filled with graceful tracery, the one on the west being particularly good. The large bell-chamber windows have delicately ornamented mouldings. Every detail of this tower is worth studying, particularly the bold graduated buttresses and the west doorway and window above. The four pinnacles that spring from the panelled battlements are the unfortunate feature of the tower as it now stands. They are somewhat top-heavy and singularly lacking in grace, resembling a partially unfurled umbrella. It is immediately obvious to the trained eye that such terminals could by no possibility have formed part of the original design of this tower. They only date from 1861, when they succeeded somewhat weather-worn predecessors of an ordinary crocketed character, as shown in the drawings of Brandon and others. But these, in their turn, were anything but old and out of harmony, though not nearly as much so as their successors. Neale's plate of 1823, and two drawings in the Dawson Turner collection, of 1817 and 1827 respectively, show

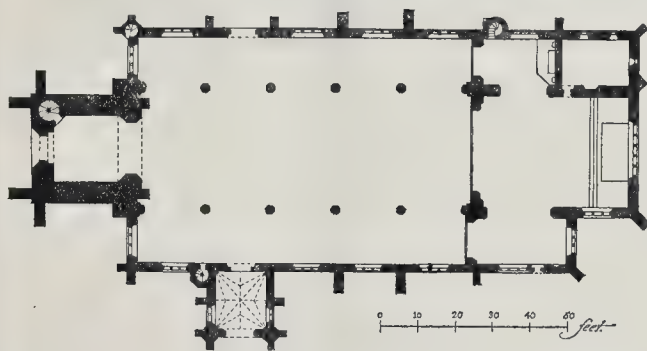
low pyramidal plain pinnacles. Tower pinnacles from their unsheltered position naturally get more weatherworn and usually need more constant repair or renewal than any other part of a church. Consequently, it need not be supposed that the pinnacles of the early part of the nineteenth century were the original ones; nevertheless, it may confidently be assumed that their proportions were far nearer the original than either of the sets of their successors. The quatrefoil panelling of the base moulding of the tower is continued round the body of the church.

At least half a century after the general building of the church, an independent structural addition was made to the east end of the north chancel chapel, whereby the work on that side was brought up flush with the east wall of the chancel proper. This extension formed a two storied vestry; its construction was probably suggested by the requirement of a place for the safe bestowal of the costly church plate and vestments which had begun to accumulate, and for whose safe keeping the room over the porch was inadequate. This vestry is figured in a plate of the later editions of Parker's "Glossary," where the conjectural date of 1460 is assigned to it. It rather strikingly resembles the similarly situated vestry of North Mimms, Herts. There are double lights to the upper story, but the ground floor has only lancet slits, probably for the purpose of additional security. It seems likely that the chancel clearstory windows are of this date. A decidedly peculiar construction for a church of this size will be sure to be noticed by the observant as well as by architectural critics. The buttresses





Worstead Church: Interior.



Plan of Worstead Church.

of the two bays of the nave aisles nearest the east have been raised and strengthened, and from them proceed flying buttresses to support the nave clearstory. From their structure and lack of ornament (they certainly do not add to, but rather detract from, the beauty of the general design), it is obvious that these flying buttresses were added at a later date to resist the outward thrust of the nave roof, which has a span of 32 ft. 6 in. It is reasonable to suppose that this was done at the time of the vestry being added, when the presence of the workmen and certain general repairs brought some faulty construction to light.

The wide single hammer-beam roof of the nave has beautiful tracery work, chiefly combinations of quatrefoils, in the spandrels.

At the west end of the nave stands the

font, which is one of remarkable grace, and of dignified surroundings; it is clearly coeval with the rebuilding of the church. In addition to the beautiful engraving of font and cover, given by Neale and Le Keux, the font is honoured with a whole plate in a paper on noteworthy English fonts contributed to the *Archæologia* in 1812, though no letterpress description is vouchsafed. Mr. Neale, curiously enough, describes it as "hexagonal," an obvious slip, contradicted by the plate, but which, having once been given currency, has been slavishly and absurdly copied by the whole tribe of guide-book makers ever since. Each of its eight sides is elaborately sculptured with beautiful tracery formed of various arrangements of quatrefoils. The bowl is supported by angels with outspread wings, and the base

is divided into panels with cinquefoil heads and crocketed finials, almost exactly like the design of the openings of the rood-screen. The font is raised on three steps, the faces of the upper two of these risers are carved with quatrefoils flanked by upright trefoils and beaded panels. The topmost step of the three is cut out so as to take the form of a cross, whilst the two lower ones follow the octagon shape of the font. These steps, both in their enrichment and shape are strikingly like those supporting the font in the church of Walsingham. There is a lofty font cover of tabernacle work, which is now, however, but the skeleton of its original state when it was obviously much enriched; it has suffered a good deal since the time when it was drawn by Neale in the first quarter of the nineteenth century.

The rood-screen has been one of special importance and of singular beauty in colouring and painting. It is still of much interest, though, unhappily, tampered with several times during the last century, and its real date and history given a false rendering. Amongst Cotman's etchings of 1817 is a rough drawing of the upper part of "Worsted Screen." This forms one of the numerous series that was published in 1838, with letterpress by Rickman, who indulged in some sapient reflections as to its exact correspondence with the character of the church. Rickman had clearly never seen or noted the church, or he would not have fallen into this trap. Cotman, in the multitude of his Norfolk drawings, had evidently made a mistake in the lettering of this sketch, for it has not a shadow of resemblance to the Worstead screen. It is curious that this blunder has not, to our knowledge, been previously detected. There is, however, in the Dawson Turner collection (Brit. Mus. Add. MSS. 23,049) another drawing of this screen which is correct; in it appears the projecting canopy work which carried the rood-loft. This drawing is dated 1817, and is signed MAT. When perfect, this screen, with the panelling of the front of the rood-loft, with the rood itself towering above it, taken in conjunction with the subsidiary side screens of the aisles in the same line, must have presented one of the most magnificent arrays of carved and painted and gilded woodwork in all Norfolk; impressive when viewed as a whole, and bearing the closest inspection from the minuteness and delicacy of the treatment. All of the ten openings of the screen work, four on each side of the entrance and two over it, have cinquefoil heads with crocketed pinnacles running up into them. The tracery is by no means so elaborate as the far commoner Norfolk examples of screens of the end of the fifteenth century. But this is of better proportions, and when perfect must have been of more impressive design from its greater simplicity. It resembles somewhat in proportions, though not in details, the screens of the neighbouring churches of Swanton Abbot and Tunstead. Collings, in his "Gothic Ornaments" (1850) does well in mentioning Worstead screen first in the brief list of Norfolk screens named in the letterpress; but it has not generally received the attention that it merits, and this doubtless mainly on account of perhaps well-meant but most unhappy treatment. About the year 1823 certain money coming from what is known as the Wharton bequest for the repair of the church was used in removing the decaying canopy



work on the top of the screen, when some pains was taken to fit together a suitable but meagre cornice as a finish in its place. At the same time some of the colouring was slightly touched up and the whole carefully cleaned. In 1832-3, a series of beautiful and careful coloured and gilded drawings were made of all the screens in this church; they are now in the Dawson Turner collection, and are invaluable in the details they supply. It will be well to give an account of the screens from these drawings before further mischief was done to them; especially as to the best of our belief they have not hitherto been cited. With regard to the saints painted on the lower panels, there were sixteen on the rood-screen, and four each on the aisle-screens. Those on the rood-screen, beginning from the north side, were:—

1. Defaced. 2. Defaced. 3. A saint in profile without any emblems. 4. A young female saint, with book in right hand and basket in left; probably St. Dorothy. 5. St. Simon. 6. St. Jude. 7. The Man of Sorrows, Our Lord crowned with thorns, holding nails in right hand and book in left, and with spearhead piercing his breast. 8. An old man with hair to his shoulders, and white beard, crucified, being tied to the cross both by hands and feet, nude, save for loin-cloth and green mantle partly covering his shoulders (St. Nestor). 9. St. Andrew. 10. St. Peter. 11. St. James. 12. St. Thomas. 13. St. Bartholomew. 14. St. Philip. 15. The Saviour, left hand blessing, right holding *orbis mundi*. 16. St. John the Evangelist.

A band of inscription in small raised black-lettering on diagonal bands above the saints in the lower compartments ran as follows, the first two phrases being obliterated:—

"... et hild uxoris ejus qui hoc opus fieri fecerunt quorum animarum proficietur deus amen. Quod opus factum erat et finitum anno domini millesimo quingentesimo duo decimo cui sit gloria laus honor et majestas amen."

Unfortunately the names of the donors were lost, save that Hilda was apparently the Christian name of the wife. The date is given as 1402 in Neale's copy of the inscription, and the style of the screen when perfect seems to render such a date possible; but the Dawson Turner drawings make 1512 more probable. So far as letterpress can do it, some idea of the original brilliancy and beauty of this screen (according to the Dawson Turner drawings) may be gathered from the bare enumeration of the successive colourings of the mouldings of the lower part of the screen, where the solid work above the painted panelling begins, a space of less than a foot in width:—(1) Blue and gold, in "barber's pole" design; (2) gold, with pattern; (3) green, with cinquefoils and connecting sprays in gold; (4) gold, with pattern; (5) red, with alternate fleur-de-lis and sprigged roses, scalloped at the edge with green; (6) band of inscription, gold centre with diagonal ribbon strips bearing gold lettering on blue ground, with edging of red, blue, and gold; and (7) broad band of plain gold. Immediately beneath this were the canopy heads for the saints, each one differing in colour and design. The patterns of the diapered gold backgrounds of the saint-panels were exquisitely rendered on a minute scale, with almost microscopic finish.

The screen of the north aisle, according to the Dawson Turner drawings, has in the lower compartments four saints. They are, beginning from the left:—(1) St. Bartholomew, (2) St. Philip, (3) St. Lawrence, and (4) St. Xystus (St. Sixtus) mitred, holding in the left hand a cross, whilst on the fingers of the right hand extended in blessing are two gold rings, and on the thumb a third.

The screen of the south aisle, from the same source, has these four saints:—(1) St. Peter, (2) St. Paul, (3) St. John Baptist, (4) St. Stephen.

The stairs for gaining access to the rood-loft are in the wall at the east end of the north aisle. When these screens were in use, there was evidently a passage over the canopy work to the central screen from each aisle screen. At the north-west angle of the same aisle is another stair turret, doubtless constructed for readily reaching the roods.

The rood-screen and its auxiliaries were again, unfortunately, touched up, and a certain amount of saint-painting restoration attempted in 1838, a year in which a good deal of other damage was done to the interior of the church. Again, in the third quarter of the nineteenth century, a worthy old official of the church (in conjunction with an archaeological (?) curate), from the best of motives, worked sad mischief with this ill-fated screen, as they were, unfortunately, gifted with certain moderate faculties for painting and carving. The panels of the central screen were taken out, much altered, rearranged, and named below in large lettering. It is now hardly possible to imagine that this comparatively poorly-painted screen is the same that was so beautiful in diverse colouring at the time of the Dawson Turner drawings, which were executed by Mrs. Gunn, the wife of a former vicar of Istead, and daughter of Mr. Dawson Turner. Mrs. Gunn was a great friend of Mrs. King, the wife of the Vicar of Worstead, and frequently stayed in the village.

So far as the rearrangement of the saint-panels is concerned—the two obliterated ones have been supplied—they now run, from left to right according to their painted names:—(1) Vir Doloris; (2) St. Paul; (3) St. James Less; (4) St. Philip; (5) St. Simon; (6) St. Jude; (7) St. Matthias; (8) St. John; (9) St. Andrew; (10) St. Peter; (11) St. James the Great; (12) St. Austin; (13) St. Bartholomew; (14) St. Jerome; (15) St. William; and (16) St. Wilgefortis. It will thus be seen, when compared with the 1833-4 list, that the saint-panels are so much repainted and altered as to be practically new. It was decidedly unusual to have pictures of Our Lord in such a position on rood screens, but the interesting correspondence of the Man of Sorrows with the Glorified Saviour in Nos. 7 and 15 of the original design was done away with, a new *Vir Doloris* was painted, and the original one placed at No. 15 and absurdly changed into the crucified boy saint, William of Norwich, of Anti-Semitic legend. A still more absurd transformation was that of the old man—probably St. Nestor, who is said to have been tied to his cross with ropes—into the curious virgin saint, Wilgefortis, whom legend says obtained a beard by prayer to save her chastity. It has now come to pass that these two particular panels attract the most attention from visitors, and actually appear in the later editions of Husebeth's "Emblems," whereas they are in reality the result of semi-

educated tampering with ancient work. The result of the various nineteenth-century paintings and re-paintings of these unhappy panels has been to practically deprive them of any artistic or archaeological value. The interference with the saint panels of the side screens, which apparently were of less merit than those on the rood-screen, has been much less, though those of the north aisle have been rearranged, and there has been some touching up of them all since 1833.

There has also, unfortunately, been some tampering with the inscription; even the date has been touched up. The completely defaced opening words were painted in by the aged official or the curate who supplied the new names to the saint panels, and the screen is now assigned to John Ablastyr and Benedicta, his wife. Apparently this is a mere guess, on account of there being a short brass inscription on a panel near to the screen to John Ablastyr, 1520, and another to his wife Agnes, 1524. The substantial parts of the screen canopy were used up in repairs to the nave roof, whence portions, which now lie at the west end of the north aisle, were recovered in a quite recent roof restoration.

At the east end of the north chancel chapel of St. John Baptist (that on the south side was the Lady Chapel) are two large pedestals for images. The altar pace between them retains its original elevation. Above where the altar stood is the delicately painted wooden framework of a former reredos, a most interesting and unusual survival. In this chapel the guild of St. John Baptist used to meet. The old Elizabethan Holy Table now stands in this chapel.

At the west end of the church, under the tower, is a gallery, supported on slight but well-carved and painted wooden pillars and framework. The front panelling of the gallery, flush with the arch into the nave, is beautifully carved and painted. Immediately below it is the following English inscription in black letter:—

"This work was made in ye yer of Gjd MCCCCI at ye propur cost of ye catell of ye chyrche of Worsted callyd ye batchellers lyte yt God preserve wt all the benefactors of ye same now and ever, Amen, than ver husbondes Christofyer Rant and Jeffery Deyn."

In Neale's account of this church, the last figure of this inscription was given, probably by a printer's error, as "1" instead of "1"; thus making the date 1550 (quite an impossible one) instead of 1501. This mistake has several times been copied, and it is worth while correcting it here, for the ornamental woodwork of this church is so exceptional and good, and tells so plainly of the art and feeling of the day, that it is a pity to have it falsified by half a century. The word "catell" ("catell" with a contraction over the "a") has given rise to several differing surmises. Neale interpreted it as a form of the word "candle" and confused it with the bachelor's light of the next sentence, giving a learned note on the subject. Another scholar thought it was intended for "cattle" or stock left for a particular purpose to the church; for in some parishes cows as well as sheep were left by will to the wardens, who sometimes farmed them for particular church funds. Mr. Joseph Hunter, in the *Gentleman's Magazine* for 1833, explained "catell" as a corner or angle, and thought that the bachelors



sat in that corner of the church, and that the bachelor's light meant the west window of the tower! More recent archaeology does not seem to have settled the point; but in all probability Neale was right in regarding "cantell" as an equivalent for candle, and that there was a general voluntary rate on the bachelors or young men of the parish towards maintaining a special candle or light, and that the surplus funds were used for erecting this gallery.

With regard to the lights or candles of Worstead church, it is of interest to note from the general returns of gild ordinances ordered to be made in 1389, when this church had been in the main rebuilt, that there is a brief and hitherto uncited return from Worstead (Certificates of Gilds, No. 355, Pub. Rec. Office). The certificate states that John Skete and diverse other townsmen of Worstead had sustained in the church for the last twenty years, out of their devotion, three wax candles weighing 3 lbs. and two tapers, to burn at mass on all festivals, and that so soon as they had sufficient funds they intended to provide a chaplain.

Christopher Rant and John Deyn were husbands, that is wardens, of the Bachelors' Gild at the time of the erection of this graceful gallery. There used to be a brass in the church to Christopher Rant and Joan his wife, 1538. Some of these Norfolk towers were evidently designed for vest galleries. Structural doorways from the tower stairway at the right level show that this was the case with the towers of Southrepps and Cromer; there are west screens at Ayisham and Causton. In Neale's plate of the font of Worstead (1823-4) this light gallery is shown, but there is no screen below it. In the elaborate series of coloured drawings of this church (1833) in the Dawson Turner collection the gallery front and inscription are given, together with a panelled screen below it. At the foot of the illustration the screen is described as "lately erected." From another source it is known that the figure paintings, after Sir Joshua Reynolds, were executed by Mrs. Gunn in 1831. The eight figures, singularly unsuited to their surroundings and but poorly executed, represent Faith, Charity, Fortitude, Patience, Learning, Hope, Justice, and Prudence. The two other narrow panels were adorned with emblems of the Virtues. Though it is usually supposed that Mrs. Gunn merely repainted old panels, there can be little, if any, doubt from the evidence just cited that the tower screen itself is merely of 1831 date. For that time it is a most creditable and unusual reproduction.

On the chancel walls are two painted consecration crosses of unusual size, being 2 ft. in diameter. There used to be similar ones on the walls of the nave aisles. A particular feature of the aisles is the large stone pedestal at the eastern end of almost all the window-sills. When these were filled with the images of saints, all looking west, they must have added much to the enrichment of this once lavishly-adorned church. Against the aisle walls are some remains of black-letter text adornments of Elizabethan days. Here and there small portions of the earlier wall paintings can be detected beneath the texts. Up to 1838 two most spirited old wall pictures of St. Michael and the Devil and of St. George and the Dragon were exposed to view; they are sketched

among the Dawson Turner drawings, but were deliberately destroyed in 1838.

In the lower vestry are a collection of carvings, old books, and other curiosities, some of which have no connexion with the church. There are also a series of rubbings of brasses, mainly inscriptions that used to be in the church, but some have disappeared. The oldest is an inscription to John Ovy, who died in 1452. There is another inscription to Sir Robert Camounde, who died in 1490. Sir Robert directed by will that the floor of the chapel of St. John Baptist should be laid with marble stones up to the grave of John Ovy.

#### NOTES.

AN epitome of the contents of the Bill the Trades - Union Workmen's Compensation Bill. National Conference is putting forward has been published

this week, and it is almost impossible to imagine a more futile and ill-conceived Bill, if the epitome now before us accurately sets forth its terms. The only actual changes which it proposes in the law are such as to render all employers liable to compensate their workmen (we have not the definition of "workmen" before us), and in cases of incapacity from injuries sustained the assessment of the compensation, not on the average wages of the individual workman as at present, but on the "weekly wages or earnings of persons in the same grade of employment in the same works." The liability proposed to be placed on all employers of workmen is to pay compensation for injuries sustained in the employment "by accident or otherwise," and the Bill further provides that the employer shall not be entitled to set up the defence of "contributory negligence or any other defence." We commented last year on a Bill introduced containing such terms. It is perfectly well known that "contributory negligence" is no defence under the present Act, but that the only defences open to an employer are to show that the workman was either guilty of wilful misconduct, or sustained injury whilst acting outside the scope of his employment. The legal advisers of the trades-unions are no doubt well versed in the law, and the only assumption that can be drawn from the Bill being drafted in this form is that even the trades-unions hesitate to state in plain language that they desire to make the employers liable for injuries sustained "otherwise" than accidentally, the consequences of their workmen's wilful misconduct or acts outside the scope of the employment. Of the latter the Law Reports furnish useful examples, viz., remaining in a mine when told to leave it in consequence of a dispute with a superior, or meddling with machinery against express orders; which acts of mischief or disobedience, apart from actual wilful misconduct, are, according to the trades-unions' views, to entitle a man to receive compensation from his employer. The Bill contains a clause that when a workman has been incapacitated from following his employment, but can undertake other work, he is to be entitled to the "full difference" between such wages, but this is the law at present, except, of course, that this full difference must not exceed 50 per cent. of the original wages, or the liability of the employer would increase merely because the man was able to work a

little. The Bill contains a clause prohibiting contracting out. As the only contracting out permissible under the existing law is where the Registrar of Friendly Societies certifies a scheme to be "not less favourable to the general body of workmen and their dependents than the Act," it is hard to see any necessity for this clause. Considering the difficulties experienced in the working of the Compensation Acts—difficulties only disappearing as the Act has been expounded line upon line by decisions on the cases—it is surprising to read a measure such as the above, introduced by a responsible body, containing provisions which, when they are not merely declaratory of the law as at present administered, can only be characterised as puerile.

County Council Economy.

THE continuous increase in the rates is the subject of much criticism, and a cause of serious alarm to business men and other classes, yet daily increased burdens are laid on the ratepayers, whose patience can only be likened to that of the proverbial beast of burden, whilst such warnings and protests as they can give expression to are as futile as those uttered by Balaam's ass. It would be interesting to obtain the individual views of the members of this long-suffering class on the latest resolution of the London County Council to expend 10,000*l.* to secure 803 acres of land in Essex some thirteen miles from Charing Cross for the purposes of a public open space. To ratepayers groaning under the heavy taxation necessitated by the recent war and contending with depressed conditions of trade, this open space in Essex may appear to be a somewhat unnecessary luxury, involving not only this sum for the purchase money, but also large annual expenditure on its maintenance. But even weightier objections than these can be urged against this scheme. Much of this land is at present being profitably employed under cultivation, and much of it is available for building purposes. In the recent Report of the Council's Improvement Committee it appeared that, owing to the Holborn to the Strand Improvement, 6,738 persons had had to be displaced from their houses, and (although the Home Office scheme provides for the eventual housing of some 5,900 out of this number) a policy which removes the population from convenient centres, and which, at the same time, by securing land for purposes of recreation, enhances the difficulty of securing suburban building sites, seems to us one difficult to justify. The proposal, however, was carried by eighty-seven votes to seventeen, and as the present Council assumed power under a pledge to carry out a policy of strict economy it becomes equally difficult to understand either what influence is exerted by this pledge, or what the Council's policy would have been without it.

Municipal Management.

THE Report of the Sub-Committee appointed by the Bradford City Council to inquire into the desirability of instituting a Works Department in that city on the lines adopted in London and elsewhere contains matter of great interest. The Sub-Committee having inspected the Works Departments of the London County Council and those of



Battersea and West Ham, have recently made reports, and the majority have reported adversely to the institution of a Board of Works in Bradford. The results of this investigation on the part of the majority seems, shortly stated, to be that in architectural work the Works Department are unable to compete favourably in the matter of price with outside contractors, whilst the quality of the work done by the latter is equal to that of the Works Department. In underground work equality in quality, price, and wages, is attained by both. In West Ham, however, the Report observes a tendency to give certain payments and compensations, which bring the pay of the municipal employees above the standard of trade union wages, and the Report also gives some weight to the tendency the votes of the employees have towards attaining this end, especially in places where the proportion of municipal employees is large in reference to the population of the municipality.

#### A New Mississippi Bridge.

APART from the fact that it is the largest work of its kind under construction in the United States at the present time, the new cantilever bridge over the Mississippi at Thebes, Ill., is interesting because the approaches are to be entirely of concrete. The bridge, which was commenced about a year ago, will probably be finished early in 1904, and is designed to form a connexion between the systems of four railway companies, two on each side of the river. Including earthwork, the total length of the structure is 3,907 ft. made up as follows: Earthwork at east and west abutments, 342 ft. 4 in.; eastern approach, five concrete spans of 65 ft.; bridge spans, comprising two fixed spans, four cantilever arms, and three suspended spans, viz., central span of 671 ft., two side spans of 521 ft. 2 in. each, and two shore spans of 518 ft. 6 in. each; western approach, one 100 ft., and six 65 ft. concrete spans. The spans and panels are so arranged that only two lengths of panels are necessary, 32 ft. 6 in. and 30 ft. 6 in. Both the fixed spans are alike, as are also the cantilever arms and the suspended spans. The height of the bottom chord is 65 ft. above high-water level, and 103 ft. above low water. The superstructure is carried upon six masonry piers, backed with Portland cement concrete, and founded on bed-rock by means of pneumatic caissons, with the exception of the last pier on the western side, which was founded in open excavation. According to the engineers' estimates, the cost of the entire structure will be about 520,000.

#### Assisted Circulation in Hot-water Pipes.

ALTHOUGH the gravity system proves itself to be thoroughly efficient in all ordinary examples of hot-water apparatus, it has entirely failed to give satisfactory results in very extended and complicated installations. Of course, the inexorable laws of Nature ensure circulation in every system of the kind, but not necessarily to the required degree throughout its various ramifications. Much may be accomplished by employing pipes of ample diameter, by suitably proportioning the main and loop circulations, and by fixing all pipe fittings in the most appropriate manner. But even then the result may not be altogether satisfactory. Various devices have been introduced for the pur-

pose of assisting circulation. One, which is extremely useful within certain limits, consists of a special fitting having an internal nozzle capable of adjustment so as to partly divert the flow of hot water from a main into a branch circulation, and to facilitate the delivery of partly cooled water from a branch into a main return pipe. Another method involves the employment of a pump, by the aid of which circulation is assisted or maintained entirely by mechanical means. This device was first employed at a large building in London, after all other means had failed to ensure complete and satisfactory circulation. A system of somewhat similar nature makes use of steam injectors fixed in such manner as to heat the water circulating through a building, as well as to furnish the motive power for assisting circulation.

WE have received from Mr. Buchanan a pamphlet which he entitles "Farm Cottage Holdings," the main purpose of which is to advocate the establishment of freehold cottages with a small amount of land attached to them in the rural districts. There can be no doubt that if it were possible for the most energetic of the agricultural labourers to be able to secure a cottage and a holding of their own it would be a great incentive to the continuance of the best class of rural workers in their own districts. It is obvious, however, that freehold cottages cannot be obtained by ordinary labourers except in some rare cases under present conditions. The ordinary landlord will not build cottages to sell, and in most cases it is not possible for a poor man to pay in other way than by instalments. No doubt there has been legislation bearing on this question during the last ten years, but at present there is no system sufficiently simple and easy. Unquestionably this is a difficulty which cannot quickly be got over, and it probably will not be surmounted until the Board of Agriculture has the power to lend money for the purchase or building of freehold cottages by rural labourers. At the present moment County Councils are far too conservative and too averse to the labourer to be trusted with any scheme of the kind.

#### The Abbey of St. Mary Buckfastleigh.

THE recent appointment of Abbot Natter revives the ancient dignity of an abbey which was founded originally for Benedictines temp. King Edgar, and was refounded in Henry II.'s reign by Ethelward de Pomeroy, who rebuilt the convent for some Cistercian monks brought from Savigny in Normandy. The abbey held large possessions in the vicinity of Kingsbridge, and Ashburton, and elsewhere; the revenues were computed at 466l. 11s. 2d. at the time of the Suppression. The buildings then fell into decay, and then for a long while served as a common stone quarry. In 1805-6 a residence, since occupied by the religious community, was built with the stones over a Saxon crypt on the west side of the ruined cloisters. Twenty years ago the site and remains were purchased by a band of Benedictines from Pierrequirre, Burgundy, and shortly after their arrival the gradual reconstruction of the abbey upon its former lines was begun, mainly through the instrumentality of Lord Clifford of Chudleigh. Mr. Frederick A. Walters,

F.S.A., superintended the excavation of the site, and made designs for the new buildings after the style of the Transitional period, which he found was the character of the older portion of the former structure. He also carried out a restoration of the Abbot's tower, which stands at the north-west corner of the cellarium, and is remarkable in that it was found to contain three latrines, the one above the other, in a fairly perfect condition. The tower, a four-storied building after the Perpendicular style, formed, it is conjectured, the residence of the master of the lay brethren. In our number of October 30, 1886, we published Mr. Walters' plan of the old convent and the foundations, with a two-page bird's-eye view of the new works. Pending the restoration of the Abbey Church, a small church dedicated to the Immaculate Heart of St. Mary was erected on a site near the west side of the Abbot's tower.

#### Paintings in Solid Oil Colours.

A COLLECTION of pictures, mostly by eminent artists, is on view at the Holland Fine Art Gallery in Grafton-street, which are executed with the solid oil colours invented by Mr. Raffaelli. This is a method of putting oil colours in small solid sticks like crayons, which can be used direct on the canvas without any trouble in mixing colours and cleaning brushes. At first sight this seems like a revolution in oil painting; but we are by no means so sure that it will be adopted to the extent that some critics and painters seem to expect. The pictures painted in this new medium by various artists, English and foreign, have a rather hard dry appearance, somewhat like pastel, though without the destructible nature of pastel. Something of the appearance of an oil painting made with the ordinary medium can be imparted to these pictures by varnishing, as is seen in one or two examples in the collection at the Holland Gallery. But while the solid oil-colour pencils will no doubt be of the greatest use for sketches and studies, we are inclined to think that for the highest class of pictures the brush and colour-tube will still hold their place.

#### New Pictures in the National and Tate Galleries.

NEITHER Nasmyth nor Both were landscape-painters of the first force, but the National Gallery has been fortunate in the examples of the two painters which have just been bequeathed to it, for each represents the artist at his best. Both's "Italian Landscape" (Room X.), left by Lord Cheylesmore, is a large painting repeating general elements of composition which are familiar in his works; but it is a fine example of the particular effect of warm sunlight which the painter loved and devoted himself to. Nasmyth's "The Severn off Portishead," from Mr. Gassiot's collection (Room XX.), is also a large work—much larger than usual with Nasmyth; and in spite of the hard painting of the trees and the rather cold and steely colour of the foreground, it is a work showing most conscientious labour and the distance is fine. The two small works by Van der Heyden, hung in Room XII., are admirable specimens of his peculiar delicacy and finish in the painting of Dutch architecture of the Renaissance type. The most important of the new works which have been announced in the daily papers as having been placed



in the Tate Gallery—viz., Delarocche's tragical picture of the execution of Lady Jane Grey, turns out not to be in the gallery after all, having been sent to be reframed. Of the other new works, the two pictures by Phillip have the artist's usual characteristics; one of them, "The Prison Window," has been popularised by engraving, and is a very good example of his work; but one cannot in these days get very enthusiastic over Phillip. The two pictures by Collins, "Sunday Morning" and "Cromer Sands," are of considerably more interest. Collins was an always truthful and feeling though rather quiet landscape-painter, but in these two examples, and especially in "Cromer Sands," he shows a power of effect beyond what is usual in his pictures. "Sunday Morning" was the subject of an engraving published many years ago in the old series of the *Art Journal*; "Cromer Sands" we have not seen any reproduction of. It is not topographically very exact; he has exaggerated the scale of the cliffs: but it is a fine landscape.

#### THE DECORATIVE ART OF THE JAPANESE.—II.\*

##### TEMPLE DECORATION.

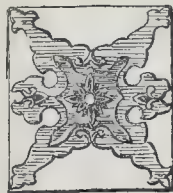
I PASS now to the more severe ornament which is to be found in the Buddhist temples, and which I think may fairly be called the religious decorative art of Japan. When I say that this ornament is drawn from the Buddhist temples of Japan, there will at once be conjured up in the mind's eye first an innumerable array of stone lanterns; then an elaborately decorated gateway; a courtyard surrounded by a low wall of open woodwork; in the centre on a raised platform a squat building surmounted by a very large roof of shingles, whose exquisite curves, as I think, owe their catenary character to a tent, for they reproduce faithfully the sag of both tent roof and curtain; and inside gloom, through which, when the eye gets used to it, appears such a wealth of decoration that it is practically impossible to decipher, much less to remember, any of it; and beyond the temple the shrine, and beyond the shrine, in absolute quiet and peaceful repose, the tomb; and all around the colossal trunks and wonderful foliage of the cryptomerias. At Shiba, in Tokyo, there are six such temples, and at Nikko two, all of them erected to the memory of the great Tokugawa Shoguns. From these temples all these studies of decoration were taken. I cannot pretend that I have exhausted the subject; for though I have drawn at two of the chief fountains, the Kyoto temples and many another remain to be ransacked. I cannot even hope to exhaust my sketch-book. I must, therefore, try to be typical rather than exhaustive.

To put my readers completely in touch with the home of this decoration, I have further to ask them to remember, or imagine, the temple building to be of lacquered wood, and every square yard, foot, and inch of it, seen and unseen (for the way of the Japanese artist often is to put some of his best work where human eye may not see it without considerable difficulty, and copying it is out of the question), literally smothered with ornament, carved, painted, inlaid, high relief, low relief, silk-weaving, metal-chasing—produced, indeed, by every means which human skill has devised for the making of things so beautiful that they are worthy of a place in a shrine of worship. The puzzle which this work presents is that the character of some of it—of a great deal of it, indeed—has little or no affinity with Japanese decoration as generally understood, and the problem is whence came the inspiration. Some of the designs are essentially Eastern, many of the forms of the cloud and wave patterns will be found to be perfectly familiar. Then again many of the diapers will be recognised by those who have some knowledge of "curios," for they are often used on lacquer, silk, porcelain, and metal. And yet again the conventional forms of some of the flowers will be an indication to many that these designs come from

Japan; to the learned that there is a Chinese home for some of them. Another erudite student will possibly trace the origin, or at least the execution, to Japan, guided by certain subtle sweeps of the curves, and the pervading art instinct, which can lead him to no other conclusion. But beyond all this there are many designs—specially a whole class of lattice work, which must form the subject of a separate article—which present even for the student a problem which I cannot pretend to solve in any other way than by the merest suggestion. The fact is that there is a great deal of this work which shows unmistakable traces of an inspiration which is not Eastern at all.

The following are typical of a great mass of ornament, the most remarkable from the point

background as in fig. 3, and developed into a more elaborate diaper in fig. 4. Figs. 3 and 4 are illustrative of a class of work frequently met with; this diaper is lightly incised and carved with white lacquer; this forms the background for independent ornaments, which are carved in brown wood, and fastened on with brass nails. The idea of a series of developing lines, which in fig. 2 is applied to a point, in fig. 4 to a combination of four lozenges, is the basis of the elaborate diaper (fig. 5), which produces, by the inversion of the unit in every alternate line, the form shown in fig. 6. These designs are, of course, constructed on the hexagon points of the circle, and are really composed of hexagons with the alternate angles re-entering. Fig. 7 is taken from a column, which is of brown lacquer very deeply



of view of the derivation problem being No. 4. It might be said to be almost Tudor in its inspiration, but it would plunge us too deeply into disquisition to follow out the many trains of thought which the suggestion calls into being.

I take first in order from my sketch-book the diapers, which may be divided into three distinct classes—pure line; floral derivative; symbolical. The illustrations this week are examples of the first two classes (see lithograph plate).

The elements which the artist has to work with are—first, line, with varying length, breadth, and curve; secondly, angle; thirdly, colour to heighten effects. With these he produces decoration, breaking up the flat surfaces which the eye abhors—sometimes formal, sometimes full of the grace of flowing curves, but line for line's sake. And for his good use of these materials Nature thereafter comes to his aid with floral suggestion. So far the designer produces flat ornament only, using the brush, or its equivalent, as his only tool. But presently he takes to the chisel, and then increases his stock-in-trade, the element of relief, high and low, with consequent effects of light and shadow. There is a great deal of flat colour decoration in the temples, but the designs are, for the most part, elaborate. The diapers which are used for covering large surfaces, such as panels to doors, pillars, walls, are almost invariably in relief. The lines are cut as with a triangular chisel, the result being—more especially if the work is in crimson lacquer, or gilded—a bewildering light-scattering effect, in which the design is almost lost sight of in the general effect. It seemed preferable to let the illustrations take the form of sketches of the effect of light and shadow, rather than mere formal flat representation of the lines which form the design.

What is known in the West as the "basket pattern" is frequently met with in Japan; fig. 1 (see plate) is an elaborate example of it. Fig. 2 is also a common design, used by itself or as a

incised. The effect in fig. 8 is dependent mainly on various thicknesses of wood. Fig. 9 is in red lacquer in moderate relief. The design seems to have been suggested by a fan; it is unusual in its character, and I have not come across any other of a similar nature. In fig. 10 the design is made of shallow-cut gold lines on dark brown lacquer. Of the zigzag lines I shall have something to say in a subsequent article.

It will probably surprise some of my readers when I say that in fig. 11 we come to a design which is dependent on natural suggestion. It is known as the pine-pattern, and if the conventional treatment of the pine sprays already noticed in previous articles be remembered, the evolution of this pattern is easy to trace. The effect of light and shadow caused by the deep carving is, of course, accountable for the number of lines which appear to radiate from each centre; there are in reality only four spines going to each of the sides of the hexagon which is used as the base of the design. In fig. 12 the pine character of the design vanishes, giving place to a star form, which is emphasised by every alternate spine being omitted, the space being left flat and coloured. It is a strip of fig. 11, cut diagonally. In fig. 13 the star form is further developed and treated as a separate unit of design. The floral form is surrounded by six stars, which are inscribed in the hexagon circles, in the same way as in fig. 10. The lines of the hexagon are carved as in fig. 15, the suggestion here being of a band of cotton or other material surrounding the flower and gathered into knobs at the hexagon points.

In fig. 16 we see the first stage of the conventionalising process as applied to the peony, the outline of the petals still retaining their natural flow, but the lines are becoming more rigid till they reach the form given in fig. 14, which is the ultimate form of the conventional flower. The shape here given to the petals is the classical convention of leaf form which appears in much Eastern work. It will be

\* See page 8 ante.



seen in some of the illustrations given in the text of the first article, and gives the character to the petal of the flower in fig. 18.

The remaining figures do not require special reference, except that the peony of fig. 16 and the chrysanthemum of fig. 17 are repeated in every panel of the diaper. F. T. P.

#### LETTER FROM PARIS.

The circular line of railway from the Etoile to the Place de la Nation, which was finished as far as the Place d'Anvers, has now been opened from there to the Rue de Bagnole. The new section includes eight stations:—La Chapelle, Le Combat, La Villette, Belleville, La Rue des Couronnes, Ménilmontant, L'Avenue Philippe Auguste, and Bagnole. It will be a great public convenience, especially as it will shortly have a station at Père Lachaise cemetery. The municipality has opened a competition for the design for the metallic portion of a viaduct to be placed across the Seine above the Pont d'Austerlitz for the passage of the circular railway, which will follow the line of the former outer boulevards of the left bank. The works are a great interruption at present to the ordinary street traffic, but this is only a temporary inconvenience. A large *chantier* has been opened in Rue Auber, opposite the Opera Library, which quite shuts out the Garnier monument, the inauguration of which will probably on this account be postponed for a long time, though it was to have taken place at the end of last year.

The Opéra Comique is now entirely completed, and the temporary gas chandeliers on the façade are replaced by candelabra with porphyry shafts decorated with bronze leafage ornament. These are fine pieces of work in themselves, and harmonise well with the general style of the building.

M. Weerts, the painter, who is the author of some important decorative works, especially the ceiling of the large museum apartment at the Hôtel des Monnaies, is just completing an immense composition which will be fixed in the Cour d'Honneur of the new Sorbonne. The picture, which measures 24 metres in length by 4 in height, represents the "escoliers" taking part in the celebrated university fête of "Lendit," which, in the fifteenth century, was held in the Plaine St. Denis. The long procession of students is treated in a very picturesque manner, with the richness and variety of costumes of the period, and surrounded by a molley street crowd pressing before the Cathedral of St. Denis to greet the rector, who visited the church in state, preceded by heralds.

The Municipality intend to form, on the site of the former Cirque des Champs Elysées, an ornamental lawn and flower-beds, in the centre of which will be an equestrian statue which formerly decorated the front of the building. This statue, representing an Amazon, was the work of the late celebrated sculptor Fradier, who also, along with Bosio, executed the two equestrian statues which decorate the façade of the Cirque d'Hiver, in the Boulevard des Filles du Calvaire, which is actually the oldest of Paris Theatres now existing. It was built more than fifty years ago from the designs of Hittori, who entrusted the decoration of the building to a number of distinguished artists, of whom the only survivor at the present moment is M. Guillaume, the Director of the French Academy at Rome.

The Société Nationale des Beaux-Arts ("New Salon") started by doing away with all gold medals &c., which at the Old Salon had led to such keen competition and to so many complaints—not always without cause—of injustice and partiality. In this latter society the suppression of medals has been agitated for by M. Zwiller, a painter who is always ready for a fight, and who recommends the substitution of diplomas. Among other arguments, it is urged that the saving of the cost of the numerous medals annually given would create a fund which might be much better applied to the relief of artists in needy circumstances. The question will be submitted to the Assemblée Générale, which will give a final decision on the subject.

M. Redon, the architect to the Louvre, has under consideration a scheme for the enlargement of the museum, which will permit of the exhibition of important collections which are still unknown to the public for want of space to exhibit them. He proposes to organise a certain number of exhibition galleries in the

second story of the palace, to be reached by a new staircase which will also give access to the Salles Lefuel, and will replace the narrow wooden staircase leading to the Musée de Marine. By this means room would be found for the exhibition of twelve to fifteen thousand drawings, reserving the first floor galleries for paintings.

In this connexion we may mention the recent opening at the Louvre of the Thomy-Thierry Galleries, in which are collected many remarkable works by Troyon, Decamps, Fromentin, Delacroix, Isabey, and other artists of the earlier nineteenth century period, brought together by a collector of great judgment and insight.

The Municipal Council, in the ensuing session, intends to consider the main heads of a new series of sanitary regulations which will become the basis of future by-laws on the subject of public health. These regulations will be concerned both with general hygiene and with the prevention of the transmission of infectious disorders. They will be of special interest to architects, inasmuch as they will deal not only with street regulations but with house construction and the obligations imposed upon both builders and proprietors of Paris houses.

An exhibition of artistic ivories, to be opened in May, is now in active preparation at the Galliera Museum. It will include not only modern French work of this class, but also Colonial and especially Indo-Chinese work. It is expected that some fine private collections will be lent for the occasion, especially a very remarkable collection belonging to M. Corroyer, the architect to Mont-St. Michel.

The exhibition of the Cercle de l'Union Artistique (formerly the "Cercle des Mirilions") has just opened. Among the prominent exhibitors is M. Jacques Blanche, who, along with the late J. Lewis Brown, was among the first to call the attention of modern French painters to the works of the English school, and who in his own paintings is obviously a student of Reynolds and Gainsborough. The exhibition includes also works by MM. Roybet, Chartran, Carolus Duran, Bonnat, Gérôme, Gervex, Cormon, &c., together with sculpture by MM. Gérôme, Denys Puech, Verlet, and Crank.

#### THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A MEETING of the Royal Institute of British Architects was held on Monday in the Meeting Room at No. 9, Conduit-street, Regent-street, W., Mr. Aston Webb, A.R.A., President, in the chair.

*The Royal Gold Medalist for 1903.*

The minutes of last meeting having been taken as read,

The Chairman announced that the Council proposed to submit to his Majesty the King, as a fit recipient for the Royal Gold Medal for 1903, the name of Mr. C. F. McKim (Messrs. McKim, Meade, & White), of New York, for his works as an architect.

The announcement was received with applause.

*The Wellington Monument, St. Paul's.*

The Chairman said there was a matter which was interesting a good many people just now, i.e., the Wellington Monument, St. Paul's, and he thought there were few people more interested in it than architects, for the monument has a quality which was specially appreciated by architects. The Council of the Institute have had the matter under consideration that afternoon, and he (the Chairman) had been requested on their behalf to express a hope that, as they understood that the equestrian statue of the Duke of Stevens was in such a condition that it can be placed on the monument for examination and consideration before anything further is done, they hope that that course will be undertaken, so as, if possible, to ensure that the work is completed without the intervention, if possible, of any other hand than Stevens's.

*President's Address.*

The Chairman then delivered the following address to students:—

BROTHER STUDENTS,

Ever since I undertook the responsibilities of this chair, it has been present to my mind that it would be my duty and privilege to address you this evening, and I have wondered if there was anything that I could, say that

would be of use or help to you. The experience of one man, valuable to himself, is seldom of value to another, especially if the other be a younger one, and in art, perhaps, this is more true than in any other career; each must work out his own salvation, and a stranger cannot intermeddle with his joy.

I am not speaking to-night especially to those who have just entered for the various prizes and studentships yearly offered by this Institute. This has been kindly undertaken by Mr. Walter Millard, who is especially qualified for the task and is sure to fulfil it conscientiously and generously. I am speaking to students generally, students of what I think we rightly consider the greatest and noblest of the arts, the art of architecture, the most abiding and the most useful of the arts. Those of us who heard Dr. Evans's recent paper on his exploration of the Palace of Knossos in Crete must have felt this as he laid bare before us the work executed by men some 4,000 or 5,000 years ago.

In addressing you students I shall endeavour to give you in the briefest and most condensed manner possible the main lines on which, as it appears to me, a student of architecture should endeavour to prepare himself for his work. One thing I would first ask you on the threshold of your career:—Are you quite sure you have chosen aright? No one can tell this so well as yourself, and you will probably by this time have had sufficient experience of what this career means to form a sound opinion, and I advise you deliberately, if you have any doubt, to throw it up *now*; you will be none the worse, but all the better for the training you have had, and you will find it useful in other careers. If, on the other hand, you determine to go on, decide at the same time never to look back again. It is a career beset, of course, with difficulties, and one that requires a lifelong training to enable you even to keep your place in it. Remember, this training must be irksome to all who have not their heart in the work, and it will shut you out of many pleasures you will see others enjoy; it is so engrossing that you will inevitably find yourself becoming, to some extent at least, a one-sided man, a contingency which certainly should not by any one be lightly assumed. But, on the other hand, if your heart is in it you will find the ever-varying character of your work a never-ending delight, carrying you to many places and bringing you into contact with all sorts and conditions of men, a delight which cannot be excelled, and indeed can hardly be equalled, I think, in any other calling.

But to arrive at this you must follow it with patience. Some young men seem to expect to attain success as soon as, or even before, they are out of their articles: the majority are necessarily doomed to disappointment. Work, you will find, is necessary, and that work must be lifelong; there is no success or happiness without it. When a young genius was brought to Ruskin, his first question always was, "Does he work?" A clever man, he says, may be indolent, but a great man never. It is probably the ten years succeeding pupillage that are the most important in the life of most architects, and will be the all-important ones in yours. How will you use them? Then you will begin to rely upon yourself and teach yourself, and cease to rely upon others—a very important difference. Mr. John Morley said a little time ago, in a speech of his, "What a splendid thing a man might make of his own life!" He did not add, because I suppose it is so evident, "What a poor, miserable thing he often does make of it!" It is for you to decide to make a splendid thing of yours. Start with high ideals, for they will be sorely tried. A famous painter told a gathering of students a short time ago that he never painted a picture that realised the ideals he had started with; and if this is true of a distinguished painter, how much more true of lesser men!

Many years ago I read a paper on "Pupilage" before the Architectural Association, and after the paper a gentleman got up and was kind enough to say I had given them many useful hints as to how to do their work, would I now give them a few tips as to how to get it? But that was not part of my subject then, nor is it now. I will only say this, that if you take care to prepare yourselves and do the work that lies nearest to you as well and as thoroughly as you can, the work will come to you and you will not even have to trouble how to get it: the way you do what does come to you is the all-important thing. Remember Carlyle's descrip-



tion of common journey work well done for want of better.

I shall take it that most of you here to-night have completed or are nearing the completion of your articles, and are about to commence your professional life in one capacity or another. You have been, therefore, through a course of systematic instruction—most necessary and most useful, if a little dull—and you are now about to take a higher flight, urged, let us believe, by an ideal impulse. Do not clip your wings; the head has been educated, now it is the turn of the heart. We will assume you have got knowledge. But with all your getting you must get understanding, get to the bottom of things and understand them. A well-stored memory is not the chief essential for an artist, though it is of great value to him. Cultivate curiosity and observation, and leave nothing unexplained. Now is your time. Some grow old without gaining any experience, through never having learnt to observe. Learn now how to learn, or you will never do it, and lead the "strenuous life." Do not be afraid of overwork; the number of people who overwork themselves is infinitesimal; the chances that you will be one of them are hardly worth taking into account.

I would recommend you, for one thing, to know as many artists of about your own age as possible, architects, painters, and sculptors; meet together as often as you can, talk what is called "shop" with them, visit buildings, paintings, and sculpture, old and new, together, criticise these things together, admire where you can and give your reasons, and when you must condemn, give your reasons also; get all you can from your friends, and give them all you can in return. The Royal Academy Schools, this Institute, the Architectural Association, and your own office, will give you ample means of doing this, and you will make friends that will last your lifetime, and as difficulties arise in your work you will go to them for advice and counsel, and as occasion arises they will come to you for the same.

You will read, of course, "a lot." A very successful artist friend of mine (not an architect) once told me he had always made a rule of reading not less than five hours a day, and he was a very busy man. Few of you can do that, perhaps; but start with a high ideal and map out a certain time every day for the purpose. You will have already read your text-books, your Fergusson, your Middleton, your Viollet-le-Duc, and so on, and now you will read more of the romance of architecture, the story of the building of St. Sophia, of the Duomo at Florence, of St. Peter's at Rome, and St. Paul's in London; the lives of great architects, painters, and sculptors of all generations and countries; how they looked at their art and the principles that guided them in the execution of their work; you will read your Ruskin, and in fact all the literature in connexion with your art that you can lay your hands on (and there is no difficulty in that respect nowadays), for remember that your clients will expect you to know a great deal more about art in general and your own in particular than they do, and you must not let it be said of you, as a late Bishop of London said of a certain architect, that he had sat next to him at dinner and was astonished to find that he (the Bishop) knew more about the Parthenon than the architect did himself! Then, of course, you will sketch existing buildings, new as well as old, and try to get at the principles of their design and construction. In my day we used to sketch and measure an arcade, a doorway, a font, or other detail easily accessible, draw it out prettily and publish it in the Architectural Association "Sketch-Book," and, I am afraid, remain oblivious of the points in the plan, elevation, and section of the building which produced the result we admired but did not understand. You will, I do not doubt, make a rough note of the plan, elevation, and section of the building you are studying, and put on the leading dimensions, noting the thickness of the walls, the amount of lighting area, &c., and any distinguishing features this analysis brings out.

Thus you will learn the real vertebrae of the building, although you will probably have no notes fit for publication; but you will know your building in its three dimensions; and you will be surprised, if you continue this plan, how it will give you a grasp of the general conception of buildings, which is what an architect should endeavour to arrive at. The detail

is important—vitally important—but the conception is the principal thing; and as you come to design buildings yourself you will think of them in the same way as cubes, not as planes, and, having learnt what feet look like in existing buildings, you will at once understand what they will look like in your own buildings when they come to be realised from paper structures to real brick and stone. The great buildings of the world are admired because their dimensions are noble and proportionate to the one to the other. You will, therefore, never rest till you have obtained this rhythmical music of dimension.

Then you will not think construction beneath your notice. It is at the root of all great architecture. Wren was a great constructor, the founder of the Royal Society, an inventor of scientific instruments, and a scientific man. Go into St. Paul's and stand under the dome and think; go up into the spire of Salisbury Cathedral and think a little, and realise how greatly daring were the men who designed and erected these structures so that they have withstood the thrusts, the storms, and natural decay of centuries, and remain the admiration of mankind. Then you will also study materials—those that look well in work from colour and texture, and that weather well and improve by time. It is impossible, again, to exaggerate the importance of this towards a satisfactory building. You will also (if you are wise) keep a commonplace book and jot down dimensions of things as they come under your notice, because it will save you much time and trouble later, when your hands are full and your time can be better employed than in hunting these matters up. And with regard to the drawings you send out to the works, you will remember that what you show is far more important than how you show it; and so you will make your drawings as practical as possible, and write all instructions on them the workmen are likely to require; and you will be comparatively unconcerned as to how your building looks on paper, provided you can see in your mind's eye it will look well in reality. An architect's work is his building, let him produce it how he may. The beautiful drawings of the late J. F. Bentley, shown here a short time ago, had never been seen before, his one desire being—so Mr. Ingress Bell, who knew him well, tells me—that he should be known by his work and nothing else.

I have not, even now, enumerated half the branches of study in which you will have to instruct yourself, but, lest you should feel it an impossible task, I may say that you will find, as you master first one and then another, these subjects will dovetail one into another so that you will gradually, perhaps almost unawares, become a well-informed man. Then you will travel, of course, when the opportunity occurs. The caution given in this room by Sir Lawrence Alma-Tadema a short time ago did not apply, you will see, to foreign travel generally, but to travel undertaken too early in your career and before you know your own country. And then, in addition to all this, you will practise scrupulous integrity towards your employer, employed, and professional brethren, and you will never do anything you would prefer your client not to know about (for that is a safe rule when you are in doubt). You will, I am sure, endeavour to be courteous, upright, and modest in all your work, not always seeking your own advantage, and so you will raise yourself and your calling and become what we call an English gentleman.

You will not, if you are wise, be content to let your art stay where you found it, but you will go on and on and carry it, as far as in you lies, a step further; you will become a "true lover of the past who does not scorn to take good heed to what the future saith," and so you will not work in vain. It is easier, I know—no one better—to say all this than to do it. Nothing worth doing was ever yet easily done; lifelong work is required, and I end, as I began: you will do no good thing without it, and get no enjoyment either without it. The possibilities of life are nearly endless, and they depend mainly on yourselves. Remember that the pursuit of architecture is a serious pursuit. Some buildings seem as if put up for mere fun; you will not treat your art so, I am sure. Play and fancy in the detail there may be, but the main structure must be sober, with an evident idea to impress or to attract. Ruskin tells us "it is sympathy and imagination that make the artist." Cultivate, therefore, both, and you may leave behind you something that has been worth the doing.

And doing is the principal thing—don't think over much, but try.

Mr. Walter Millard, Pugin Student of 1879, then gave a short criticism of the designs and drawings submitted this year for the prizes and studentships. In the course of his remarks he said the subject set for the Essay Medal was "A Comparative Review of the various Past and Present Systems of Architectural Training at Home and Abroad," and it had a very special—we might almost say a vital—interest for us, now in particular; and one can only hope it may have attracted competitors qualified to treat it adequately in spite of the rather vast comprehensiveness of the title. He had not had the opportunity of reading the essays; but he would point out that any review of the subject could scarcely fail to note the far-reaching fact that as a corporate body, for the general advancement of civil architecture and for promoting and facilitating the acquirement of the knowledge of the various arts and sciences connected therewith, this Institute bears no direct or active part in the work of teaching and training recruits to our profession; but leaves them, in this respect, to the ministrations and mercies of anybody who undertakes "to teach and instruct, to the utmost of his skill and knowledge, in the art and profession of an architect—in consideration of, &c." Rightly or wrongly, the Institute does not train; it provides the course, the hurdles, and the water-jumps. In the exhibition just held we have had brought up before the Institute, for trial and judgment, some results of architectural training obtained elsewhere—and anywhere, training for which the Institute as a body assumes no responsibility; acting rather, so to speak, as a fountain of honour. . . . As to the Measured Drawing Medal, considering the immense value, in more respects than one, of the faithful delineation of still-existing examples of our old architecture, of all dates, might it not be worth while to increase the sum of money now awarded with this medal, from ten guineas to something more nearly approximating to the bare value of the labour and draughtsmanship required to portray worthily a good subject—as in the case of most well-conducted competitions nowadays? . . .

"The subject for the Soane Medal being a 'Design for a Town Church' on a corner site of 140 ft. by 90 ft., the attention of competitors was called to the remarks on church planning in Sir William Emerson's Presidential address of 1901. This, alas! seems to have proved indeed what Burges would have described as 'strong meat for babes'; at any rate, about one-third of the twenty-one competitors, several of the ablest among them, appear to have considered themselves thereby licensed to arrange for the choir of a modern church—presumably a parish church, whose choir would hardly consist of individuals 'in orders'—to sing away by themselves up at the extreme east end of the building, having in most cases interposed between them and the congregation the altar, backed in one instance by a high reredos, and surmounted in others by a big, four-legged baldacchino. But, waiving discussion of this question, let us view the designs themselves. . . . 'New Era' shows a well-made effort to put into good form, in his own way, on this particular site lessons learnt—in the best sense—from Bentley's Westminster Cathedral; learnt from a building rather than from books, the way good work ever was done. The plan skilfully utilises every inch of the site, and, but for the debatable position of the choir, would work admirably, whilst producing a striking and even impressive interior, in spite of the unavoidable shortness of the whole building. Externally the author has had the happy audacity—and he is the only competitor who has—to treat us to a pair of towers: a pretty sure way of obtaining a telling effect in a building mass, and of stamping it with distinction. This almost sets one wishing, though it may be heresy to say so, that such an idea might have been carried out in the case of the Westminster Cathedral itself. With two towers you get twice the emphasis, and something more. The play of light alone from one to the other is a charm to count on. . . . To sum up, I cannot help wondering a little with what feelings would some of the pious founders of our prizes and studentships have viewed the exhibition, and in what way would they have given expression to their feelings? Apart from questions of architectural style, would they have been content to observe a large pro-



portion of the designers starting, with some preconceived idea and a stock of architectural trimmings to dispose of, to evolve designs, apparently without intelligently grasping anything like the full significance of the problem to be solved, as set forth by the conditions; going the wrong way to their work from the first, and often gratuitously creating difficulties for themselves, perhaps for the purpose of getting over them—but then failing to do this, as Mr. Hare suggested was the case last year also? Or would the founders have been any better pleased in looking at certain of the representations of old work, wherein some facts are distorted and others left doubtful, when they might be clearly told—evidence not only of slipshod ways of drawing old work, but, furthermore, of a superficial way of regarding it? I must offer just a single instance of this want of thoroughness, because it is typical. One competitor begins to illustrate full-size, in elevation and section, a moulded sash-bar; but, so far from going through with the thing, and telling us the depth of the bar by giving its complete section, he is satisfied to give the moulded edge only, without going even so deep as the plane of the glass itself which the bar is designed to hold! This is so characteristic of much of the draughtsmanship in vogue, professing to be workmanlike. What is an architect, or a student of architecture, if he be not really workmanlike in his methods of work and study? For the root of the evil I fear we must go further back than the individual students themselves. To a quite considerable extent these are yet untaught and untrained in right methods of study; how to learn they have never been taught. In other callings the cry goes up for efficiency; is this any less needed in ours? But an architect of whom it could only be said that he was efficient would not thereby necessarily be entitled, in the fullest and highest sense, to recognition as an architect. For this he must add to his indispensable practical qualifications something that we try to describe by some such term as artistic ability, but for which term I would prefer to substitute another, viz., the appellation of that rather indefinable quality which, in parallel branches of human knowledge and human endeavour, is generally understood by the word scholarship; a quality based on sound knowledge, yet compounded also with something more than mere knowledge; the crowning result of a process of training rightly applied to draw out and turn to best advantage those finer instincts with which the student may have been endowed by nature. If I might presume to suggest for the architectural student two watchwords, these would be *Scholarship* and *Efficiency*. Without the one he can be no true architect; without the other he will be a sorry architect indeed!

The Chairman then delivered the prizes and studentships, a full list of the winners of which appeared in our issue for January 24.

Mr. J. S. Solomon, A.R.A., in proposing a vote of thanks to the Chairman for his extremely practical and delightful address, said it gave him great pleasure to do so, for he held that no man was worth his salt who did not regard it as his duty to hand on some of the traditions he had received from his masters, and even to add to that some of his own experience. He wished to say, but in no academic sense, a word or two about the relation between the arts. He would not give expression to his view in that room did he not consider that it was pregnant with great possibilities for the art of this country, more particularly to the decorative forms of art, which were so very much neglected. And he held a sort of brief for the painter-students of the future. The architectural students had it in their power to show—he was going to say “their brotherly love,” but he could not say that, because architecture was the mother of the arts, and painting and sculpture are the daughters. The first duty of a mother was to provide house-room for her daughters, and, if possible, to foster their development. This country did very little for certain forms of art. Some forms flourished exceedingly, and others led a torpid existence and did not flourish for want of assistance and opportunity. The Church no longer sought the co-operation of the painter practically, and a country like ours, richer in the history of great movements than any other modern nation, ought to deem it a necessity to have her great past and her moving present recorded artistically on the walls of her great public buildings. He need not point out there how materially architects

could assist to bring about such a desirable result. No doubt they would see, as practical men, many difficulties—and would imagine many others. It might be said—and he had heard it said apropos of this point—that if the men existed who could do work of this kind there would be a demand, but he maintained that that was bad economics. In art, as in commerce, the demand creates a supply and the opportunity would always find out the men. He hoped architects, if they had the opportunity, would impress others with the duty they owe to this art. Mr. Webb was one who took off his coat to his work when the interest of the student was in question, and he worked hard at the Academy amongst the students. In conversations with Mr. Webb whatever topic was started they invariably ended up with the question of the art student, and they had seen that evening how great was Mr. Webb's interest in the student.

Mr. John Belcher, A.R.A., in seconding the vote of thanks to Mr. Webb for his admirable address, said it was of interest to all—young and old alike, and they would all like to hear the many valuable hints which the Chairman had given them. They were also indebted to Mr. Millard for his careful and able remarks on the students' work. There was a great deal of excellent work in the Exhibition this year, and he thought they might congratulate themselves on a very excellent Exhibition; perhaps the weakest part was the sketches. Both the President and Mr. Millard had alluded to the importance and value of sketching, and he (the speaker) agreed with Mr. Millard that we should endeavour to examine and sketch buildings as far as possible in toto, instead of sketching bits. As the President said, we sketch doors and windows and little bits of the building, and probably neglect the more important matter of the whole building. It was very important that we should study the building as a whole and sketch the whole, for in that way we got a rhythm and harmony of parts and the value of proportion: the pretty bits could be sketched afterwards, when their value in the whole would be learnt, because we should have studied their position in relation to the whole—their position as pieces of ornament, for instance, in a large field on a plain surface. If we understood the importance of the relation of one part to the other we should be careful, in selecting our fit-bits, to note how far they were supported by the surroundings.

The vote of thanks having been heartily agreed to,

The Chairman, in reply, said they had all been interested in Mr. Solomon's remarks. Perhaps architects did not give the painter “a look in” quite as often as they should. He had heard it said by painters that architects plaster their walls and panel them up so that there was no room for a picture of any sort.

The Chairman announced that the next meeting will be held on Monday, February 16, when Mr. Basil Champneys will read a paper on “College Planning.”

The meeting then terminated.

#### THE ARCHITECTURAL ASSOCIATION DISCUSSION SECTION:

##### POOR LAW BUILDINGS.

THE seventh meeting of the Discussion Section of the Architectural Association was held on Wednesday evening last week in the lecture room at 56, Great Marlborough-street, W., when Mr. T. Norman Dinwiddie, A.R.I.B.A., paper on “Poor Law Buildings,” Mr. G. H. Smith, Chairman, presiding.

Mr. Dinwiddie divided his paper, which was illustrated by a number of plans and elevations of such buildings recently erected, into the following headings:—Administration of the Poor Law; Classification of Buildings; Workhouses for all Classes; Infirmarys; Barrack Schools v. Cottage Homes and Children's Homes. He said that the provision of the accommodation necessary for the administration of the Poor Laws in a Union might be classified under the following headings:—(1) Workhouse, for the “indoor poor,” of three main classes: able-bodied, aged, and infirm; and also including provision for vagrants, babies, and imbeciles and lunatics before being handed over to the County Asylum Authorities; (2) infirmary for sick poor; (3) schools and homes for pauper children; (4) local offices for the distribution of “out-

relief”; and (5) Union offices with Board-room, &c. Having mentioned the importance of the site, the author said that in general arrangement of plan it is found most convenient to group the various departments round the administrative building on the pavilion system, due regard being paid to classification of the different sexes and classes of inmates and to the sufficiency of air space around buildings. A convenient method was to divide the sexes by a central line from front to rear of the site, placing the departments for males on the one hand and for females on the other, with the buildings common to both sexes—administrative block, laundry, chapel, &c.—down the centre line. It was desirable that there should be but one entrance to the institution, where there should be a porter's lodge. On either side of the entrance was the most natural position for the receiving wards, where arrivals were temporarily housed pending medical inspection. There should be at least two dormitories to each sex for the purpose of classification, and bathrooms, and search-room for each sex were required. An apartment for disinfecting the clothing of new arrivals should be conveniently placed within reach of the receiving wards, and stores for the inmates' own clothes had to be provided; also a storeroom for any furniture or goods belonging to an inmate who might be temporarily destitute. Provision must be made for short-period lunatics and a nursery for babies up to three or four years was also required. The administrative building should contain master's offices, stores for clothing, food, &c., officers' mess rooms, dining halls, kitchen, &c., and master's residence. Quarters for nurses and other officials (also the Union offices) might be arranged in the same building, though the Union offices would usually be more conveniently planned as a separate building near the entrance or in conjunction with the receiving wards block. A doctors' consultation room was required with a small surgery adjoining, fitted with sink and cupboards; the services of a local practitioner being usually retained, the provision of a doctor's residence was unnecessary. On the female side of the administration block should be a linen sewing-room, where certain of the female inmates were employed in the making of shirts, &c. The matron's office was conveniently placed next the linen room. As to the dining halls, they should have sufficient area to allow about 1 ft. 9 in. by 2 ft. 8 in. (deep) of floor space to each person, with proper gangways in addition. They should be entirely separate for the able-bodied and aged classes and so placed as to be easily approached from the pavilions of each class and sex and without the crossing of traffic. Each should be divided for the sexes, moveable partitions about 7 ft. to 8 ft. high being sufficient. Glazed brick walls, with salt-glazed dado, though of additional initial cost, formed a sanitary and everlasting wall surface. Wood-block flooring was suitable, and open roofing with central glazed lantern gave the necessary height, lighting, and ventilation. The author described in detail the various departments of the administrative block, adding that the departments should be connected on the ground floor by well-lighted corridors, about 8 ft. wide and as far as possible in straight lengths. They should be floored with hard-burnt tiles, which were sanitary and withstood wear. The master's and matron's residence was well placed at the front of the administrative block. As to the pavilions, containing the sleeping and dayroom accommodation for the inmates, each building should be independent and entirely self-contained. The accommodation of each should be limited to about 100, for hygienic reasons as well as for a better precaution against the spread of fire, for ease of control, and for classification. The regulations of the Local Government Board as to the areas of floor space to be allowed to each inmate, which largely influenced the planning of the dormitories and dayrooms were, for inmates in health, as follows:—Dormitories, 9 ft. by 4 ft. wall space and 360 ft. cube; and dayrooms 13 ft. super. For the infirm, dormitories, 10 ft. by 5 ft. and 500 ft. cube. The pavilions could be conveniently arranged on three floors, those for healthy inmates, containing the dormitories on the two upper floors, with dayrooms on the ground floor, the dormitories being 18 ft. wide, and a multiple of 4 ft. in length to allow of two rows of beds with the requisite head space and super.



About twenty should be considered the limit to be provided for in one dormitory, and the provision of some, at least, of smaller capacity greatly aided classification. The doors, as well as the fireplaces, should be at the ends of the dormitory, to avoid trespass on the available head space for beds. It is important, for efficient ventilation and lighting, that the windows should be on opposite walls; inlet and outlet ventilation should also be provided, the extractors from the top floors being by roof ventilators connected by air shafts with ceiling gratings, and to the remaining floors by brick flues. The baths should be planned in a cross-ventilated annexe, with isolating lobby, and a slop sink, and an emergency water-closet were required on each floor. A small attendant's bedroom should be provided in a central position, with overlooking windows into one or more of the dormitories. The dayrooms should be of varying sizes to assist classification of the inmates, about forty being the limit in any one room. The lavatory might be planned in the annexe below the baths, and a small scullery, with cooking range and sink, was serviceable; a room must be provided for the attendant. The 'trines were best placed externally in the airing yards away from the main building, except in the case of the pavilions for the aged inmates, where they might be placed on the ground floor of the sanitary annexe. The pavilions for the aged infirm much resemble the pavilions of a hospital, and but little day-room accommodation was required, as most of the inmates' time was spent in the dormitories or wards, which, in order to provide the 50 ft. of floor space per inmate required, should be 20 ft. in width, and might occupy the ground as well as the upper floors. A small dayroom and external airing balconies might well be provided on each floor. To comply with the requirements of the Local Government Board, external fire escape staircases, with balconies, must be provided from all the main rooms of the upper floors of all the pavilions, though it was hard to believe that with fire-resisting internal staircases and landings this safeguard against fire risk was a necessity. A salt-glazed brick dado, with fair-faced and coloured brickwork above, formed a suitable wall surface for the pavilions, but in the pavilions for the aged and the infirm perhaps plastered walls might not be an undue expense. In the dormitories where the floors were not subjected to especially heavy wear, ordinary wood flooring should suffice, but that to the ground-floor rooms should be wood block, and the corridors, lavatories, &c., paved with hard tiles or other suitable material. The provision of separate quarters for aged married couples is advised by the Local Government Board. In practice the number who avail themselves of this accommodation is few; the building might be somewhat more comfortable in finish than the general pavilions, separate bedrooms being provided with a common dayroom, small scullery, &c. Communication between the pavilions and the administrative block, both for staff and access of inmates to the dining-halls, &c., was by covered corridors, paved with tiles or other durable material. Sufficient protection was obtained from the weather without enclosing the sides of the corridors, except, perhaps, in the case of those to the pavilions for infirm.

The author then described the laundry block (including the bakery, the boiler-house and engine-room, and plant), the chapel, isolation block, workshops, mortuary, water supply and heating, and vagrant wards. The workshops, he said, should be placed within reach of the able-bodied males' pavilions, and consist of establishment and labour shops—the former for the general work of the institution, in which some of the inmates assist, and the latter, in which the able-bodied inmates perform their allotted task. A stone-breaking yard might also be provided, with cells covered with lean-to roofing. A small office was necessary for the labour-master, planned where supervision was most easily obtained; and latrines should be provided in the workshops yard. Smaller workshops were also required near the aged males' quarters, for such of the aged inmates as were able to work. A small provision of stabling should be made on the site. The vagrant wards should be near the entrance, and perhaps in this case, especially where the number of vagrants was large, the advantages of a separate entrance outweighed the disadvantages. The separate cell system, with

work cell attached, was undoubtedly the most convenient. There should also be a dayroom for assembly at meal-times, &c., and attendants' rooms and latrines. Like provision should be made for the women as for the men.

In the opinion of the author, with the largely increased building cost of the present time, and having regard to the completeness of the accommodation required to meet modern views, these institutions could hardly be erected for less than 200*l.* per bed, excluding cost of site, electric lighting, well, and furnishing.

The author concluded his paper with a brief account of the house and school accommodation for the pauper children provided for under the poor laws. Originally the children were provided for in the workhouses, but later, and up to quite recent years, they have been usually accommodated in "barrack-schools." Six years ago, a Departmental Committee reported in favour of the cottage home system as giving more freedom, better health, the possibility of individual care, and a better prospect of the elimination of the pauper taint. There were two systems of cottage homes—i.e., the "grouped" and "scattered." The latter consisted of scattered cottages, actually in towns and villages, where the children go to the nearest school and live the common life of the ordinary inhabitants, but there were practical difficulties in this system, chiefly in obtaining sufficient suitable "foster mothers." Thus, where considerable numbers had to be provided for, it had generally been found expedient to adopt the "grouped" principle, which gave disciplinary training and still permitted the children to attend the Board schools in the district. The author then described in some detail the "grouped" system, in which should be provided, in addition to the administrative block and the homes (which could contain from ten to twenty children and the housemother), a gymnasium and swimming-bath, laundry, small isolation infirmary, and workshops. Each of the cottages must be entirely self-contained.

In the discussion which followed, Mr. Jacob, in proposing a vote of thanks to Mr. Dinwiddie, said that too much sentiment was wasted on adult paupers. Workhouse masters had stated that but for drink workhouses would be either unnecessary or very much less used. He thought that the Local Government Board insisted on too much air space for these buildings, and altogether it seemed to be a fact that the man who wasted his life in excessive drinking was far better provided for than the industrious poor. As to the provision for children, there were a number of ratepayers who could not afford to provide properly for their own children, while they had to provide for poor-law children. But he agreed that it was a good thing to get children away from workhouses, so as to remove the pauper feeling. He did not think that boxes were necessary in swimming-baths for children: a seat all round the bath was sufficient for children, especially as they ought always to be under observation. Nor did he think that workshops in these schools were necessary, seeing that the Guardians had no power to keep the children, who might be removed by their parents at any time.

Mr. J. Herbert Pearson seconded the vote of thanks, and asked what was the most sanitary form of latrine.

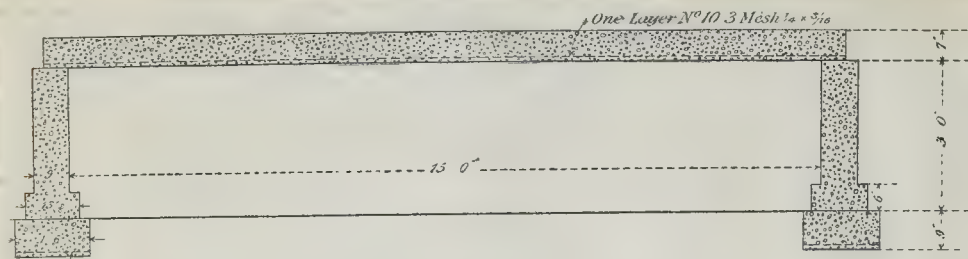
Mr. Bonds said it was a difficult problem to solve whether these institutions were necessary or not.

Mr. H. Gregory Collins, hon. Secretary, said that if vans, &c., had to wait at the entrances of these buildings it would be well to have covered entrances. What was the percentage of the accommodation required in a reception block? As to a chapel in connexion with such buildings, in prisons the chapel was generally arranged on the first floor over the central administrative block. That seemed to be a good position for the chapel in these Poor Law buildings. As to exits, he thought it was a good plan to have exits at the sides of the pavilions, as well as at the end. As to glazed bricks, he strongly objected to them for use in such buildings. They caused condensation, and the walls were always "sweating." Plain brick walls for workhouses were much better, for they permitted a "blow through" and the equalisation of temperature. The glare of the shining surface of glazed bricks was also bad, and if glazed bricks must be used, they should be used with a dull face. He would not use shiny surfaced

bricks in a stable even. As to cubic contents, that all depended upon what was considered by medical experts to be the minimum for the preservation of the health of the inmates. It was a point for common sense. Prisoners had a minimum of 800 cubic feet, and contrasting a pauper with a prisoner in that respect, the prisoner was much better off.

Mr. Brook Kilchin, Superintending Architect to the Local Government Board, the Special Visitor, said he sympathised with the public view about the cost of these poor law buildings, but as medical and architectural science stood, together with the heavy cost of building materials and labour, he did not see how the cost was to be materially reduced. It must be remembered that these buildings were not like ordinary outside hospitals or barracks; they were homes where people were all day, and where they frequently spent the whole of their lives. The amount of cubic space they had was 360 ft., and it was absolutely necessary that they should have a proper amount to keep them in health. The Local Government Board were very particular in regard to the cost of these institutions, but as they had a duty to perform in the proper housing of the destitute poor, they desired to house them in a proper way. The board were strongly of opinion that any lavish expenditure on workhouses was entirely unjustifiable, and they had done much in recent years to check expenditure. It was a great difficulty to get some Boards of Guardians to be reasonable, for there was often much rivalry between them. A chapel was not a necessary adjunct in a workhouse. In small workhouses a chapel would not often be found at all, unless it were provided by some philanthropic person, services being conducted in the dining-hall. There was no reason why the chapel should not be used by different creeds. The altar difficulty could be got over by having an altar at each end of the chapel, or having them side by side. The number of architects engaged in this work was small, but the subject should not be neglected, for a work of this kind might fall to anyone at any moment. He did not know that any architect had made an undying name in the design of these buildings. There was Sir Gilbert Scott, into whose hands fell the work of a great number of these buildings, i.e., Lichfield, Edmonton, Staines, Macclesfield, Epsom, &c., but most of Scott's work had been removed to make way for modern buildings. The architectural side of these poor law buildings was not always a pleasant one, for there were many obstacles to be overcome, especially the difficulties with the Guardians. For instance, plans might be prepared by an architect and soon after a fresh Board of Guardians might be elected, who might reverse the building policy of the former Board. In those circumstances, unless the architect had his contract under seal, he might find himself in difficulties with the new Guardians. The Local Government Board did not always have good architects to deal with; often the architects were not architects, sometimes they were clerks of works and even workhouse masters, who had done a little amateur architecture, and it was sometimes very difficult to settle things. He should like to impress on architects that economy must be studied in the design of these poor-law buildings—the economy not only of cost but of actual planning, for economical administration depended on that to a great extent. Architects often failed in this respect. He did not altogether agree with Mr. Dinwiddie as to the cost per bed of these buildings. They should not as a rule cost 200*l.* per bed, though London workhouses came up to and exceeded that amount in some cases. One of the first workhouses erected was at Taunton in 1836, and the cost at that time was from 12*l.* 10*s.* to 24*l.* per bed, but it must not be forgotten that ideas had changed much since then. In 1838 the Newcastle workhouse was erected at 18*l.* per bed and others cost much about the same. A modern workhouse, such as the one just completed at Wolverhampton, for 1,230 inmates, cost about 146*l.* per bed, and that building was typical of a complete provincial workhouse, and it included infirmary and imbecile wards. Imbecile wards were not now included in workhouse buildings, and it was to be hoped that the subject would come before Parliament and that imbeciles would not in the future be housed in workhouses. Several other workhouse buildings had just been erected for about





SECTION BOTH WAYS BUT ONE OPENING IN EACH OF TWO WALLS.

148l. per bed, but if infirmaries, distinct from the workhouse, were added, the cost was somewhat higher. A doctor's residence was not wanted at a workhouse where there was no infirmary, nor was there any need for a regular nursing staff. As to the isolation of baths in projection, he did not consider that necessary and it was not a Local Government requirement. Having regard to the excellent plumbing we get nowadays, there was no reason why baths should not be placed inside these buildings, a much less expensive arrangement. What Mr. Dinwiddy said as to fire escapes was going a little beyond what the Local Government Board required. They required secondary means of exit from all the wards, but that did not necessarily imply that every ward must have a separate staircase. With a series of wards, connexion with a staircase at one end would suffice. He did not think that too much importance could be placed upon the necessity of ample means of exit. Fire was not the greatest danger; there was the smoke. A disastrous fire at Stafford workhouse resulted in loss of life because the means of exit were not up to date, and when the fire broke out in some central part of the main building the staircases were quickly blocked with smoke, and exit was very difficult. It was often very difficult to awaken and get old people out of burning buildings, or sometimes to realise the danger there was. Mortuaries were not usually provided at a workhouse, and the people generally died in an infirmary. Where they were provided, the slab arrangement was a nice one, but there was, he thought, a better, *i.e.*, what was known as the cabinet arrangement; that was more suitable, especially where land was very valuable, and the saving of space an important object. It consisted of two or three tiers of drawers, concealed behind a screen which had a passage round the back of it, so as to clean the back out. The drawers worked on light trolleys, and when a particular body was wanted the drawer was pulled out, and in that way the other bodies were not exposed; such an arrangement as this would obviate the need of a separate viewing room.

The Chairman then put the vote of thanks to the meeting, and also proposed a hearty vote of thanks to the Special Visitor. This having been agreed to,

Mr. Dinwiddy, in reply, said he thought it was important that children in these buildings should be taught some trade, and that was why he recommended workshops for them. Most of the children were left entirely under the control of the Guardians. As to school, it was a regulation of the Education Department that all the children in these buildings should attend school, which they did, in the ordinary way. As to latrines, there was the old-fashioned trough closet, but a better closet was the separate pedestal closet. There was no need why vans should be kept at the entrance of these buildings, and consequently there was no need for covered entrances. In the reception block it was generally found that about five or six per cent. of the workhouse population were accommodated there. [Mr. Brook Kitchin: That is too high.] The chapel was sometimes put on the first floor, and that was, perhaps, a convenient place. As to two chapels, in a garrison chapel he knew of, services for three and more different sects were held in the same building. As to exits, he meant that there should be only one exit from the main site. In the pavilions, it was desirable to have two or three exits. Glazed bricks were

very sanitary, although more costly. The cost of these buildings varied a good deal, and in stating that the Greenwich building cost 215l. a bed, Mr. Dinwiddy gave examples of others costing 220l. and 240l.

#### ARCHÆOLOGICAL SOCIETIES.

THE ROYAL SOCIETY OF ANTIQUARIES OF IRELAND.—The annual general meeting of the Royal Society of Antiquaries of Ireland was held on the 27th ult. at the rooms of the Society in St. Stephen's Green. Mr. J. Ribton Garstin was elected President for the next three years. Several new members were enrolled. The report of the Council for the year 1902 was submitted and adopted. This report states that the Society is in a satisfactory financial condition. It refers also to the valuable provision inserted in the Local Government (Ireland) Act, 1898, which enables Irish County Councils to take charge of any monument not already vested. The County Council of Galway is entitled to the credit of being the first to make this section operative, and under its provisions the High Cross of Tuam and the ruined Church Temple Jarlath have been judiciously repaired. The report then deals with the excavations in Tara Hill. The Watching Committee appointed by the Council of the Society state that when attention was called in Parliament in 1899 to the fact that deep trenches were being dug through the "Rath of Synods" on a portion of the hill belonging to Mr. G. V. Briscoe, the Board of Works intervened, but, finding that the place was not vested in them, withdrew from any further interference. On Lord Russell's portion of the hill, where the more important of the existing structures are to be found, there has been no visible alteration in their contour since Petrie's time. The digging-up of the mound known as the "Rath of Synods" has ceased since June last. It was announced that the summer excursion for 1903 is to be held in the Province of Munster, with Youghal as the chief centre. The excursion will take place in the last week of July or the first week of August.—At a public meeting in the evening, Mr. J. Ribton Garstin, D.L., the new President, delivered his inaugural address, in the course of which he dealt with the subject of Irish coins. He traced the history of Irish coinage down to 1822, when the last Irish gold coins were issued. He described how Ireland had figured in the coinage since the Union in respect of national emblems as distinct from national inscriptions. He traced the several variations in the inscriptions, and towards the close of the address made a passing reference to the question of the gold ornaments now in the British Museum, the custody of which was claimed by the National Museum in Dublin. The Council in their report did not deal with this matter. He would follow the example of the Council, as the whole question was now *sub judice*. The case was entered for hearing in the Chancery Division in London, and would probably be heard within the next month. The Society of Antiquaries in London had taken sides with the Trustees of the British Museum in the matter. He deprecated their intervention. He said he wished to remind the Trustees of the Dublin Museum that the great institution under their charge ought to be treated as a national collection primarily, and not merely as an institution to subvert technical instruction and furnish patterns for artisans.

#### A TEST ON CONCRETE AND EXPANDED STEEL.

A SPECIAL test was made a few days ago, at Messrs. Connal's pig-iron stores at Glasgow, on a slab of concrete as shown on the accompanying sectional diagram, reinforced with a tension bond of expanded steel about  $\frac{3}{4}$  in. from its lower surface. The slab, which was completed about three months ago, was supported by dwarf walls 3 ft. high, and had a bearing on these walls of 6 in. on all four sides. The tests made this week showed that the breaking load was 36 tons 11 cwt. Under this weight the slab gave way, the fracture radiating from the centre outward towards each angle.

We consider, however, that the test was only partially satisfactory; a load of 5 cwt. per square foot is not excessive, and for a slab supported on four sides a better result might have been anticipated. To count on supports for only two sides is a more usual condition in practice, and this would have been the more instructive test. If, further, a similar slab without expanded metal had been tried at the same time the precise value of the reinforcement would have been ascertained. It should be said the expanded metal was in two sheets, 16 ft. by 8 ft., overlapping one mesh, and simply laid on the boarding. The concrete as thrown on it lifts the sheet sufficiently to ensure of its being quite embedded. After the rupture it was noticeable that one of the edges showed a deflection of  $\frac{1}{2}$  in.; how much more to the centre of the slab could not be seen for the mass of pig-iron.

The concrete is described on the test diagram as being "of about 2½ parts of ½-in. mesh clean clinker, broken brick, or stones" (it is not precisely stated which), "1½ parts clean sharp sand, and 1 part best Portland cement." The tie was of the Expanded Metal Co.'s material.

#### ARCHITECTURAL SOCIETIES.

NORTHERN ARCHITECTURAL ASSOCIATION.—A meeting of the Northern Architectural Association took place at the headquarters, 36, Northumberland-street, Newcastle, on the 28th ult. Mr. Frank Caws, of Sunderland, presided. The result of the competitions in measure drawings and sketchings was made known. The first and second in each class were Mr. F. M. Weightman and Mr. T. Harrison. Third places were taken by Mr. H. L. Hicks and Mr. C. T. Greenhow. Mr. Ralph Hedley, R.B.A., gave an address on the subject of "Sketching in Charcoal." He said the remarks he was about to make on sketching and designing in charcoal were principally addressed to the students. He did not pretend to tell them anything new. Charcoal had been appreciated by artists for ages, but he did not think it had been quite sufficiently appreciated by architects. The reason why he advocated charcoal so much for drawing details of whatever kind of decoration was required was because it lends itself so readily to what one desires to express. Delicate, soft, or sharp lines; broad and delicate tints; broad and decided shadows, could be produced with charcoal with much more ease than with pen or pencil. With charcoal they could give all relative planes, of any required depth or strength, quality, and feeling. That was of the utmost importance, and would enable details to be understood at once—that was, projections and sinkings—if great care was taken to imagine a light coming from either the right or the left. In showing



relief in a design, if they got the light full on it was rather deceptive when it was handed over to be executed. It was often very difficult to know whether the designer of some piece of ornament intended parts to be concave or convex without showing a section, and it was quite impossible to show sections in delicate parts of foliage. If a little thought was displayed in drawing, it could be expressed and understood almost as well as working from a model in relief. It was extremely difficult to express with pen or pencil in full-sized drawings. By the pressure required and the trouble involved in drawing a great number of thin lines all freedom was lost, and with freedom, certainly individuality must be lost, and he thought every drawing of decoration should have individuality. The easiest way of getting individuality was by working with something that expressed their thoughts, and they could not help themselves if they used charcoal freely. Their own feeling was bound to crop up. He would show them as well as he was able what he thought was the best manner, and how to get at a workable drawing, say, of a caryatid. Mr. Hedley then made sketches from a living model, with explanations, and at the conclusion of his demonstration he was accorded a hearty vote of thanks.

THE EDINBURGH ARCHITECTURAL ASSOCIATION.—The Associate Section held their fourth ordinary meeting of the session in the rooms, 117, George-street, on the 28th ult. In the absence of the Chairman, Mr. J. A. Arnott, Vice-Chairman, occupied the chair. Mr. J. A. T. Houston, representative from the Glasgow Architectural Association, read a paper entitled "Some Cambridge Colleges." Mr. Houston treated his subject almost entirely from an historical standpoint, and began by tracing the origin of the town of Cambridge back to the time when a Roman station named Camboritum stood on the banks of the river Cam, on the site of the present town. The lecturer sketched the establishment of religious orders in Cambridge about 1224, and explained fully the principles of the original Universities founded after that date. King's College, which owes its origin and maintenance to the Kings of England, beginning with Edward II., received special attention from the lecturer; the many schemes for its erection and completion being fully considered, including the great scheme of Henry VI., the only portion of this scheme carried out being the magnificent chapel of King's. Interesting notes were given of the origin and history of Trinity College, Queen's, and many of the more important colleges. The lecture was illustrated by limelight pictures.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—The third craft evening in connexion with the above Society was held on Thursday, January 29, the President, Mr. Butler Wilson, in the chair. The demonstrator for the evening was Mr. Walter Gilbert, of the Bromsgrove Guild, who discoursed upon "Decorative Metal Work," and exhibited and explained the processes connected with various examples of the art produced by his hand of fellow-workers. Previous to this he delivered a short but interesting paper, in which he traced the history of the ancient guilds from their inception, and dwelt upon the fact that in the days gone by everything manufactured seemed unavoidably touched by the finger of art. He contended that the misleading phrase "Gothic work" should give place to some such term as "Guild work." The craftsman in former times made his work as amusing to himself as he could, and lavished treasures of human hope and thought on everything that man makes, from a cathedral to a porridge-pot.

#### THE LONDON COUNTY COUNCIL.

The usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, Sir J. McDougall, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee, it was agreed to lend Poplar Borough Council £2,500, for sewerage works, and £2,171, for street improvement, &c.; Wandsworth Borough Council, £1,200, for laying out Leader's gardens, Putney, as an open space; Battersea Borough Council, £2,851, for channelling and kerbing works; and Hampstead Borough Council, £2,950, for hardwood paving works; and sanction to the following loan: Islington Borough Council, £5,310, for sewer works.

Acquisition of Gardens, Stepney.—An ad-

joined Report of the Parks and Open Spaces Committee recommending the acquisition of gardens in Stepney gave rise to a prolonged discussion. The Committee's recommendation that the estimate of 10,300l. be approved for the purchase of Ford and Sidney squares, Stepney, was agreed to.

Houses Let in Lodgings.—The Public Health Committee recommended that the Report of the Medical Officer on the enforcement of by-laws with regard to houses let in lodgings in London be published and placed on sale at the price of 2d. per copy. They reported that the total number of tenements of less than five rooms in London is 672,030, but only 16,433 houses let in lodgings are registered under the by-laws. In six districts, although thousands of tenements of less than five rooms are in existence, the number of houses registered under the by-laws does not amount to 100, while in five others the number does not reach 200. The Committee regarded this as very unsatisfactory, and to amount practically to an evasion of the duties imposed by the statute.

It was decided to draw the attention of the Borough Councils to the subject, and to place on sale the report of the medical officer.

Seawage and Oysters.—The Public Health Committee submitted a lengthy Report relative to sewage-contaminated shell-fish, which contained the following recommendation:—"That a letter be addressed to the Local Government Board expressing the Council's hope that, in the interests of the public health, the Board will, as soon as possible, take steps to obtain an amendment of the law, so as to prohibit under heavy penalties the laying down of all edible forms of shell-fish in sewage polluted creeks or other dangerous localities, and the sale of such shell-fish for human consumption; and that all unpolluted layings, fattening beds, and storage ponds at present in use may be protected from pollution by sewage by any person or Sanitary Authority."

Mr. Sankey said he thought the report was a valuable one, as showing that the fear as to shell-fish being a source of danger was not without serious grounds. He did not say that the London County Council was responsible for polluting the Thames estuary, although it might be that they were doing some damage by the effluent which they discharged into the river at Crossness. Probably the greatest offenders were local authorities such as Leigh, Southend, Chatham, Rochester, Sheerness, and other places on the Medway. He proposed as an amendment:—"That the Report be referred back, with a view of conferring with the Main Drainage Committee and the chemist of the Council."

Dr. Longstaff, in seconding the amendment, remarked that not only the oyster and humble cockle, but the smelt, sprat, and whitebait were all liable to convey the dread disease of enteric fever. That was a serious matter for people who lived by these fisheries.

Dr. Cooper (Chairman of the Committee) remarked that he had consulted with the Chairman of the Main Drainage Committee, who agreed with him (Dr. Cooper) in thinking that no good could come from such a conference as was suggested.

The recommendation was adopted.

Duties of Sanitary Inspectors.—The same Committee reported as follows:—

"We have received from the Local Government Board a letter stating that they have under consideration a proposal from the Wandsworth Borough Council to reappoint five sanitary inspectors for the supervision of drainage works. A part of the time of these officers is occupied in the supervision of the construction of new drains made under the provisions of the Metropolis Management Acts, and part in the supervision of drainage works which have been carried out in order to comply with notices served under the direction of the medical officer of health in pursuance of the provisions of the Public Health (London) Act, 1891. The Board state that they are advised that, from the point of view of uniform sanitary administration, the Borough Council's proposal is one to be commended, but that they would be glad to learn whether the London County Council has any objection to offer to the proposal. The duties of sanitary inspectors are regulated by a general order of the Local Government Board made under Section 108 of the Public Health (London) Act, 1891, and the Council is required to pay one-half of the salaries of sanitary inspectors performing duties defined by the Order. The proposal of the Borough Council is, no doubt, intended to bring the officers referred to within the provisions of the Act, and make a moiety of their salaries payable by the London County Council. The Solicitor is of opinion that the supervision of

the original construction of drainage works, which is carried out under the Metropolis Management Acts, does not come within the scope of a sanitary inspector's duty as set out in the Order, and that the Council would not be liable to pay a moiety of the salary of a sanitary inspector performing this duty.

We have made inquiries as to the practice in other districts with regard to the supervision of the construction of the drainage of new houses, and we find that in sixteen districts sanitary inspectors are not employed on this duty. In nine districts the work of supervision is done by sanitary inspectors who are under the direction of the Medical Officer of Health, while in two instances the inspectors are under the direction of the Borough Surveyor. We recommend that the Local Government Board be informed that the Council is advised that the supervision of the original construction of drainage works which is carried out under the Metropolis Management Acts is not one of the duties of a sanitary inspector prescribed by the Sanitary Officers (London) Order, 1891, and that the Council therefore hopes that the Board will not sanction the proposal of the Wandsworth Borough Council to re-appoint five inspectors so long as they are engaged upon this duty."

The recommendation was carried after a brief discussion.

Theatres, &c.—The Theatres and Music Halls' Committee recommended as follows:—

Seating arrangements in the stalls and pit, &c. Criterion Theatre (Mr. F. T. Verity, for Sir Charles Wyndham).

A church room, Holy Trinity Church, Little Queen-street (Messrs. Hayward & Maynard).

Streets and Street Traffic.—The Building Act Committee reported as follows:—

"The Council on February 19, 1901, referred to us for consideration and report the following resolutions which were passed at the conference between the Council, the City Corporation, and the Vestries, and District Boards, as to streets and street traffic:—

16. That, in the opinion of the Conference (1) the best means of showing the names of streets on buildings is by means of painted iron name-plates at the corners and intersections of streets; (2) that the best means of showing the names on lamp-posts is by means of opal tablets in the public lamps, the letters being burnt in the glass itself; (3) that the names should be attached to the lamps or lamp-posts in such a manner as to be visible both by night and by day; (4) that the names of thoroughfares should be placed at all intersections of cross streets.

17. That the Building Act Committee of the Council be requested to consider the desirability of more stringent regulations being passed for the prevention of the wilful injury of street tablets.

18. That, in the opinion of the Conference, licences for hoardings should be granted for a limited period only, subject to renewal at the discretion of the Local Authority, and that, if necessary, statutory provision should be made.

19. That the Council be asked to consider the question of making regulations with regard to shop blinds.

20. That, in the opinion of the Conference, power should be given to enable Local Authorities to compel owners of unoccupied land to provide proper fencing, and that the question of retaining walls be referred to the Council.

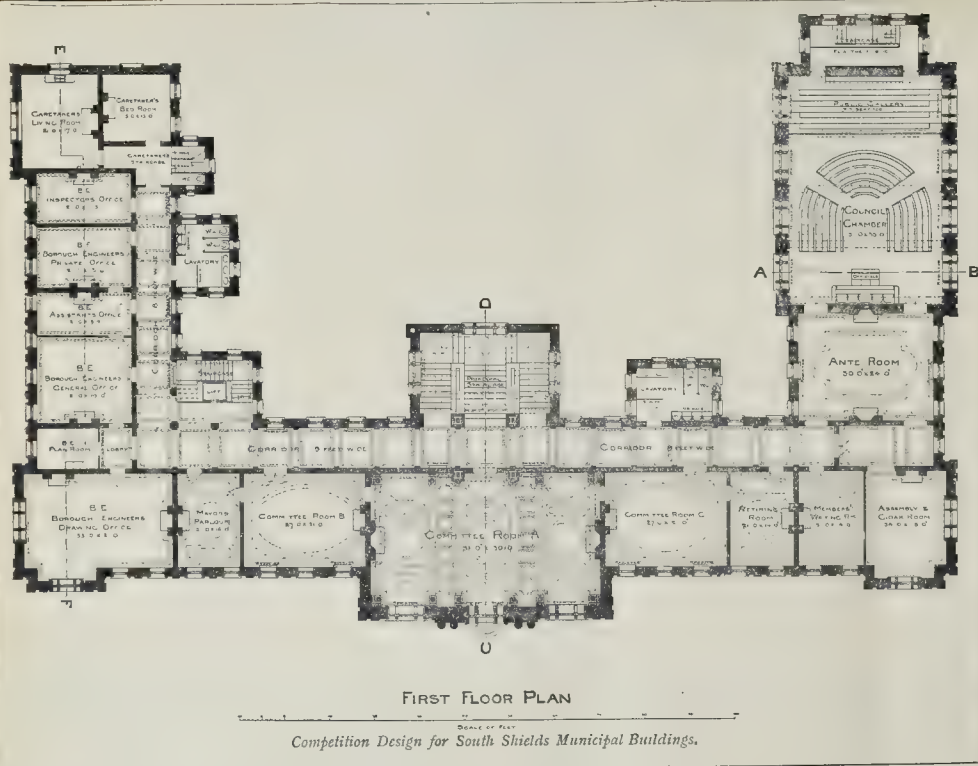
We have carefully considered as to what action it is desirable to take upon the resolutions in question, and we have now to report as follows:—

In regard to resolution No. 16, the duty of affixing names of streets in a conspicuous place is, by Section 33 of the London Building Act, 1894, cast upon the local authorities, who would appear to have power to discharge the duty in the manner they think best. If it be desired that a uniform method should be adopted throughout the County of London, it would seem to be a matter for agreement between the different local authorities, and we cannot advise the Council to take any action in regard thereto. With reference to No. 17 we think that the Local Authorities have power to deal with offences of injury to street tablets under the Malicious Injuries to Property Act, 1861, Sections 51 and 52. We understand, however, that the Hampstead Borough Council has a proposition before the Home Office for making a by-law to deal with the matter in that Borough, and in any circumstances it would not seem that any action by the Council is required. These resolutions, Nos. 16 and 17, were also referred to the Local Government and Taxation Committee, and we understand that that Committee concur generally in the views above stated.

As regards the licensing of hoardings it is quite possible that inconvenience may have been caused by hoardings being allowed to remain up longer than was necessary, but the local authorities appear to have ample statutory powers to license and control such structures, and we do not consider that any action by the Council is necessary.

Resolution No. 27, respecting the making of regulations in regard to shop blinds, is being given effect to by by-laws for the regulation of lamps, signs, and other structures overhanging the public way (not being within the City) having been pre-





pared pursuant to Section 164 of the London Building Act, 1894, and submitted unofficially to the Local Government Board for its observations. With regard to Resolution No. 28, to give effect to this would necessitate an amendment of the London Building Act, 1894 (or the Local Management Acts), or the insertion of a clause in the Council's General Powers Bill. We have, therefore, noted the suggestion for consideration with the other points on which an amendment of the London Building Act, 1894, may have to be sought."

**Appointment.**—On the recommendation of the Establishment Committee it was agreed to appoint Mr. H. Bragg as an assistant in the Housing of the Working Classes Section of the Architect's Department.

The Council adjourned shortly after seven o'clock.

### Illustrations.

#### COMPETITION DESIGN FOR SOUTH SHIELDS MUNICIPAL BUILDINGS.

IT may be remembered that in the first competition for the municipal buildings at South Shields seventy-two designs were sent in, and the three premiums were awarded to those submitted by Mr. Ernest Fetch, Mr. Rupert Savage, and Mr. Louis Ambler respectively.

A second competition was instituted, and the above-named and three other architects whose designs were considered next in order of merit by the assessor, Mr. John Belcher, were invited to send in further designs, on amended conditions and an increased allowance of expenditure. The result was the same as before, Mr. Fetch being again successful, and he has since been instructed to carry out the work.

The design here illustrated was that submitted by Mr. Louis Ambler in the final competition, and was a development of that which gained the third premium in the first competition.

The frontage lines of the buildings were laid down in the conditions, and the laying-out of the forecourt with balustrades, statues, and fountains was part of the architect's design,

and not merely an imaginary sketch for the sake of pictorial effect.

A simple imposing erection, was aimed at in the design of the building, and it was thought that the broad flights of steps up to the main entrance would add dignity to the façade, and by raising the lowest, or half-basement, floor to about the level of the street, a side entrance to the offices was obtained, at that level, near the south-west corner of the building, and close to the lift and secondary staircase giving direct access to the various offices on each floor.

The offices of each department were grouped together, and separated from each other by corridors or lobbies. Those of the town clerk, borough accountant, medical officer, and weights and measures were arranged on the ground floor, and the Borough Engineer's on the first floor. The principal staircase, in the centre, led directly up to the rooms of the Town Council, which were all planned *en suite*, on the front and side furthest removed from the noisy traffic, where the Council Chamber was placed, with a public gallery and separate staircase thereto from the street. A similar staircase was provided for the caretaker, whose rooms were required to be on the first floor, with convenient access to the mayor's parlour, &c. It was proposed to face the buildings with "Windy Nook" or "Denwick" stone, and to cover the roofs with Buttermere green slates.

The estimated cost was about 35,000*l.*, exclusive of the tower and the forecourt.

#### PREMISES, 16 AND 17, PRINCES-STREET, CAVENDISH-SQUARE, W.

THESE premises, on the Howard de Walden estate, have recently been rebuilt at a cost of 7,000*l.* The building comprises a shop on the ground floor, with showrooms and residential flats on the upper floors.

An effort has been made to give sufficient importance to the business portion of the premises by relying on architectural dignity for this purpose rather than on large glass surfaces, leaving the top floors apparently unsupported, as is so commonly the practice in shop architecture in London. The absence of wooden frames to the windows on the upper floors has given the full value and solidity to

the stone mullions, the glass and iron casements being let directly into these, and although the greater amount of wall space is of necessity devoted to the lighting of the rooms, no effect of weakness is in consequence produced.

The interior decorations have been executed for Miss Annie Down, and include some effective panelling and marble lining.

The whole has been carried out under the supervision of the architect, Mr. Maberly Smith, by the contractors, Messrs. Davis & Leaney, of Southend-on-Sea, the carving being executed by Mr. Michael Murphy, of Battersea.

#### MILLBROOK CHURCH, DEVON.

THE illustration shows a south-east view of the above-named church, which was designed to take the place of the existing hideous building.

The general plan consists of a nave, north and south aisles, chancel, and vestries, advantage being taken of a fall in the site towards the east to place the vestries under the chancel, a staircase in the south side leading down to them.

The nave is 73 ft. in length by 24 ft. 6 in. wide, and is divided into four bays of 18 ft. centres. The north and south aisles are 10 ft. 6 in. wide, and are of the same length as the nave.

The chancel, which is 33 ft. in length by 23 ft. in width, is divided from the nave by a small stone traceried screen, and the chancel arch rises to nearly the whole height of the roof, the altar being raised six steps from the nave floor level.

The roof is of open timber work, the ridge being 33 ft. from the floor.

From various causes the design has never been carried out.

G. H. FELLOWES PRYNNE.

#### DESIGN FOR A CHURCH.

THIS rather unusual and powerful design for the east end of a church was made in competition for the Church of St. Peter, Sharrow. It is we understand properly speaking to be credited to Messrs. Eden & Williams, though





MR. PHOTOGRAPHIC L.P.C. LTD. & S. EAST-ENDING STREET, FETTER LANE, E.C.

SOUTH SHIELDS MUNICIPAL BUILDINGS. DESIGN SUBMITTED IN FINAL COMPETITION. BY MR. LOUIS AMBLER, F.R.I.B.A.









ELEVATION.



DETAIL OF ELEVATION.

1/4 IN. PHOTO SPRAGUE & CO. LTD. 8 & 9 EAST HARDING STREET, FETTER LANE, E.C.







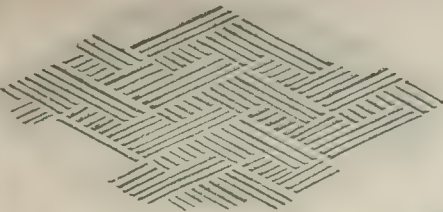


Fig. 1



Fig. 2.

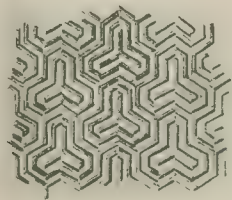


Fig. 5

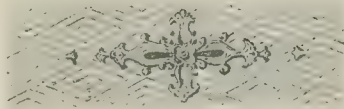


Fig. 3

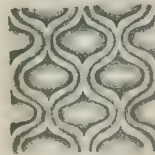


Fig. 7

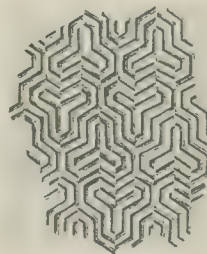


Fig. 6.

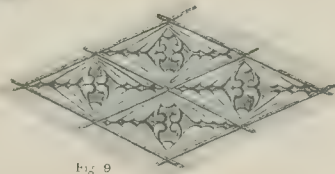


Fig. 9

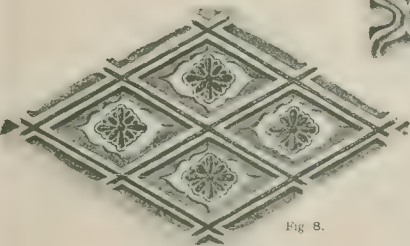


Fig. 8.

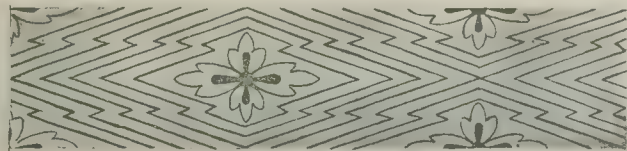


Fig. 10.

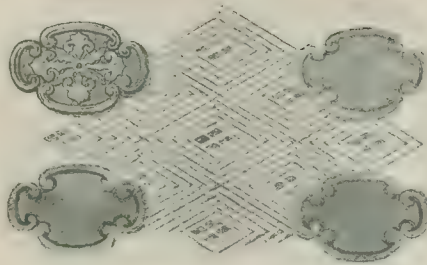


Fig. 4.

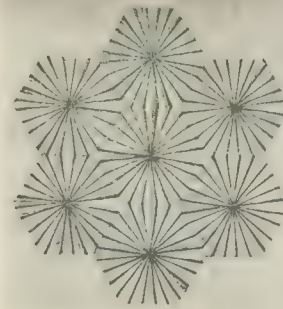


Fig. 11.



Fig. 12

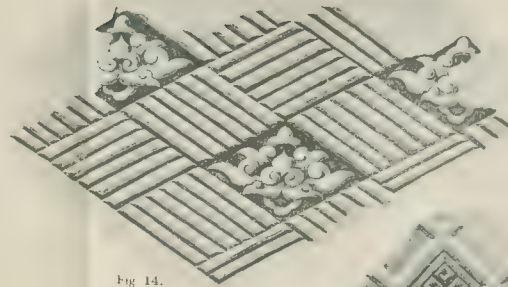


Fig. 14.

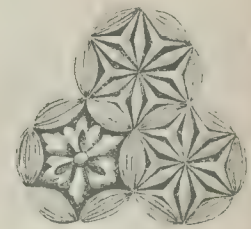


Fig. 13



Fig. 15



Fig. 16.



Fig. 17

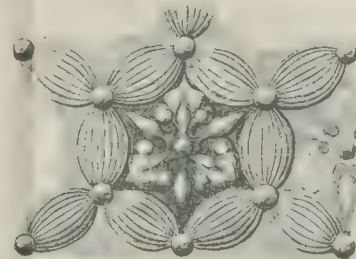


Fig. 18.

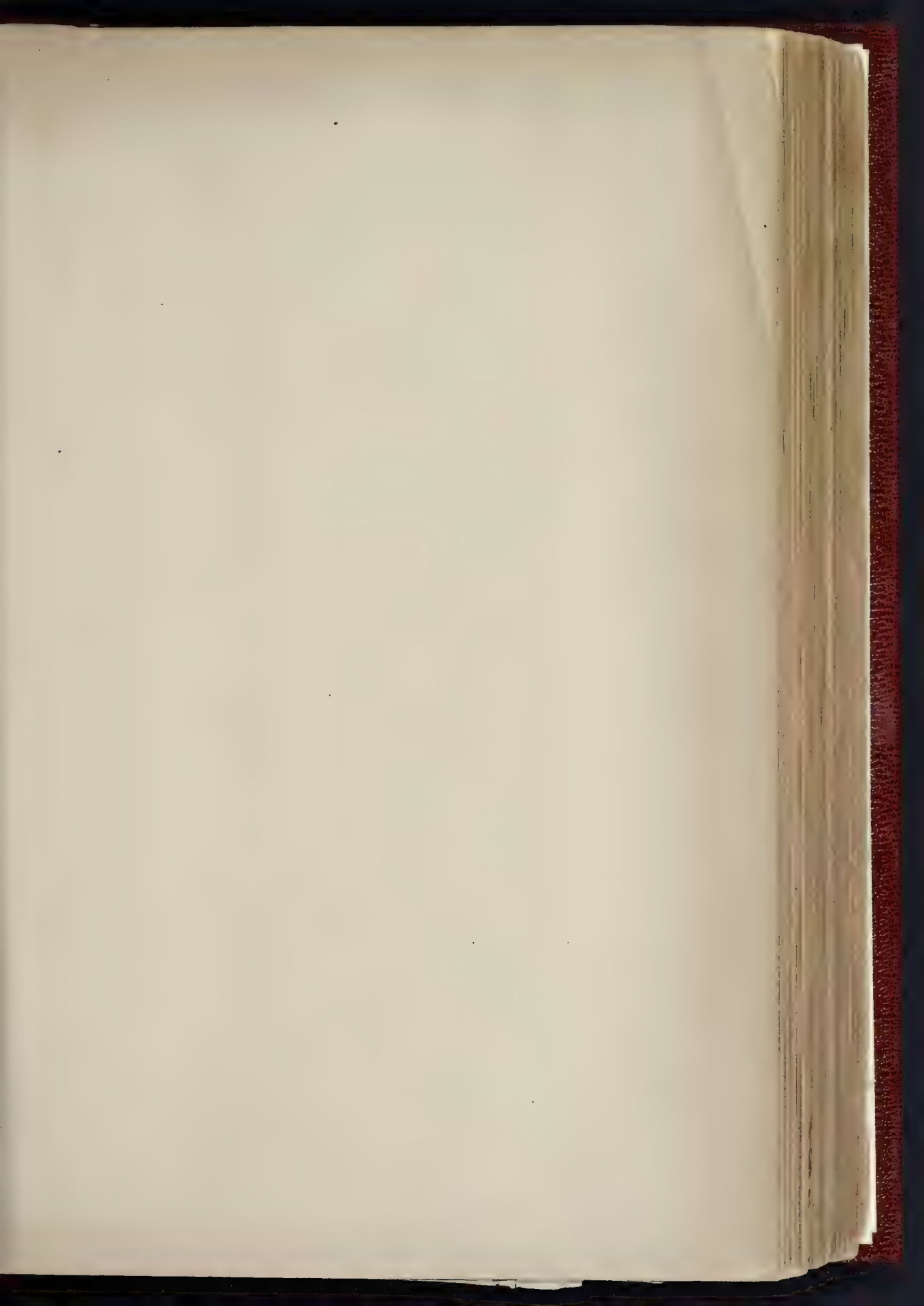


Fig. 19.



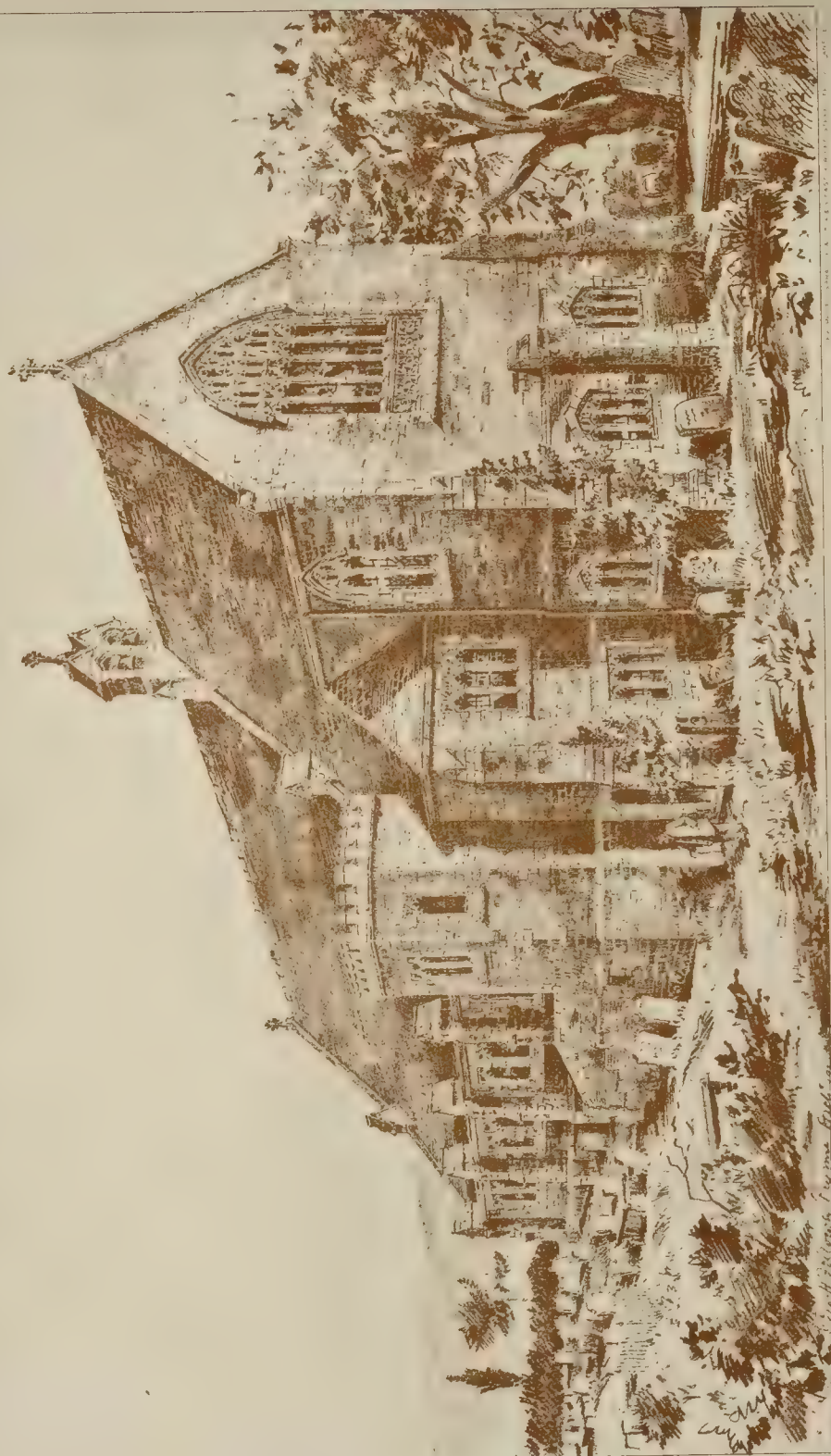




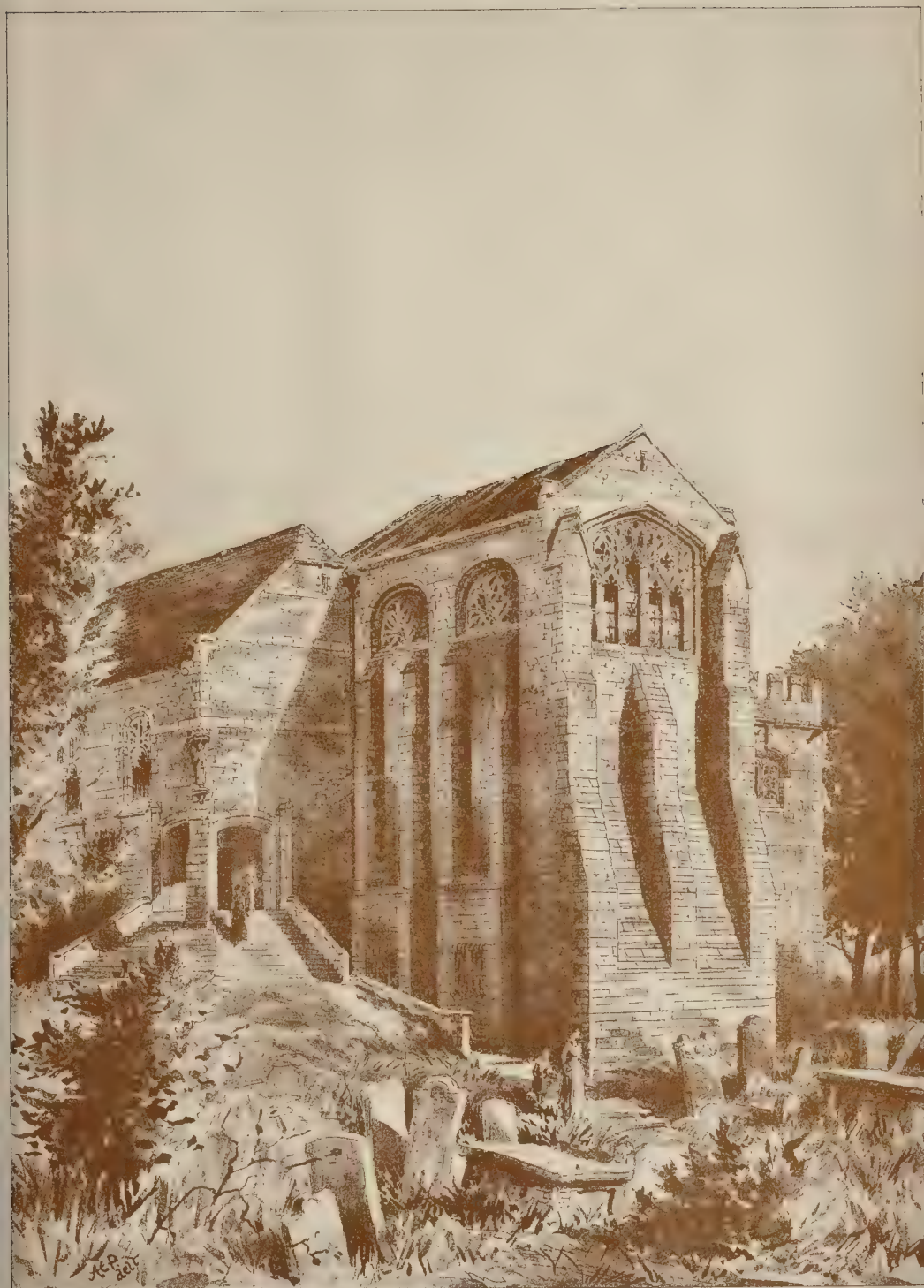




THE BUILDER, FEBRUARY 7, 1903







DESIGN FOR A CHURCH—By Mr. F. C. EDEN.







the name of Mr. Eden alone appears upon the plate, as it was sent to us by him in the first instance.

### ILLUSTRATIONS OF JAPANESE ORNAMENT.

THESE illustrations are given in connexion with the article on Japanese ornament by "F. T. P.," printed on another page, and are referred to and described in that article.

### APPLICATIONS UNDER THE LONDON BUILDING ACT, 1894.

THE London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses:—

#### Lines of Frontage and Projections.

**Paddington, South.**—Balconies at the first, second, third, and fifth floor levels and an entrance porch at the ground floor level of a block of residential flats upon the site of Nos. 12-17, Hyde Park-place, Bayswater-road, Paddington (Mr. F. T. Verity for the executors of the late Mr. A. Bush).—Consent.

**Fulham.**—Buildings at the Macmuro-road-schools, to abut upon Macmuro-road and Woodlawn-road, Fulham (Mr. T. J. Bailey for the School Board for London).—Consent.

**Hampstead.**—A bay window to a dwelling-house on the north-west side of Richborough-road, Hampstead, at the north corner of Oak-grove (Mr. A. Cole for Messrs. Mackley Brothers).—Consent.

**Lewisham.**—A porch at the entrance to a house on the west side of Oakcroft-road, Blackheath (Mr. L. V. Hunt for Mr. H. Stanton).—Consent.

**Newington, West.**—A one-story addition on the forecourt of No. 55, De Laune-street, Kennington (Messrs. H. Burman & Sons).—Consent.

**Greenwich.**—Retention of a greenhouse at the rear of Siebert House, Glenuide-road, Greenwich, abutting upon Westcombe Hill (Mr. E. Mills).—Consent.

**Westminster.**—Projecting iron and copper sign in front of Messrs. Vacher & Sons premises on the west side of Great Smith-street, Westminster (Mr. G. Wragge).—Consent.

**Brixton.**—A one-story shop on the forecourt of No. 275, Clapham-road, Lambeth (Messrs. C. C. Lennard & Co. for Messrs. J. Commin & Co.).—Refused.

**Dulwich.**—One-story additions in front and at the flank of Derby House, Grove-vale and Melbourne-grove, Dulwich (Mr. H. G. Tarrant for Messrs. W. Martin & Co.).—Refused.

**Islington, West.**—Three two-story dwelling-houses upon the garden at the rear of No. 339, Liverpool-road, Islington, to abut upon Orlestone-road (Mr. A. J. Bellew).—Refused.

**Norwood.**—Buildings on the forecourt of No. 162, Norwood-road, Norwood (Mr. C. M. Quilter for Mr. C. Chiem).—Refused.

**Hackney, Central.**—Buildings upon the site of Nos. 171, 173, and 175, Lower Clapton-road, Hackney (Mr. J. Hamilton for Mr. F. Sharnan).—Refused.

**Hampstead.**—Three houses with shops on a site on the eastern side of Edgware-road, to abut also upon Maygrove-road, Hampstead (Messrs. Done, Hunter, & Co. for Mr. H. Neal).—Refused.

**Hampstead.**—Buildings on the east side of Fortune Green-road, Hampstead, to abut also upon Weech-road (Mr. C. H. B. Quennell for Mr. C. Pain).—Refused.

**Peckham.**—A one-story showroom on part of the forecourt of No. 110, Linden-grove, Peckham (Mr. A. E. Mullins for Mr. Daniels).—Refused.

**Woolwich.**—One-story shops upon the forecourts of Nos. 57, 59, 61, and 63, High-street, Plumstead (Mr. H. Busbridge for Messrs. C. Carthew and S. T. Blackler).—Refused.

**Strand.**—The fixing of projecting illuminated sign letters on the south-west angle of the Palace Theatre, at the corner of Greek-street and Shaftesbury-avenue (Mr. P. A. Todd for the Palace Theatre Co., Limited).—Refused.

#### Width of Way.

**Kennington, North.**—Stables and coach-house, with dwelling rooms over, at the rear of No. 50, Kennington Park-road, at less than the prescribed distance from the centre of Portobello-road, Kennington (Messrs. C. R. Cross & Co. for Mr. A. Leaver).—Refused.

#### Width of Way, Lines of Frontage and Projections.

**Newington, West.**—Ten houses on the site of Nos. 47 to 69 (odd numbers) inclusive, New-street, Newington (Messrs. Briant & Son for Mr. A. F. de Laune).—Consent.

**Brixton.**—Stable buildings on the east side of Lingham-street and south side of South Eak-street, Brixton (Mr. J. McMullen-Brooks for Messrs. C. Hammetton & Co., Ltd.).—Consent.

**Hampstead.**—The retention of a projecting bay in front of No. 108, Heath-street, Hampstead (Mr. J. D. Hunter for the Express Dairy Company).—Consent.

**Marylebone, East.**—A one-story bay window over, and a water-closet and lavatory addition adjoining, the porch at the entrance to No. 18, York-terrace, Regent's Park, St. Marylebone (Mr. A. M. Torrance for Mr. C. L. Hill).—Consent.

**Dulwich.**—A bay window in front of No. 16, Wood-vale, Honor Oak, Dulwich (Messrs. C. B. Remnant & Son for Mr. S. Lamb).—Refused.

**Strand.**—An iron and glass shelter to the entrance to the Villa-villa and Burke Hotel and Restaurant, Nos. 37 and 38, Gerrard-street, Soho (Mr. L. Sandilands for Mr. A. Taroni).—Refused.

#### Line of Frontage and Temporary Building.

**Fulham.**—The retention of an iron gas-meter house at the Mead Ambulance Station, Town Mead-road, Fulham (Mr. T. D. Mann for the Metropolitan Asylums Board).—Consent.

#### Space at Rear.

**Chelsea.**—A modification of the provisions of Section 41 with regard to open spaces about buildings, so far as relates to the proposed erection of a building, to be known as Sloane-gate Mansions, on the east side of D'Oyley-street, Chelsea (Mr. C. J. C. Pawley for Mr. Layton).—Consent.

#### Deviation from Certified Plans.

**Kennington, South.**—Deviations from the plans certified by the District Surveyor, under Section 43 of the Act, so far as relates to the proposed re-erection of the Civet Cat public-house, Nos. 72 and 74, High-street, Kennington (Mr. T. W. Willis, for Messrs. Truman).—Consent.

**Strand.**—Deviations from the plan certified by the District Surveyor, under Section 43 of the Act, so far as relates to the proposed re-erection of No. 1, Coventry-street, St. James's, Westminster (Messrs. H. Cooper & Sons, for Mr. H. Appenrodt).—Consent.

**Marylebone, West.**—Deviations from the plan certified by the District Surveyor, under Section 43 of the Act, so far as relates to the proposed re-erection of an addition at the rear of No. 63, Upper Berkeley-street, Marylebone (Messrs. Mullet, Booker, & Co., for Mr. S. Quick).—Refused.

**Finsbury, Central.**—Deviations from the plan certified by the District Surveyor, under Section 43 of the Act, so far as relates to the proposed re-erection of the Lord Wolsley beerhouse, No. 55, White Lion-street, Finsbury (Mr. H. H. Tasker, for Mr. C. Kilby).—Refused.

#### Formation of Streets.

**Dulwich.**—That an order be issued to Messrs. J. Newton & Co., sanctioning the formation or laying out of a new street, for carriage traffic, to lead from Balchier-road, Forest Hill, Camberwell, to Forest Hill-road (for Mr. J. Newton).—Consent.

**Lewisham.**—That an order be issued to Messrs. D. Smith, Son & Oakley, refusing to sanction the formation or laying out of new streets for carriage traffic on part of the Crofton Park estate, on the eastern side of Crofton Park-road, Brockley, Lewisham (for Mr. J. W. Webb).—Refused.

#### Means of Escape at the Top of High Buildings.

**Westminster.**—That the applications of Mr. C. J. C. Pawley, for permission to make certain deviations from the plans approved by the Council on November 26, 1902, with respect to the means of escape in case of fire, proposed to be provided in pursuance of Section 63 of the Act, on the sixth and seventh stories of blocks A, B and C, of St. James's-court, Buckingham Gate, Westminster.—Consent.

\* \* \* The recommendations marked † are contrary to the views of the Local Authorities.

## Correspondence.

### THE QUANTITY SURVEYOR.

SIR.—Mr. Wood's description of the Surveyors' Institution as a body largely composed of auctioneers and estate agents is not reasonable. The inference drawn from such terms by those who do not know the facts would be that they are persons who are principally considered in selling household furniture or letting houses.

There are two classes eligible for membership:—  
1. Land agents and surveyors.  
2. Quantity surveyors.

Both of these classes are subjected to an examination, differing for each class. The land agent does not pose as a quantity surveyor, nor the quantity surveyor as a land agent. There are also special examinations in forestry and sanitary science.

Criticism of the knowledge of quantities of an "auctioneer and estate agent" is beside the question. No one ever supposes that they know much about them. It is, however, the fact that such of the members as are auctioneers have in the majority of cases passed the Land Agency Examination.

The Surveyors' Institution has been established about thirty-five years, has been habitually governed with conspicuous judgment and success, and the number of its members is strong evidence that it supplies the wants of the profession. This

Institution has absorbed a large proportion of the land agents and building surveyors who know their business, and it comprises among its members a great number of men of distinguished attainments and high character—is, in fact, an association to which any professional man may be proud to belong.

What has the Surveyors' Institution done for the surveyor?

It has established an admirable system of examination. It may be objected that this examination is not sufficient stringency, but it is realised that all systems of professional examination must be regulated by the general level of education of the class from which its members are drawn, otherwise they would operate as effectual deterrents to applicants, but all the professions have raised their standard of examination concurrently with the progress of education. I think the Surveyors' Institution is not oblivious of the principle, and it is certain that their examinations have very materially raised the level of the education of the surveyor.

In the conflict of opinions on important questions such as the law of light and air, the operation and reform of the London Building Act, the London water supply, the housing of the working classes, and general building law, the Surveyors' Institution has taken a prominent and powerful part. It has established, by its professional Notes, a truly valuable means of intercommunication among its members. The extraordinary mass of answers on questions of law and practice contained in the ten published volumes of these Notes is a striking monument of care and skill. More than thirty volumes of *Transactions* in which hardly any paper descends to mediocrity have contributed a valuable store of opinions and luminous debate to the literature of the surveyor's business.

It is a fashion with many quantity surveyors to decry the functions of the land agent. Such as do so surely do not realise the important and diverse interests inseparable from the management of great estates, and the ability and assiduity which they demand from the surveyor.

It has been a subject of complaint that the greater number of papers read before the Surveyors' Institution pertain to land agency sections, but it is certain that the council of that body never rejects a paper of value on the building side. Moreover, nearly all the vital questions affecting the quantity surveyor and of sufficient importance for the foundation of a paper have been discussed already. The preponderance of the papers in the land agency section may be accounted for by the wide range of subjects with which the land agent is concerned.

The policy which will prove most effectual in raising the condition of the surveyor and increasing their strength as a body will be the unity of the surveyors of all parts of the kingdom in one institution, a condition which would, among other benefits, contribute to that uniformity of practice which is thought by many to be desirable.

What does Mr. Wood offer us? A new Association, without funds, without prestige, with few men of weight as members (for the majority of such are already members of the Surveyors' Institution and have sense enough to adhere to it), without any machinery of examination, without a building, and without any important grievance that they can process their intention to redress.

The registration of the quantity surveyor is as impracticable as the registration of the architect. Such a project can offer small attraction to any persons except those who despair of being accepted as members elsewhere, and who would be about the last from whom any valuable reform might be expected.

Does Mr. Wood think he will forward his scheme by suggesting (as he does) invidious comparisons between the quantity surveyors of different parts of the kingdom? The compliment to one section must tend to estrange the other. As to the attachment of letters to Mr. Wood's signature, my letter dealt with what I thought to be generalities, and was not intended to be personal. The ostentation of which he accuses me has been confined to the letters "F.S.I." on the headings of letter paper, to business cards and the title-pages of books.

JOHN LEANING.

### THE GARDEN CITY PIONEER COMPANY.

SIR.—This company, as many of your readers probably know, has been formed to acquire an option of purchase of a large estate, and to then develop it in the best manner as an entirely new industrial and residential town.

To carry out the scheme, effectively, electrical power and light works, water works, roads, and many other enterprises involving an outlay of large capital and the employment of many workmen, will be necessary at an early stage. Those workmen will need to be housed, and it will be most desirable to house them on the estate and in permanent, as distinct from temporary, dwellings. Therefore one of the first things to be done will be to erect a considerable number of cottages. Now, it is most desirable that those cottages should be planned in the best possible way and afford the best accommodation consistent with their being



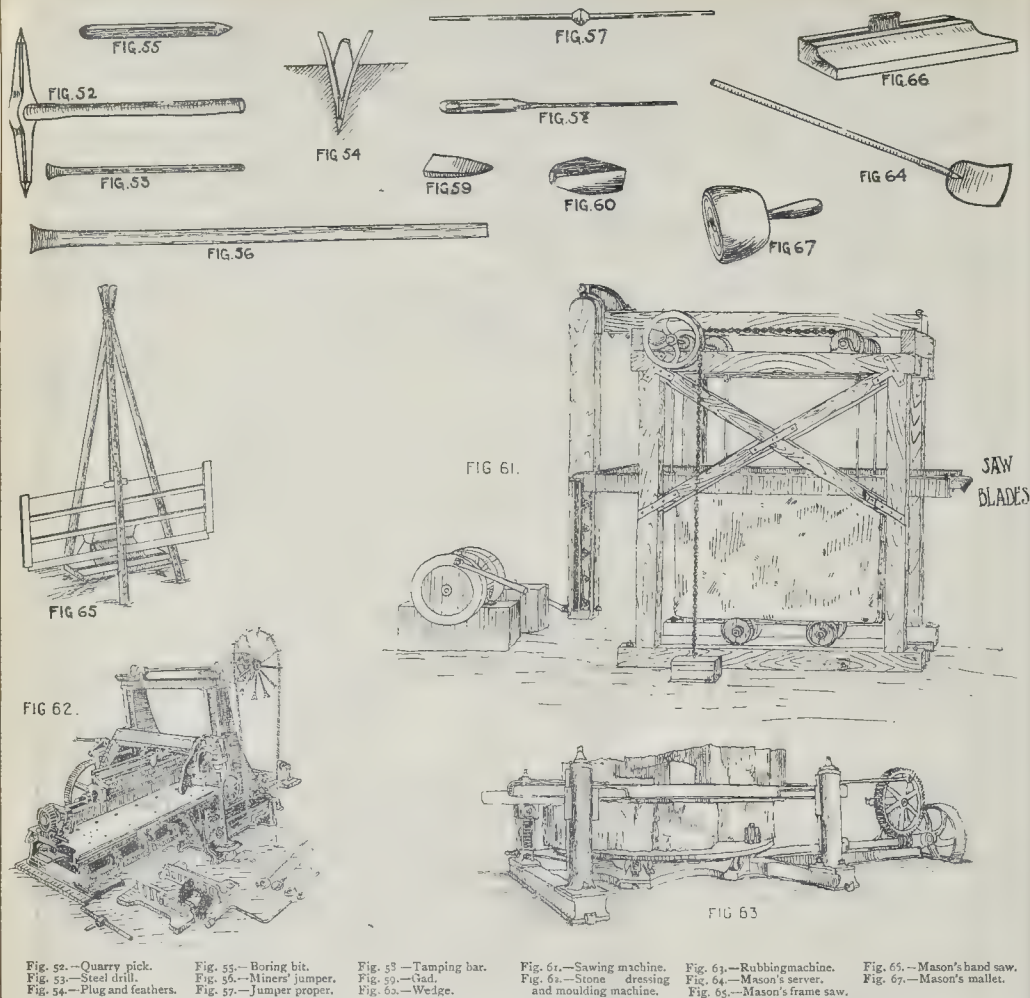


Fig. 52.—Quarry pick.  
Fig. 53.—Steel drill.  
Fig. 54.—Plug and feathers.

Fig. 55.—Boring bit.  
Fig. 56.—Tamping bar.  
Fig. 57.—Jumper proper.

Fig. 58.—Wedge.  
Fig. 59.—Gad.  
Fig. 60.—Stone dressing and moulding machine.

Fig. 61.—Sawing machine.  
Fig. 62.—Mason's hand saw.  
Fig. 63.—Mason's frame saw.

Fig. 64.—Mason's mallet.  
Fig. 65.—Mason's hand saw.  
Fig. 66.—Mason's mallet.  
Fig. 67.—Mason's mallet.

Illustrations to Student's Column.

let at a rent which will place them within the means of the workmen employed. The Company will probably assign to each cottage a space of not less than 220 sq. yds.; but as this represents more garden ground than many would care to deal with, the idea occurs to me that a large part of the back garden space might be thrown into a central quadrangle and let in allotments to those who require it.

My object in writing this letter is in the hope of inducing some of your readers to make useful suggestions towards the carrying out of such a plan; but I need hardly say that the project will afford scope, not only for the building of workmen's cottages, but for superior residences and for the erection of large buildings, and these so arranged with open spaces around them as to secure a combined and harmonious effect rarely seen in our English towns.

EBENEZER HOWARD,  
Director and Manager.

ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS.—Owing to pressure on our space we are obliged to omit the report of the meeting of this Association at Birmingham, which will appear in our next issue.

NATIONAL FEDERATION OF BUILDING TRADE EMPLOYERS.—At the annual meeting of the National Federation of Building Trade Employers of Great Britain and Ireland, held in London, Mr. Charles W. Green, of the firm of Messrs. Holme & Green, of Liverpool, was appointed President for the ensuing year.

## The Student's Column.

### BUILDERS' TOOLS AND THEIR USES.

#### CHAPTER 3.

#### Freestone Mason.

IT will be necessary to divide this chapter into three parts—Quarrying, Stone Conversion, and Tools of the Freestone Mason—embracing the various processes undergone by stone from its removal out of the earth to its final position in the building, and describing the tools and machinery employed for this purpose.

A brief account of the first may be interesting and helpful, especially as many quarries are now owned by builders; while the cutting and conversion of stone, either at the quarry or in the yard, is a natural sequence with which the student ought to be acquainted. The special tools used by the mason in finally working the material will then be dealt with, together with descriptions of the modes of dressing.

By freestone is meant the comparatively softer kinds, such as certain sandstones and limestones, which can be freely operated upon with the ordinary tools of the mason.

#### Quarrying.

After the "cap rock" or "stripping" soil covering the building-stone deposit has been

stripped off, either by blasting or otherwise, the area thus laid bare is quarried in one of three ways—by hand tools, by explosives, or by channelling and wedging.

Hand Tools are used when the stone is of an inferior quality, thin and friable. They comprise the pick, crowbar, steel wedge, hammer, drill, and plug and feathers. The quarry pick (fig. 52), crowbar, and wedge are required to force apart the layers, which are then broken up by the hammer, a heavy sledge of 10 or 14 lbs. weight. The steel drill (fig. 53) is for cutting the holes to receive the plug and feathers, the operator grasping it with one hand and using the other to strike it with a hammer, rotating the drill between each blow. The plug and feathers are employed for splitting unstratified rock by inserting them in a row of holes—about  $\frac{1}{4}$  in. diameter and some 6 in. apart—along the proposed line of fracture, and driving them all together, when the stone will crack with the trace thus indicated. These instruments consist of a steel plug or wedge, 5 in. long by  $\frac{1}{4}$  in. wide, and two curved half-round pieces of mild steel,  $4\frac{1}{2}$  in. long by  $\frac{1}{4}$  in. wide, forming three to a set, the plug being forced with the hammer between the feathers till the desired cleavage occurs (fig. 54).

In the Bath district the building stone is never blasted because of the tendency to shatter and waste, but it is sawn *in situ* by



means of a one-handed saw, the blocks so divided being lifted from their beds with the aid of iron bars. Subsequently, any rough surfaces thereon are shaped by means of a two-edged quarry axe. As a large portion of Bath stone is procured from mines, underground tunnels or shafts are first sunk, and the material removed from thence by jad-picks, four lengths in the handle, viz. 2 ft. 6 in., 3 ft., 3 ft. 6 in., and 4 ft., used in turn as the stone is picked away from the ceiling of the quarry to make a passage for the one-handed saw, to cut it into blocks, which are torn from their bottom beds by wedges, and then finally removed by long steel bars, lewis, and cranes, the latter at the top of the heading for haulage purposes. In sawing underground, water is always required, not so much that it makes the stone softer along the line of cutting, but because it washes out the dirt made during the operation, and thus frees the cut of obstruction.

**Explosives.**—Blasting should be avoided as far as possible in building stone, as it shakes the material and causes waste. It is, however, the cheapest method of quarrying small blocks, though large ones are often procured by the same means. Holes of 1 in. and upwards in diameter are first pierced in the rock to the necessary depth with boring bits, jumpers, or machine drills. The boring bit (fig. 55) is a short bar or drill, held by one man who turns it between the blows of another man's hammer, while the jumper (fig. 56) is a heavy iron bar, with either a projecting chisel-shaped end or a spiked point. The reason why the cutting edge is wider than the diameter of the tool is that it may clear itself when sinking the holes. The jumper proper has a weight in the middle, or about 2 ft. from one end, to give greater impact to its descent (fig. 57). It cuts by its weight alone, the workman letting it drop and twisting it in the aperture after each rebound or jump. It is about 6 ft. long and has two bits, one for pitching, say about  $\frac{3}{4}$  in., and the other (called the bottomer) for pitching about  $\frac{1}{2}$  in. less. The tool is used with both hands and makes twenty or thirty holes per hour, the holes being about 4 in. deep and 4 in. apart for granite. Machine rock-drills, driven by steam or compressed air, are engaged in works of magnitude, where they are rapid and effective.

The hole when completed is charged with coarse-grained gunpowder, dynamite, or other explosive, and the remaining space rammed with dry clay, sand, or chips of rock, called "tamping." This is forced down with the tamping bar (fig. 58), some 4 ft. in length, which has a thickened end with a groove to let out the fuse, and a copper termination to prevent the likelihood of striking fire. The firing fuse may also be protected by a groove in a piece of wood, or by a tube, and should burn at about the rate of a yard per minute, Tangye's or Bickford's fuse, costing from 2d. to 4½d. per fathom, being very serviceable.

As stone is invariably shattered by heavy blasts, repeated light charges are preferable for detaching without disintegrating. A cubic yard of solid rock in ordinary quarrying will require  $\frac{1}{2}$  lb. to  $\frac{3}{4}$  lb. of powder; and the explosion starts a mass whose volume approaches the cube of the line of least resistance, which is the shortest distance from the charge to the nearest surface. Electricity is convenient to explode several charges simultaneously, and for great blasts indispensable.

**Channelling and Wedging.**—This mode of quarrying is adapted to rocks lying in layers, and possessing certain planes of cleavage along which they readily split, or to stone that is too hard to break up with the ordinary hand tools, but not so tough as to necessitate explosives. Rock in the former state is easily cleft by running narrow channels along its line of bed, and inserting and driving a series of steel wedges. Rock-drilling machines are frequently made to cut these grooves, being mounted so that they can be moved forward as the work proceeds. Blocks of harder unstratified stone are loosened by channelling as before, and sinking rows of "pool-holes," as may be found necessary, either with the boring bit or jumper. Into these orifices steel gads and wedges, 4 in. to 6 in. long (figs. 59 and 60), are impelled with the hammer, the process being termed "gadding and wedging"; or plugs and feathers may be requisitioned if the material is not too refractory. This method is economical and expeditious for large masses, except in granite and the hardest rocks.

#### Stone Conversion.

By stone conversion is here meant that portion of our subject which deals with stone-working machinery and its associations than the actual cutting of the material by hand, which will be treated under the head of "Tools of the Freestone Mason." A great deal of stonework, especially of the softer kinds, is now dressed by machinery, and it will not be out of place to illustrate and describe a few appliances, especially as the advantages possessed by machinery over manual labour are becoming more widely known, and its use greatly extending.

Mr. Powis Bale, in his book on stone-working machinery, says:—"What can machinery do in the way of stone conversion? At the present time this may be briefly summarised as follows:—Stone may be sawn, dressed, squared, faced, and polished. Architrave mouldings, cornices, ovolos, pilasters, astragals, ogees, scotias, strings, and other straight, undercut, and curved mouldings may be shaped and finished in every way superior to—and at an immense saving over—hand labour. All the heavy work in small mouldings, panels, recesses, &c., can be also worked. A well-designed machine should dress (work faces and beds) 30 ft. per hour stones of moderate hardness. The cost of this, allowing two men and one boy to supply stone and attend machine, would amount to about 2s., whilst an average price to dress the same by hand would amount to about 5s."

Those stones which are homogeneous, strong and tough, and comparatively free from grit, can be worked by machines which resemble those used for iron; but the harder and more brittle kinds require to be fashioned in a style similar to dressing by hand.

A **Sawing Machine** for stone and marble is shown in fig. 61. In this apparatus the saw frame is actuated by a pendulum driven by a connecting rod and crank from the belt shaft in the usual manner. The vibrating frame is strongly made, and is provided with convenient means for setting the saw-blades so that blocks may be cut into any number of required slabs. The wearing surfaces are made adjustable to keep the frame true in its motion, while the stone operated upon is transported by means of a truck running on rails. The connexion from driving shaft to pendulum is made direct by a connecting rod attached to a heavy fly-wheel disc. Such a machine will take blocks varying in size from 6 ft. by 3 ft. 6 in. by 3 ft. 6 in. to 14 ft. by 7 ft. by 7 ft. The action of stone saws is assisted by sand and water fed into the cut, or by carbons or black diamonds.

There are also Circular Dry Saws which cut Portland or stones of similar hardness, with a feed of 6 in. per minute; they have been constructed up to 13 ft. in diameter. The saw gives the stone a plane surface at once, any roughness left being removed by rubbing with grit or sandstone.

Brunton and Trier's **Stone-dressing Machine** is much employed for the purpose indicated by its title. Its essential feature is a set of four small chilled cast-iron discs, with bevelled edges, obliquely planted in the vertical surface of a large wheel, which turns somewhat slowly, the stone being made to traverse on a table while the machine itself is in a fixed position. These discs, rotating rapidly at the rate of 1,200 revolutions per minute, grind the surface of the block as it passes. This apparatus will dress stones up to 4 ft. on the face and 6 ft. long, and, if driven by a 5 h.p. to 6 h.p. engine, will dress from 280 ft. to 350 ft. super. of stone per day, thus doing the work of from twenty to thirty masons in an economical manner.

A **Stone-Dressing and Moulding Machine**—also called a Steam Mason—is used for marble as well as for freestone. It is illustrated in fig. 62, with a large piece of stone being worked. Such an implement meets all the ordinary requirements in dressing stone, as it is able to cut off 1 in. in thickness of hard grit stone, and proportionately more in softer material, at the same time leaving a true and smooth surface. It may therefore be used in quarries, first for scabbling blocks out of the rough state, and then dressing them on one, or all sides, ready for fixing. The machine will do the work of ten men. In hard grit stone it will dress 180 ft. super., at 1d. per ft. super. per day of nine hours, to a surface superior to clean boasted work. It is also capable of working any ordinary straight moulding, and an astragal moulded step, 6 ft. by 1 ft. by 7 in.,

may be dressed on all four sides ready for fixing in one hour. The force required for driving is very small, an engine of 6 h.p. being sufficient for two or three machines. These are made with tables from 8 ft. to 12 ft. long, and a strong vice is fixed on the latter for the purpose of holding the block in position. A patent rocking-table can be used, by means of which a stone, when once fixed on it, can, in half a minute, be turned any side up, or set at any angle ready for cutting. For working mouldings the rocking-table is invaluable, and an apparatus with a 12 ft. table will dress a stone 12 ft. by 5 ft. by 4 ft. in size.

Machines which attack the rough blocks and reduce the inequalities somewhat are termed "stone-cutters." After this treatment the material goes to the stone-grinding and stone-polishing appliances, except when the moulding-machine is required. The two former differ only in the degree of fineness of the surface produced, and are sometimes styled *rubbing machines* (fig. 63). The rubbing is accomplished by placing the stones upon a horizontal circular plate of cast iron, 12 ft. or so in diameter, and revolving at great speed, to which water and fine sand are continually applied as found necessary, the stone being braced to prevent its sliding; several small stones can be done at once. A little stream of water works the sand under the blocks, and also carries away the *débris*. The rubbing of mouldings, &c., is done by hand. One of these machines will dress about 400 feet superficial per day at a cost of 1d. or 2d. per ft. The advantage of this apparatus is that it takes the stone in the rough state and reduces it by rubbing to a true polished surface without the previous aid of chisels. This rubbing is frequently called polished work.

#### Tools of the Freestone Mason.

The following tools are employed by the freestone mason:—

- |                      |                           |
|----------------------|---------------------------|
| 1. Frame saw.        | 12. Drag.                 |
| 2. Mallet.           | 13. Iron rubber.          |
| 3. Scabbling hammer. | 14. Square.               |
| 4. Spalling hammer.  | 15. Straight edges.       |
| 5. Waller's hammer.  | 16. Winding strips, &c.   |
| 6. Pitching tool.    | 17. Templates and moulds. |
| 7. Punch.            | 18. Sweeps.               |
| 8. Point.            | 19. Rule.                 |
| 9. Inch tool.        | 20. Spirit level.         |
| 10. Boaster.         | 21. Compasses.            |
| 11. Broad tool.      | 22. Hand Barrow.          |

Trowels, lines and pins, spirit level, plumb level, rods, mash hammer, hod, mason's servers or shovels (fig. 64), &c., are also used by the wall mason or waller for the setting of the stone in actual building operations. The mason's banker is like that of the bricklayer, but is frequently of stone instead of wood.

The **Frame Saw** of the mason consists of a long thin steel blade, 4 in. by  $\frac{1}{8}$  in. with no teeth, but sometimes slightly jagged at the edge. It is fixed in a wooden frame and horizontally worked backwards and forwards by two men, cutting the stone by its own weight. To facilitate the operation, clean, sharp sand is washed into the "kerf" or saw-cut by water trickling down an inclined plane from a trough or vessel above. For soft stones an ordinary two-handed tooth saw is often employed.

If it is required to saw large blocks a heavier type of implement is essential, hanging from a tripod and worked by two men as before (fig. 65). A trough or vessel is kept filled with sand and water, which runs down through a slit at the bottom on to a sloping piece of slate and into the cut made by the moving saw. Such an apparatus is permanently set up in the mason's yard.

A small hand saw with a wooden back, as sketched in fig. 66, is convenient for cutting grooves in window sills to receive iron tongues. It is simply pressed backwards and forwards, with the addition of sand and water. Carpenter's saws are frequently used for cutting soft stones.

"Sawing or half-plain work" is the term applied to that face of the stone which comes from the saw, such as the surfaces of joints, which present a smooth appearance. For a description of "plain work" see further on.

The **Mallet** is of beech, and is used for striking the chisels, points, &c., and for tapping the heavier stones into position. It has a short handle and cylindrical head, 7 in. across. Being of wood it delivers just the kind of dull blow that is required by the stonemason. Fig. 67.

The dummy is a similar but smaller mallet, convenient for carved work.



## OBITUARY.

**SIR GEORGE GABRIEL STOKES.**—During the past week many eminent men of science have died, but none who have attained to the eminence of Sir George Stokes. The world is the poorer by his death in that he was a philosopher of the old school, and there are very few men of his stamp left. It is all very well at this time of day to mark several rising men, and to note their progress in this or that science, to consult the publications of the Royal Society as to how many "papers" they have contributed to our knowledge, but we too seldom think of the pioneers of science who had no precedents to guide them, no "papers" to fall back upon from which to cull information, and nothing but opprobrium to stimulate them. A building might look artistic enough after it has been put up, but the difficulty is to design and plan it on a blank sheet of paper to begin with. The design and plan of many a difficult mathematical problem has rested, to begin with, with Sir George Stokes. His contributions in that direction have greatly facilitated bridge construction and strains and stresses in buildings generally, though few people of the present generation would think so, as matters mathematical have been so much co-ordinated of late years. This reminds us that mathematics differs a great deal from the natural sciences in that, whilst the full meed of praise is nearly always bestowed on the original discoverers in such subjects as geology, zoology, and botany, it very rarely is in pure science subjects such as electricity, acoustics, and mathematics. We will not seize upon this occasion to enlarge upon this topic, but it is certain that such pioneers in mathematics as Sir George Stokes have never received their due even from their own colleagues—this not from neglect so much as from custom.

The public knows the late Sir George Stokes principally from the circumstance that towards the close of his academic career he was elected to Parliament by the University of Cambridge, where he was professor for so long a time. It is doubtful whether this election was a step in the right direction so far as university education is concerned; the professor, like most genial men of the old school, went down to his students, and they must have missed him. Although his inclination and his practice was to deal almost exclusively with higher mathematics, he had always a warm heart for such students as needed encouragement in lower stages, though their questions must at times have been painfully tedious for him to answer.

Like many professors of the old school (for he was born in 1810), he studied theology very ardently, and tried his best to assimilate that science with the pure and natural sciences. With this aspect of his career we have nothing to do. It is rather with the demonstrations to the few students whom he taught in the University—for there were never very many in his own classes, as he aimed at high teaching—that we are interested in. They were fraught with benefit, and, as we have said before, were of material assistance in laying the foundation-stones of modern pure mathematical science.

## GENERAL BUILDING NEWS.

**PRIMITIVE METHODIST CHURCH, BELFAST.**—On the 28th ult., the new Primitive Methodist church at the corner of the Shankill-road, and Berlin-street was opened. The superstructure of the edifice is built of Larnacvale selected brick, lined with Murphy's brick. Cut-stone work forms the buttresses and pediments to entrance doors, as well as the mouldings to windows. Polished granite columns are at the entrance doors, with carved base and capitals. The length of the building is about 65 ft. by 45 ft., with an end gallery, also a vestry and chamber for heating apparatus. The church is lighted by electric light. There is a tower at the corner of Shankill-road and Berlin-street, with spire. The whole of the exposed woodwork is pitch pine, the ceilings being sheeted diagonally into panels. Boyle's patent air-pump ventilators have been used. Additions are made to the present church so as to afford ample space for Sunday-school work, and a shop is built in connection with the church. The plans have been prepared by Mr. John Fraser, C.E. (Messrs. Fraser & Son). The contractors are Messrs. C. & W. McQuoid. Collapsible gates and ornamental railings have been erected by Messrs. Widdington & Co., electrical and mechanical engineers, under the supervision of Mr. Wm. Geddis. This firm also supplied the electric light installation. Stained glass windows were supplied by Messrs. Campbell Brothers.

**CHURCH, CARDIFF.**—The Bishop of Llandaff formally opened the new parish church of All Saints at Adamdowry recently. The new building provides accommodation for 330 worshippers. There are two stories, the basement being used as schoolroom, vestry, and clergy-room. The church has been built at a cost of 2,500l., the architects being Messrs. Seddon & Carter, and the builders Messrs. E. R. Evans Brothers.

**THEATRE, WEST STANLEY, DURHAM.**—It is proposed to erect a new theatre at West Stanley, for the Stanley Royal Theatre Co., on a site near the Royal Hotel. Plans have already been passed by the Urban District Council and the local justice,

according to designs prepared by Mr. William Forster, architect. The building will be constructed upon the two-tier system; and it will accommodate over 1,200 people.

**ROMAN CATHOLIC SCHOOLS, NOTTINGHAM.**—On the 20th ult. the Bishop of Nottingham, Dr. Brindle, D.S.O., laid the foundation-stone of the new classrooms being erected in connexion with St. Patrick's Schools, London-road, Nottingham. The additional rooms in course of construction on a site adjoining the existing building will provide accommodation for seventy infants, sixty-five boys and an equal number of girls. A separate entrance with a stone staircase leading from Leen-side is included in the scheme, and a small playground and communication with the present schools have been arranged for. The estimated cost of the new room is about 2,000l. Messrs. Evans & Sons are responsible for the architectural work, and the contractors are Messrs. J. H. Williamson & Son.

**CHURCH, LANDORE, GLAMORGANSHIRE.**—The memorial stone of the new church of St. Paul's, Landore, was laid recently. The church will accommodate 700 adults, and consist of a nave 79 ft. by 29 ft., north and south aisles each 76 ft. by 11 ft. 8 in.; chancel, 36 ft. 6 in. by 25 ft.; organ chamber, 18 ft. 6 in. by 14 ft. 6 in.; and clergy vestry, 15 ft. by 17 ft. In consequence of a considerable slope in the site (quite 15 ft. from west to east in the length of the building), the choir vestry, 17 ft. by 14 ft., has been placed in the basement, and is reached by a wide stone staircase; and in addition to this accommodation a schoolroom, 34 ft. by 25 ft.; and a classroom, 14 ft. by 18 ft. 6 in., is provided. The church is entered through porches on the north and south sides. The chancel will have five-light east windows. The west front has three two-light windows, between the buttresses. An octagonal bell turret will be placed on the south side of the chancel. The whole of the internal walls are to be lined with green Quarella stone from the Bridgend Quarries, and the arches, piers, and mouldings to the arcade, the jambs, tracery, &c., to the windows are of Bath stone. The roofs are to be open-timbered, and that to the chancel is a wagon-headed roof. Externally the walls are to be built with thin coursed grey local stone, and the jambs, arches, tracery, and other dressings are being executed in red Hollington stone, and the roofs will be covered with green slates. The system of heating adopted is by hot water. The work is being carried out by Messrs. Weaver Brothers, of Manselton Works, Swansea, from designs by Mr. Bruce Vaughan, of Cardiff.

**EXTENSION OF LEITH MUNICIPAL BUILDINGS.**—Leith Municipal buildings have just been extended from plans prepared by Mr. G. Simpson, the Burgh Architect. The five-story dwelling-house adjoining the present chambers in Charlotte street came into the market, and was purchased by the town for the sum of 2,500l., and during the past year workmen have been busily engaged reconstructing the premises to suit the requirements of the Burgh. No alteration has been made in the elevation, but the most has been made of the interior arrangements. The different departments of the new section, although in communication with the old section, are reached by a separate entrance and by means of a fine staircase. The basement of the building is occupied by offices for the outdoor sanitary staff and the lady sanitary inspector, and on the ground floor are the offices of the Medical Officer and the sanitary inspector. The first floor has been set aside for the Provost's room and a committee-room. On the second floor are a smoking-room and coffee-room. On the top story are two houses for officers. Alterations on the existing council chambers, including a new staircase and the rearrangement of the Town Clerk's department, are also contemplated. Provision has further been made for offices for the weights and measures officials and the Sheriff Clerk, and for seven additional police cells and a new muster-room on the back area of the acquired property. Including the purchase price, the whole alterations when completed will have cost about 12,000l.

**PROPOSED COTTAGE HOSPITAL, LEATHERHEAD.**—It is proposed to erect a cottage hospital at Leatherhead to commemorate the reign of Queen Victoria. Mr. Rowland Plumble, of London, has been engaged by the Committee to prepare plans.

**RESTORATION OF HORTON CHURCH, NORTHUMBRIA.**—On the 3rd inst. the Lord Bishop of Newcastle (Dr. Jacob) reopened the ancient parish church at Horton, which has just been renovated at a family memorial to the late Mr. George Baker Forster. The architects were Messrs. Hills & Charlewood, and the contractors Messrs. Carse.

## MISCELLANEOUS.

**JUNIOR INSTITUTION OF ENGINEERS.**—The Institution of Junior Engineers, the annual dinner of which will be held on the 14th inst. at the Hotel Cecil, will in future be called the Junior Institution of Engineers.

**THE COST OF SCHOOL BUILDINGS.**—The Hon. Lyophil Stanley presiding on Thursday last week over the weekly meeting of the London School Board. The chairman of the Finance Committee (Sir Charles Elliott), in the course of his statement

with reference to the loan estimate for 1903-4, pointed out that during the past ten years there had been very little change in the amount spent on school building; and the anticipation that, as the child population of London had ceased to increase, the indebtedness of the School Board on account of new schools would also stop growing had proved to be fallacious. On the contrary, the Works Department works for ever. The chairman then drew special attention to the rise in the estimated cost per child. In 1894 it had been 15l., while this year it was 30l. The statistic was one of some importance, for it was commonly used—in recent Parliamentary debates, for instance—to indicate the cost of building. The ordinary method was to multiply the number of children in the schools by the assumed average cost per "place." It was, therefore, worth while to examine carefully how the statistic was worked out if it was to be used as a comparative test of the cost of construction. But it was not to be supposed that the whole of the cost was incurred in providing accommodation for 7,997 children, as part of the money was spent on drainage, playgrounds, boundary walls, schoolkeepers' houses, and various other ways. Thus, in the year 1901, contracts were given for fifteen new schools and enlargements, amounting to 210,981l.; and as these schools were to provide accommodation for 7,997 children, the cost per child, including 10 per cent. for furniture and expenses of architect's department, was set down as 30l. But the expenditure of 210,981l. included, besides 153,218l. for school buildings, 7,032l. for centres, and 59,718l. for drainage, playgrounds, &c.; and though room in classrooms and halls for only 7,997 children was arranged for, the cost of the rooms and gymnasia contained additional space for 1,340 children more, or 9,337 in all. Using the number of children thus modified to divide the cost of the building, 153,218l., the corrected cost per "place" was 16l. 8s. 2d., instead of 30l. The figures for individual schools showed that even in 1901 it was possible to construct a school at the rate of 13l. 14s. per "place," and in 1902 a contract was given for a school building at the rate of 12l. 14s. 8d. As long as rates of that kind were adhered to the London School Board could not be accused of building at an excessive cost, in comparison with the expenditure incurred in adjacent districts.

**BLACKLEY HOUSING SCHEME, LANCAIRE.**—The Sanitary Committee of the City Council have prepared a report on the new proposals they make with regard to the Blackley housing scheme. In April, 1901, they were directed by the Council to formulate a scheme for building 203 houses on the Blackley estate of the L. Corporation, and to borrow 60,000l. for this purpose. They prepared a scheme with plans, and a good deal of correspondence and some interviews afterwards took place with the Local Government Board. It was found that the cost of the houses under the proposed scheme would be heavy, and the matter was deferred until after the completion of the L. Corporation's scheme, and to the Corporation, who then prepared plans and afterwards revised them with a view of reducing the cost of the houses. A description of the revised plans is given in the report of the Committee, and it is stated that the Housing Sub-Committee have approved them. It is also stated that the laying out of the necessary roads and the estate is to be done by the Housing Sub-Committee have recommended that application should be made to the Local Government Board for sanction to borrow 10,000l. for making these roads, and their recommendations have been approved by the Sanitary Committee.—*Manchester Guardian.*

**EDINBURGH BUILDING TRADES EXCHANGE.**—At a meeting of the Building Trades Exchange, Ltd., held on the 29th ult., in the rooms, 26, George-street, Edinburgh.—Mr. James Miller presiding.—Mr. James Moscrop, architect, lectured on the housing question in large cities. It was not always the poorest who inhabited slum areas. He had in his own experience in Edinburgh found families with a combined income of from 21 to 51 per week living under the most wretched conditions in the centre of slums. There were, of course, many others who were really poor, but who yet managed to keep a comparatively comfortable and clean house. There was a class of people whom it was almost impossible to house satisfactorily. Some people, placed in a good surrounding would not keep them in a good condition for more than a week or two. In these circumstances, they ought to have some sympathy with the Corporation of Edinburgh in putting up houses which some ratepayers had condemned as byres; he alluded to the so-called model tenements where in the interior was a disgrace. It was probable that the Corporation had in view the class of people whom they had unhoused, and whom they were compelled to house again, and who were not fit to live in properly-equipped dwelling-houses. Discussing the remedy for the problem, he said he did not believe in the taxation of the land, as he did not believe in taxing any commodity which was an absolute necessity for the community. Facilities for travelling to the areas outside of the city were all very well, but if such facilities were given, the result would be to raise the price of the land in such areas. Mr. Moscrop's suggestion was to nationalise the land, and to municipalise it. He would have the municipa



authorities, as opportunity occurred, acquire land in the outlying districts, paying for it, not the owners' price, but the fair market value based on the rental at the time of purchase. The Corporation, claiming that the superiors, would be able to buy the land at reasonable rates. One of the results of that system would be that the streets in those areas could be properly laid out in squares, crescents, and terraces, as had been done in the new town of Edinburgh. The beautiful arrangement of the streets in the new town of Edinburgh was due to the foresight of George Heriot and his governors who, after George Heriot's death, acquired a huge area on which the new town was built. The Chairman said he would like the municipal authorities who built houses to show exactly how much they cost per cubic foot. Mr. Paterson said the Heriot Trust had been referred to. That Trust took the highest price for their ground they could get, just as other people did. With regard to the housing of the poor, he thought they did too much for loafers. Mr. Drysdale said that the Heriot Trust were the greatest sinners in regard to the laying out of narrow streets and high buildings, and he quoted Albert-street as an example. He did not know that they could hope to elevate a man by putting him into a bare, ugly dwelling. They need not give a very fine place, but they might, at least, give a 9-ft. ceiling, plenty of light, and decent walls. As to house farming, the municipalities were themselves the chief sinners, as they farmed out their houses.

**THE LONDON BUILDING ACT (AMENDMENT) BILL.**—The various wards of the City of London are organising a strenuous opposition to the London Building Act (Amendment) Bill, which will be introduced into Parliament next Session. It is not disputed that the calamitous fire in Queen Victoria-street last year, when ten lives were lost, may call for some alterations in buildings with a view to ensuring, if possible, the saving of life; but the proposals now made by the London County Council are regarded as arbitrary. The commercial interests of manufacturers and other persons owning or occupying property in the County of London will, it is said, be seriously affected that it has been decided to ask the Lord Mayor to call a meeting of the citizens at the Guildhall in order that the withdrawal of the Bill may be obtained.

**THE COOPER HEWITT LAMP.**—The British Westinghouse Co. gave recently an exhibition of this novel mercury vapour electric lamp. It consists simply of a vacuum tube containing mercury in a bulb at one end. The length of those exhibited were about 3 ft. or 4 ft. long, and 1 in. in diameter. A special starting switch was used, and the lamps could be run off any pressure of supply between 50 volts and 500 volts. When measured photometrically in the ordinary manner, the efficiency of these lamps comes out very high, but the light they give out is not pleasant. Examined with the spectroscopic, it is seen that it consists of yellow, green, and a few violet rays; the red and the blue being almost entirely absent. All colour values are altered and people's hands and faces appear to have dark patches on them. The inventor has tried to remedy this by using red fluorescent silk which glows when the light falls on it. Although the silk appears red, yet the fluorescent rays given out are not sufficient to alter the general nature of the illumination. It was stated that the absence of red rays might be an advantage in a drawing office as the light was more restful for the eyes. In our opinion, a more practical application of the principle of this lamp was shown in the Cooper Hewitt static converter which was exhibited at the same time. By means of this converter direct current can be got from three phase mains, and when this system of supply is in more general use, many applications will doubtless be made of it.

**INTERNATIONAL FIRE EXHIBITION: CONTINENTAL SECTION.**—A meeting, attended by experts in fire prevention and fire brigade work from all parts of Germany, was held on Monday at Berlin, to decide as to the part to be taken by Germany in the impending International Fire Exhibition. Chief Officer Westphalen, of Hamburg, presided, and was supported by the Chief Officers of Berlin, Bremen, and other cities, as also by Privy Councillor Stubben, President of the Amalgamated Architectural and Engineering Societies; Councillor von Trevendt, of the Building Police, and a number of manufacturers. It was decided that the Ducal Hall of the East's Court Exhibition should be devoted entirely to the German section of fire appliances and fireproofing materials, and a number of firms immediately resolved to exhibit extensively. The chairmanship of the Fire Brigade Section of the German Group will be occupied by Chief Officer Westphalen, and that of the Building Department by Privy Councillor Stubben. There will also be an important German loan section of German works of art, engravings, and fire relics, particularly relating to the great Hamburg fire of 1842.

**FIRES IN OILSHOPS.**—At the meeting of the County Council on Tuesday, the Building Act Committee reported as follows:—"The Fire Brigade Committee reported to the Council on November 19, 1901, that the risk to the arising from fire in oilshops were in their opinion, so great that they thought, having regard to the experience of the past, that the time had arrived when, in the interest of the public, the use as living-rooms or workshops of rooms above or

directly communicating with oilshops should not be permitted without (1) adequate safeguards to prevent the spread of fire from the oilshop to other parts of the premises; and (2) provision of means of ready escape from such premises. The Fire Brigade Committee further stated that they had communicated this opinion to the Building Act Committee, and had asked that Committee to consider the desirability of recommending the Council to seek statutory authority to enable effect to be given to the suggestion. Similar suggestions have at different times been made by some of the Metropolitan Borough Councils, and we think it desirable to indicate briefly the action taken by us on this matter, in connexion with the Bill which is being promoted by the Council in the next Session of Parliament to amend the London Building Act. While this Bill was in preparation we gave careful consideration to the necessity of providing means of escape in case of fire from premises used in part for purposes of trade or manufacture and in part as dwelling-houses. Section 74 of the London Building Act, 1891, deals with this question so far as relates to new premises exceeding ten squares in area, and it appeared to us that by amending the provisions of this section, the suggestions of the Fire Brigade Committee would be met, not only as regards all new oilshops, but also as regards all other kinds of new shops, where the premises, of which the shop forms part, exceed ten squares in area. To extend the application of the Section to existing shops generally would, in our opinion, result in a greater disturbance and injury to trade than the danger from fire seems to justify, but the practicability of extending it to existing oilshops engaged our earnest attention. The statistics, which we were able to obtain from the annual reports of the Chief Officer of the Fire Brigade as to the number of fires, and from the Post Office Directory as to the number of the various kinds of shops, &c., did not, however, in our opinion, afford sufficient ground for taking such a course. For instance, it was found that the percentage of fires, calculated on the average for the six years 1896-1901, was in oilshops, 3.28; in public houses, 2.48; and in drapers' shops, 2.18. As regards the danger from fire in oilshops, it has to be remembered that the special risks which tend to make the danger greater than in other shops can probably be dealt with in the most reasonable and effective manner by the introduction of legislation to give adequate powers of controlling and regulating the storage of inflammable liquids and substance, and we understand that the Public Control Committee are reporting as to the action that it is desirable to take in this direction."

#### LEGAL.

#### ALLEGED INJURY TO BUILDINGS BY TUNNELLING OPERATIONS—IMPORTANT CASE.

THE case of Dawson v. the Great Northern and City Railway Company came before Mr. Justice Ridley and a special jury on the 29th ult., an action brought by the plaintiff, Mrs. Dawson, a widow, carrying on business as a draper in the City-road and East-road, to recover damages from the defendants for injuries to her premises alleged to be caused by the construction of a railway by the company. The defence was a denial that the injuries were due to the operations of the company. Sir Edward Clarke, K.C., Mr. Harry Dobb, and Mr. R. J. White appeared for the plaintiff; and Mr. McColl, K.C., Mr. Geo. Cave, Mr. Hutchinson, and Mr. W. P. Horton for the defendants.

In this case certain members of the jury had a view of the premises under the order of the Court.

Sir Edward Clarke, in opening the plaintiff's case, said that at the end of 1900 his client contemplated rebuilding a block of buildings which belonged to her in the City-road and East-road, of which she was formerly the leaseholder, but of which she subsequently became the freeholder at the price of 10,000l. At the same time she was the leaseholder of adjoining property, which was necessary for the business she carried on, and in regard to the rebuilding she called in a Mr. Mitchell to thoroughly survey the property. The survey commenced in November 1900, at which time there was no structural damage whatever, but in April, 1901, cracks made their appearance in the walls, which indicated that they were the result of something going on underground. Thereupon a letter was written to the defendants, calling their attention to this, and asking if the company had acquired from any one, and, if so, from whom, the right to do any work under the premises. To that the company replied that they would follow their usual course of reinstating the premises to which they caused injury. The correspondence continued, and a careful watch was kept on the premises by the architect and surveyor, whose duty it was to consider the matter, and from that time down to the present the mischief to the premises had been an advancing and increasing one. One extraordinary thing which happened at this time was that, owing to the subsidence of the ground, one of the pillars, instead of supporting the girder, was actually being

supported and held up by the girder. Interviews took place between the representatives of the company and the plaintiff as to the temporary means to be adopted to secure the premises, and those members of the jury who had viewed the premises would understand what was done to avert a serious danger. Subsequently the company were requested to send in a schedule of the work they were prepared to do, and the recommendation of the company was that the cracks should be cut out and the brickwork bonded in. Afterwards the company sent in a schedule, and one was also sent to the company by the plaintiff's architects and surveyors, but no agreement was come to with regard to either of the schedules of the work necessary to be done. On the part of the company, it was suggested that the company had only taken an easement of the land and not the land itself.

His Lordship said he thought it had been held that in constructing a tunnel the persons constructing took the land.

Mr. McColl said that the special Act of the Company specified that the construction of a tunnel would not be taking the land within the meaning of the Lands Clauses Act.

His Lordship said he gathered from the opening that the real point was that of structural damage and how much it would cost to make it good.

Mr. McColl said that that might be one question, but there were a great many others in the case.

His Lordship: But that is the only one for the jury.

Mr. McColl: The first question is whether the tunnelling was the cause of the damage to the premises.

His Lordship: If it was not then you would not be able to claim damages.

Sir Edward Clarke, continuing, said that several most experienced architects and surveyors had examined the premises and prepared specifications of the work necessary to be done. The quantities had been taken out and submitted to Messrs. Patman & Fotheringham, builders, and their estimate of the cost of repairing the damage was 3,057l. The learned counsel submitted that the plaintiff was entitled to that sum, and, in addition, to compensation for the loss she had sustained in carrying on a large business, the turnover of which during the last twelve months was 86,000l.

Mr. Chas. Robt. Mitchell, of the firm of Mitchell & Raine, architects and surveyors, examined, said that in November, 1900, he first inspected the plaintiff's premises, with a view to certain building operations. At that time there were no structural damages, but in April, 1901, he noticed cracks in the party walls, and these increased as time went on. In one case the bottom of a pillar was fractured by a subsidence of the ground, and as it remained hanging by the girder it had to be shored up. At interviews he had with the Company's representatives the Company proposed certain work, consisting mainly of cutting out the cracks and bonding in the brickwork, but not including underpinning. On behalf of the plaintiff he was unable to accept that as adequate. He had made out a schedule of the work absolutely necessary, and that had been sent to the Company, but they would not agree to it. He believed that as the work was opened up further injury would be found, including damage to the foundation of the walls. A sum of 200l. for contingencies was included in the estimate of the cost of the work. To do the repairs in sections, so as to cause as little inconvenience to the business as possible, would take nine months, but if the business was suspended it would take three months.

In cross-examination witness said he had no intimation of what had taken place in the way of alterations before he saw the premises in November, 1900. The premises appeared about forty years old. The foundations were of the usual and ordinary description. When he saw the crack on April 19, 1901, it was an absolutely new one, and was on the third floor in one of the dormitories. He certainly suggested that the crack was caused by the tunnelling operations of the defendant company. He was as certain of that as he was that the subsequent cracks and damage were caused by the work. Not being an engineer he could not say that tunnelling with a shield and efficient "grouting" would prevent subsidence of the land above. If the tunnelling under the wall where he saw the crack was not done until the September following, he would not like to say that the tunnelling caused it, but he could say that the cracks developed as the tunnelling was proceeded with. The greatest amount of damage was undoubtedly done after September, 1901. He was aware that the main sewer near the plaintiff's premises was remade in 1890, but he could not say whether it was, or was not made by means of shafts and tunnels. The sewer was laid in the water-bearing strata above the blue clay, according to the section plan produced. He had not paid any particular attention to the sewer being a probable cause of the subsidence of the plaintiff's property.

The witness, re-examined by Sir Edward Clarke on the 30th ult., said that none of the injuries to the premises was due to any previous alterations or insufficiency of the foundations. When he went over the premises with the jury he found an entirely new crack which he was certain he must



have seen when he examined the property shortly before it had been there then. That indicated that some movement was still going on, but the extent to which it might go he could not predict.

In answer to a member of the jury, the witness said if there were movement in the walls the woodwork and skirting would show signs of it to some extent, and as a matter of fact it showed here that in one room the skirting had moved at least half an inch.

By Mr. McCall: He had paid little attention to the skirting, but as he had said, it had been drawn in one case about half an inch. So far as he knew that was the only case. But it must be remembered that the skirting was bound by the floor, and the wall was not so bound.

Mr. Wm. Woodward, an architect and surveyor, examined, said he was consulted by the plaintiff with regard to her premises in the City-road and East-road, and inspected the property, being supplied with a copy of the specification of the work Mr. Douglas Young proposed to do on behalf of the Company. He considered the Company's proposal was utterly inadequate, and that the tender of Messrs. Patman & Fotheringham was not an extravagant one for the work necessary to be done. He agreed with Mr. Mitchell as to the cause of and the amount of injury done to the premises.

Cross-examined. He first examined the premises in the company of Mr. Mitchell. He generally agreed with Mr. Mitchell and disagreed with Mr. Douglas Young as to the extent of the injuries to the premises. He did not examine the skirting for any movement, because there would only be movement of the skirting if it had been so attached as to substantially form part of the wall.

Mr. Pilditch, an architect and surveyor, gave similar evidence.

Mr. George Frederick Deacon, a civil engineer, examined, said that from 1871 to 1880 he was Engineer to the Liverpool Corporation, and was responsible for the construction of the works necessary to bring to Liverpool the supply of water from Wales. He also constructed the Liverpool main drainage, and had had considerable experience of the effect upon buildings from tunnelling. During the last four years he had constantly observed and inspected the working of tube railways and the results upon buildings that had followed their construction. The construction of the defendants' railway had been executed by the head shield. The carrying of a tunnel through the London clay did in many cases produce mischief to buildings above it. Subsidence was always produced, though visible mischief might not follow. He had examined the plaintiff's premises, and his opinion was that the injuries were due to subsidence, caused by the company's operations, and were not affected by the reconstruction of the main sewer in 1890.

Cross-examined, the witness said that whatever had happened to the plaintiff's premises, he attributed it to the railway. Unless the sewer was water-logged, it would have been impossible for it to have had any effect upon the subsidence of the buildings; and, as a matter of fact, it was not water-logged.

His Lordship: Do the defendants rely upon the sewer in this case?

Mr. McCall: Yes, upon the way it was constructed.

Mr. H. H. Collins, architect and surveyor, and dangerous structure surveyor to the Corporation of London, said he had examined the premises, and considered that a portion was so dangerous that the plaintiff was to blame in allowing customers to go in until precautions were taken to prevent an accident. His opinion was that great damage could be and was caused by the construction of tube railways. He considered that the damage to the premises was due to the construction of the railway and to no other cause.

Cross-examined: He could not say when subsidence would commence, as it might take place any time from twelve hours to twelve months, or even longer.

Mr. Jas. Rush Dixon, Surveyor to the Borough of Shoreditch, explained the making of the sewer passing the plaintiff's premises in 1880, and stated that the soil in which it was carried was perfectly dry. Nothing was done that could possibly cause the subsidence of the plaintiff's premises.

The witness then proved that defendants' operations in the neighbourhood of the plaintiff's premises had injured certain drains and the pavement, and the Company paid for the repairs. Along the line of the railway there had been disturbances, and the Company had from time to time paid for the repairs.

In cross-examination, the witness said the re-making of the sewer was by the workmen in the employ of the local body, and was efficiently done. One of the shafts to enable the men to do the work was opposite the plaintiff's premises, and the precaution was taken of timbering and strutting all excavations in the course of the work.

At this stage the hearing of the case was adjourned till the 4th inst.

On the 4th inst., at the sitting of the Court, Mr. McCall said he admitted the liability of the defendants, but in view of the serious questions raised by the case, and the difficulty of dealing with details of the structural alterations which were

considered necessary by the plaintiff's advisers, he suggested that the proper and reasonable way to deal with the matter was for the amount of compensation to be dealt with by a special referee, whose report should be considered by the Judge at a future date. There was a serious conflict of evidence with regard to the work which was necessary to be done in pulling down walls and underpinning, and a surveyor on the spot could at once decide on questions with which it would be difficult for the jury to deal merely on the evidence of experts. The trade claim must depend upon the amount of repair necessary, the way in which that repair was carried out, and the time the work would occupy. He suggested that his Lordship had power to say that this was a case which should be investigated by a special referee on the spot, who should deal with the question of compensation, reserving the other questions to be dealt with by the Court.

Sir Edward Clarke said that Mr. McCall should have taken up his present position earlier in the proceedings, as the case had involved the plaintiff an enormous expense. He submitted that his Lordship had no power to withdraw the case from the jury now. There was, again, the question of damage to the business, and a surveyor had no special knowledge of that.

His Lordship said he did not think the case came within the Arbitration Act. However, it was too late now to make the order Mr. McCall asked for. They must proceed with the case. The jury had seen the premises, and he considered they were competent to decide whether it was necessary to cut out the cracks or pull down the walls and build them up again. He would make a note that Mr. McCall had admitted liability, and they would proceed with the question of the amount of damages.

The plaintiff's case was then continued, and further evidence given as to the damage caused to the plaintiff's buildings by the subsidence of the land through the defendants' tunnelling operations. Mr. Henry Branch, a quantity surveyor, examined, said he had made an examination of the premises, and had taken out specifications and quantities with a view to repairs. He was of opinion that the cracked walls should be pulled, or partially pulled down, underpinned, and rebuilt. The work would cost £7,711.

Cross-examined: He had no idea what would be the cost of merely cutting out the cracks and rebuilding the walls.

The following gentlemen also gave evidence in support of the plaintiff's case:—Mr. Harry Lovegrove, an architect and surveyor, and the District Surveyor for the Boroughs of Shoreditch and Islington; Mr. Frank Hollis, a quantity surveyor, of Bedford-row, W.C.; and Mr. G. R. Mortimer, estimating surveyor to Messrs. Patman & Fotheringham, builders. This gentleman put the cost of repairs alone at £9,571. Mr. B. Thompson, in the employ of Messrs. Trollope, builders, estimated the repairs at the sum of £4,000.

Mr. Edwin Howell, an accountant, examined, said he estimated that by reason of the interruption of trade by the reconstruction of the plaintiff's premises there would be a loss of trade equal to three months' trading, and a loss of profit of over £4,000, besides that it would be necessary to provide sleeping accommodation for the staff, whose bedrooms had been shattered. The kitchen would also have to be demolished, and the feeding would also have to be done outside. If the business were completely stopped for three months the goodwill would be lost, and the business ruined.

Mr. Richard Cross estimated the loss of net profit at £3,208, and damage to the stock by dust and dirt of the building operations at £1,500. The additional cost of sleeping and feeding the staff would be about £1,000.

The case was proceeding when we went to press.

#### POINT UNDER A REPAIRING COVENANT IN A LEASE.

MR. JUSTICE KEKEWICH, on the 30th ult., concluded the hearing of the case of Wright v. Lawson, an action by the plaintiff, for the recovery of a lease dated February 24, 1888, of a house and shop situated in King's-road, Fulham, against the defendant, the lessee asking that the defendant might be ordered to restore the premises to the condition in which they were when the lease was granted by replacing a bay window which had been removed. It appeared that the lease contained the covenant by the lessee that he would during the term of the lease, as often as occasion should require, to the satisfaction of the lessor or her surveyor, "substantially and effectually repair, uphold, maintain, drain, paint, whitewash, and cleanse the premises for the time being let under this demise." On June 30, 1900, defendant was served with a notice by the defendant's County Council, under the provisions of the London Building Acts, 1894 and 1898, to take down or secure the brickwork of the external walls and bay window (which was on the first floor), so far as it was cracked, bulged, loose, sunk, overhanging, out of the upright, or otherwise defective. The notice also called upon the defendant to demolish the bay window and arch over the back door. The defendant

instructed a builder to comply with the notice, and the window was taken down. As the house was old it was impossible to re-erect the window as it was before without its being condemned as dangerous by the Council, so defendant built a new window set back in the main wall of the house.

Requirement was called to prove that to satisfy the requirements of the Council a new bay window could only be erected by supporting it by two columns from the ground.

In the result his Lordship held that erecting a new bay window supported by columns could not be regarded as the repair of the old bay window, and that defendant was not liable. He accordingly entered judgment for the defendant, with costs.

Mr. Stewart Smith, K.C., and Mr. P. Wheeler appeared for the plaintiff; and Mr. Warrington, K.C., and Mr. Eustace Smith for the defendant.

#### SHOREDITCH ANCIENT LIGHT DISPUTE.

The case of Leage & Hardy v. The Citizens' Property Co., Ltd., came before Mr. Justice Kekewich in the Chancery Division on the 3rd and 4th inst.

In this case the plaintiffs, Richard William Leage and Hester Susan Leage, were the owners in fee simple of premises known as No. 43, Vestmorland-place, in the Parish of St. Leonard, Shoreditch, and of a yard and certain buildings used as a cabinet-maker's workshop and a French polisher's workshop situated in the rear thereof, subject to a lease dated June 9, 1895, whereby the premises were demised to the other plaintiff, George Hardy, for the term of twenty-one years from June 24, 1895. The plaintiffs claimed an injunction to restrain the defendant, their agents, workmen, and servants, from erecting or permitting to remain any building or erection on the north side of Nile-street and the east side of Underwood-street in such manner as to darken, injure, or obstruct any of the ancient lights of the plaintiffs' workshops and premises as the same were enjoyed previously to the taking down of the ancient buildings which previously stood on the defendants' premises.

It appeared that the cabinet-maker's workshop was situated at the northern end of the plaintiffs' premises, and the rooms on the ground floor were lighted by five windows looking south, and the rooms on the first floor were lighted by five windows looking south and also by three skylights in the roof of the building. The total height of the building from the level of the yard to the eaves was about 18 ft., and the total height of the building to the top of the roof was about 26 ft. The French polisher's workshop was the upper floor of a building standing on the west side of the plaintiffs' premises, and was a narrow building partly lighted by windows looking east and partly by three skylights in the roof of the building. The height of the last-mentioned building from the yard level to the eaves was about 16 ft., and the total height of the building to the top of the roof was about 20 ft. The plaintiffs alleged that for more than twenty years immediately prior to the commencement of the action the full and free access and use of light to and for the cabinet-maker's workshop and French polisher's workshop through the windows and skylights in the same had been actually enjoyed by the plaintiffs and by their predecessors in title without interruption over certain other premises in Nile-street and Underwood-street lying immediately adjacent to and on the west or south-west of the plaintiffs' premises. Such adjacent premises were during the whole of the period in part unbuild on, and in part occupied by old low buildings, which were not at any point more than 25 ft. high from the level of the yard. In July, 1902, the defendants pulled down the old buildings situated on the adjacent premises in Nile-street and Underwood-street, and commenced to erect new buildings on the premises. The plaintiffs alleged that such new buildings were situated much nearer to the cabinet-maker's workshop and French polisher's workshop than any of the old buildings so pulled down, and defendants threatened, unless restrained, to erect their new buildings to a height of 54 ft. or thereabouts from the level of the yard. The plaintiffs' case was that, if the defendants' buildings were erected to the intended height, the condition mentioned, it would seriously interfere with the access of light to the windows and skylights mentioned. The main defence was a denial that there had been, or would be, any substantial or material interference with the plaintiffs' light.

Before action the defendants' building had only been raised just above the level of the old building, but the defendants continued the erection of the building with the knowledge of the plaintiffs, who agreed that defendants should continue building up to a certain point, so as not to exceed the 45 deg. angle, but without any agreement that that angle would be accepted by the plaintiffs. The defendants then continued the erection of their building up to a height of 48 ft.

Mr. P. Ogden Lawrance, K.C., and Mr. Alfred Adams appeared for the plaintiffs, and Mr. Warrington, K.C., and Mr. Waggott for the defendants.

The expert witnesses called on behalf of the plaintiffs were Mr. W. Seth Payne and Professor R. Eley Smith. The defendants called Messrs. Fox, Matthews, and Runtz.



After hearing the evidence and the addresses of counsel His Lordship, in giving judgment, said that in cases like this which involved questions of fact the Court had to consider the evidence very carefully. As the judge he had to form the conclusions for himself. He recollected a case in which he inspected the building the light of which was said to be obstructed, and whilst in the rooms he could see no interference with the light until he sat in a chair in front of the window, when he found a very marked shadow was thrown right across the desk. To his mind the evidence of real experience was always more valuable, and he placed more dependence upon it than the evidence of theory by experts. He thought there had been some interference with the light in the present case. The experts for the defendants all admitted that there had been interference with the light, but they said there was abundant light for the plaintiffs' premises. His Lordship had nothing whatever to do with that. The plaintiffs said the light had been interfered with from a particular quarter, and that was admitted. It might be that that quarter was not the most valuable quarter, but it was valuable for the purposes of light at certain particular hours of the day. In this case there could be no doubt that if the light coming from the south-west was interfered with, that would cause serious injury to the plaintiffs, and they were entitled to be protected. As to the workshop, no doubt some of the witnesses had exaggerated the loss of light, but he looked upon every one of them as honest men coming to support the view of the plaintiffs, and with no intention to say anything but what was straightforward and true. They gave him distinct evidence as to the interference with the light there. In the French polisher's shop he was told that the fine work which had to be done there was interfered with, and that, by reason of the defendants' building, the workmen lost a large part of the light on winter afternoons. The result was that the plaintiffs had cause to complain of the defendants' buildings as they stood, and if they were allowed to go up 8 ft. higher, that would speak for itself. There must be an injunction to restrain any further raising of the building. When the writ was issued there was no interference at all, or very little, and he thought, on the balance of evidence, that as the building had been raised then it was just above the level of the old building, but the erection of the building had been continued. It had been continued without the slightest blame to the defendants. They went on with the cognisance of the plaintiffs' architect, who was agreed that they should continue up to a certain point to exceed an angle of 45 deg., but without any agreement that it should be accepted. The defendants worked on at their own risk. It was not suggested that there had been any breach of faith on either side. The defendants chose to do what they thought was most convenient for themselves, and they must take the consequences. He thought there must be an injunction as regarded the future, and a mandatory injunction as regarded what was up. He was afraid he could not avoid leaving it open on the order what would or would not interfere so as to be a material interference with the plaintiffs' light. The injunction must go in the ordinary form, and the question of what was interference must, it occasion should arise, be determined to that unfortunate proceeding, a motion for committal.

After some discussion it was arranged that there should be no motion for committal before Trinity sittings.

Mr. Lawrence assured Mr. Warrington that he would find the plaintiffs very reasonable in the matter. They were in the hands of very competent experts.

## PATENTS OF THE WEEK.

### APPLICATIONS PUBLISHED.\*

1,721 of 1902.—J. PARKER: *Domestic Fire Grates and Cooking Ranges.*

A fireplace formed by the combination of a fixed block with shelves for an iron grid or grate to rest on; a transverse front slab or brick, a portable fire brick or bricks resting on the grid, and a hot-air chamber formed below the grid.

2,106 of 1902.—E. BOSWORTH: *Chimney and Ventilating Cowl.*

This consists in the combination with a chimney cowl of a ball race adapted so as to enable the bonnet to rotate freely about the cowl.

778 of 1902.—M. LEE ROSS: *Burner.*

A burner for gas stoves and the like, in which the top part of the mixing chamber is insulated from the main body or lower part thereof, and is provided with an upward protruding cone.

2,226 of 1902.—J. BOWLER: *Fire Bricks and Fire Lumps.*

This consists in the use of dust-destructor or other furnace gases mixed with Stourbridge clay for making fire bricks and fire lumps.

2,605 of 1902.—O. C. BURDEN and T. F. ADAMS: *Latch Locks.*

A latch, characterised by a slotted axially turning

cylinder, which carries a key actuated tumbler and is located at a right angle to the bolt, and a finger connecting said cylinder and bolt together.

9,322 of 1902.—H. H. LAKE (F. J. Warren): *Manufacture of Coal Tar Compositions and Pitch.*

This invention relates to coal tar and its products such as paving compositions, pitches, and the like, for use in roofing, paving water-proofing, insulating, or for any other purpose for which coal tar or its products may be used. The invention is based on the discovery that a tar or pitch that consists of nearly pure bitumen is more subject to changes of temperature than one which is relatively an impure bitumen, that is, it will flow easier when warm and will be more brittle when cold than a tar or pitch which is not pure. This property of not being easily affected by extremes of temperature is especially desirable for use for roofing purposes, and for similar purposes when the tar composition is subjected to the action of the elements. It has been discovered that a tar which contains more than 20 per cent. to 25 per cent. of lamp black when used for making roofing felt, will not saturate the dry felt well, and will leave a sticky surface, which causes wastage of the manufactured product, owing to the different layers of felt in the rolls adhering to each other, and on account of not saturating the felt thoroughly, makes an inferior roofing paper, and one which is expensive to make. By mixing with this tar one which will reduce the impurities below the limit given the tar will saturate the paper thoroughly, leaving a comparatively non-adhesive surface, and making the felt weigh more than if the saturation was not thorough. It has also been found that if roofing pitch be made containing 35 per cent. to 40 per cent. of lamp black its adaptability and life is greatly increased. Paving composition may contain as high as 50 per cent. of these impurities and greatly increase the value of the composition from which it was made. An insulating composition may contain from 40 per cent. to 60 per cent. of lamp black. The invention contemplates the addition of this finely divided inert matter to tars or compositions either during the manufacture of the crude tar, to the crude tar itself, or to the products of the tar during or after their manufacture. This may be accomplished in several ways: the amount of lamp black which may form during production of the tar may be regulated by varying the shape of the retort, or by varying the methods of making the gas, or the heat at which the retorts are held during its manufacture without materially affecting the other products of distillation. It may be introduced into the crude tar in bulk, and effecting a mixture by means of agitation, or it may be introduced by carbonising oil, and forcing the lamp black laden air resulting therefrom into a mass of tar or composition, the lamp black mixing with the tar, during its passage through it.

2,996 of 1902.—D. J. G. MILLER: *Door-closing Device.*

This consists in combination, a door-closing spring controlling a swinging cylinder by means of a lever and crank, a check spring, and a piston and rod within the cylinder, the piston being arranged to compress the check spring when the door is closing; a knuckle joint, formed by said piston-rod and a rod connected with the door, and means for stiffening or strengthening said knuckle, forming a door-closing device.

3,017 of 1902.—F. B. YOUNG: *Kitchen Ranges and other Fire Grates.*

A kitchen range or other fire-grate having an adjustable front made in portions jointed together; said portions being guided in their movements by means of guide grooves or slots or the equivalent thereof.

3,851 of 1902.—T. KIRKLAND: *Radiators for Heating and Cooling.*

This invention relates to heating and cooling apparatus of the kind known as swinging radiators, which are pivotally supported or hinged at one end, so as to be capable of swinging in a horizontal or other plane, and the said invention has for its object to increase the efficiency of such apparatus, and prevent or reduce the liability of leakage of the heating or cooling circulating fluid at the pivoted joints. According to the said invention, one end of the radiator is hinged at the upper and lower parts thereof to a wall, bracket, or other support, by means of pivots or elbow-joint connections. The upper connexion serves merely as a hinge to carry the weight of the radiator, whereas the lower one serves both as a hinge and also as the inlet and outlet for the circulating fluid. To this end the lower connexion has suitable ports and passages formed in it. These ports may be arranged to be opened more or less by the movement of the radiator, so that the circulation—and therefore heating effects of the radiator—can be controlled, or even cut off completely, by turning the latter into different positions.

3,994 of 1902.—W. FRADLEY: *Cisterns, or Tanks and Taps connected therewith, for Flushing Water-closets and the like.*

A flushing apparatus, consisting of a cistern or tank, a water-supply valve in the tank, a weighted lever adapted to open or close the valve, a float mounted on an arm inside the tank and arranged to support the lever in the open position during the filling of

the tank, but when the tank is full to liberate the lever to close the supply-valve, and an operating lever adapted to raise the dome for flushing the tank, and also to raise the valve lever on to its supporting arm.

4,381 of 1902.—W. PEARSON: *Chimney Cowl.*

A chimney cowl having two or more superposed cone frusta, each composed of a series of concavo-convex plates, and arranged with air spaces between the upper end of one frustum and the lower end of the superposed frustum, and with diametrically opposite spaces between the concavo-convex plates.

4,643 of 1902.—F. W. BRAND: *Tables, Desks, Cabinets, and the like.*

This invention relates to tables, desks, cabinets, and the like of the kind wherein folding flaps or leaves form the top and in which a movable platform automatically rises and takes the place of the flaps when they are turned outwards to extend the table or the like. It consists in the use of a number of inclined grooves or slots for guiding the rising and falling platform in combination with studs on the edges of the said platform which ride in the said inclined grooves or slots.

4,713 of 1902.—C. PEGRAM: *Roof Tiling.*

This consists in the combination with tiles having wedge-like keys, or ribs, of laths having edges made to correspond therewith.

5,354 of 1902.—P. GIOLITTI, C. BONATI, and R. GATTONI: *Extendable Tables.*

A table composed of four separate sections, each capable of sliding radially on the table frame, in combination with three folded sleeves hinged on such frame in the same horizontal plane, and in the positions to fill the spaces between the sections when extended and when the leaves are turned on their hinges and opened out, one leaf being long enough to fill the space from the centre to the outer edges of the extended table in one direction and the other two each long enough to respectively fill one of the spaces between the first extension leaf and the edge of the extended table in the opposite direction.

8,435 of 1902.—M. J. ADAMS: *Syphons and Syphonic Apparatus.*

One of the chief objects of this invention is to cause syphons or syphonic apparatus to operate in sequence. With this view it is preferred to arrange that the discharge from one or more syphons shall deliver liquid to one or more syphons through or by suitable connexions of a series. That syphon which has not its trap filled will start first. By means of suitable pipes or connexions it is arranged to refill traps or syphons, and the latter may be placed in one tank or in any number of tanks.

18,670 of 1902.—J. W. CZERNAK and J. TISCHLER: *Latches.*

A latch-releasing device comprising, in combination, a door-frame, a door, keepers secured to the lintel and the threshold of said frame, bell cranks, pivoted near the top and bottom of the door and provided with a shoulder adapted to automatically engage the keepers, a spring, adapted to hold said bell cranks in operative position, a shaft, formed in one piece and to each other, and to the frame, by means of suitable pipes or connexions it is arranged to refill traps or syphons, and the latter may be placed in one tank or in any number of tanks.

18,897 of 1902.—J. FRANKEN: *A Collapsible Protecting Device for Closet Seats.*

A collapsible protecting device for use with water-closet seats, consisting of a number of telescopically connected segments, so arranged that when desired the device can be opened out so as to fit on the closet seat, or closed up into small compass for portability.

23,958 of 1902.—A. SCHULER: *Manufacture of Painted and Burnt Glass for Paving or other Mural and like Decorative Purposes.*

A process for manufacturing painted and burnt glass for mural decorations, paving, and other decorative purposes, consisting in taking glass after the colour has been fired in, and burning into the back thereof rough particles of suitable materials, such as sand, fragments of stone, plaster of Paris, glass, or the like, which readily adheres to the adhesive medium employed for securing the glass in position.

20,423 of 1902.—H. BROCKER: *Machine for the Manufacture of Artificial Stones, Tiles, and the like.*

A machine for the production of figured artificial stones, tiles, or the like, which by means of a carriage moving backwards and forwards on the machine frame effects in a single working course, quite automatically, the filling of the mould carriage, the pushing of the material in the mould, the pressing in and compression of the material to be moulded, as well as the strutting and smoothing down of the colour on the surfaces of the stones, and likewise the subsequent ejection of the finished stone, the mould carriage moving under a filling-box, and being filled by the material, and when moving forwards carrying with it a slide which closes the bottom of the filling-box; the carriage after leaving the filling-box passing under a rapidly rotating pushing cylinder, and being carried towards

\* All these applications are in the stage in which opposition to the grant of a Patent upon them can be made.



the pressing cylinder, the material being thus preliminarily pressed, whereas the machine is reversed, the mould carriage passing under the pressing cylinder in the opposite direction, after which the machine is again reversed to pass the pressing cylinder once more, whereupon the surfaces of the stone are coloured by means of the colour-strewing device, and the colour smoothed by the smoother, the paving stone being finally ejected by means of the movable plate.

20,492 of 1902.—H. BIRKBECK (Mielck's Stone and Terra Cotta Co.): Artificial Stone and Process for Making the Same.

The process of making the artificial stone, which consists in intimately mixing sand, burnt magnesia, and a concentrated solution of magnesium chloride, tamping the mass into shape, and confining the thus compacted mass at all sides during the resulting slow reaction.

412 of 1902.—W. H. PATTON and W. H. KNOKE: Kilns for Burning Bricks and the Like.

A kiln, consisting of the structure having a base with opposite furnace thereto, which are separated from each other, said base being provided with a plurality of flues in communication with the furnaces, an outer wall rising from the base and connected to a crown or top arch, an inner wall concentric with the outer wall, and having a flue between the same and the latter, the said inner wall forming a burning chamber, and rising only partially the extent of the outer wall, and having a floor wall with opposite flue slots, the said burning chamber occupying the full interior portion of the kiln, and a stack rising from the centre of the said floor-wall of the burning-chamber, and extending upwardly through the crown or top arch, and provided with outlet openings solely at the lower and thereof above the plane of the said floor-wall, whereby the heat will be caused to pass upwardly over the inner wall in part, and downwardly through the burning-chamber, and exit at the bottom of the stack.

1,600 of 1902.—E. T. CLARKE: Gauges or Appliances for Measuring the Thickness of Cast Iron Pipes and for Similar Purposes.

This consists in the combination with a tubular or other pivotal supporting frame adapted to stand upon the article to be measured, or on a support adjacent thereto, and to project along the inner and outer surfaces of the same; of a measuring beam or lever adapted to give a direct and accurate indication of the thickness or other required dimensions.

## MEETINGS.

FRIDAY, FEBRUARY 6.

*Architectural Association*.—Paper by Professor G. Baldwin Brown, M.A., entitled: "What is the Real Value of Greek Work to the Modern Artist?" 7.30 p.m.  
*Royal Institution*.—Right Hon. Sir H. Maxwell, Bart., on "George Romney and his Works." 9 p.m.  
*Institution of Junior Engineers* (at the Westminster Palace Hotel).—Mr. W. Garnet Wernham on "Calorimetry." 8 p.m.  
*Birmingham Architectural Association*.—Paper by Mr. J. S. Gibson.

SATURDAY, FEBRUARY 7.

*Sanitary Inspectors' Association*.—Twentieth Annual Dinner, Venetian Chamber, Holborn Restaurant. 6.30 p.m.  
*The Craft School* (137, Globe-road, Bethnal Green).—Miss C. E. Cole on "The Occupations of our Great Grandmothers." 8.30 p.m.  
*British Institute of Certified Carpenters*.—Visit to the London-wall Estate Buildings. 3 p.m. After which the monthly meeting will be held in the Carpenters' Hall at 6 p.m.

MONDAY, FEBRUARY 9.

*Surveyors' Institution*.—Mr. William Woodward on "Some of the Difficulties which present themselves to the Architect and Surveyor practising in London." 8 p.m.  
*British Society of Architects*.—Mr. F. Guy Dawber on "The Buildings of the Cotswolds." 8 p.m.  
*Royal Philosophical Society of Glasgow* (Architectural Section).—Mr. Alexander Fisher on "Enamelling and Silversmithing." 8 p.m.  
*Society of Arts* (Lecture).—Mr. Julius Höber on "Paper Manufacture." 11. 8 p.m.

TUESDAY, FEBRUARY 10.

*Institution of Civil Engineers*.—Mr. D. Carnegie on "The Manufacture and Efficiency of Armour-piercing Projectiles." 8 p.m.

WEDNESDAY, FEBRUARY 11.

*Architectural Association Discussion Section*.—Mr. G. Trotman on "Waltham Abbey." 7.30 p.m.  
*Sanitary Inspectors' Association*.—Discussion on "Shortage of Water available for Supply" to be opened by Mr. W. Whitaker, B.A., F.R.S., F.G.S. The Chair will be taken at 8 p.m. by Sir Alexander Binnie, M.Inst.C.E.  
*Institute of Sanitary Engineers, Ltd.*.—Examination and Literary Committee, 4 p.m.; General Purposes and Finance Committee, 4 p.m.; Election Committee, 5.15 p.m.  
Mr. J. Freebairn Stow on "The Biological Treatment of Sewage: Some Facts and Figures compiled from Three Years' Practical Working of Bacteria Beds." 7 p.m.  
*Edinburgh Architectural Association*.—Mr. J. A. Arnot on "The Treatment of Angle Sites," illustrated by limelight views. 8 p.m.  
*Dover Institute*.—Paper by Mr. J. Bavington Jones entitled "Something about our Villages." 8 p.m.  
*Society of Arts*.—Mr. B. W. G. Binns, M.A., on "The Port of London." 8 p.m.

THURSDAY, FEBRUARY 12.

*Architectural Association of Ireland*.—Demonstration on "Iron Ore" at W. Works of Messrs. J. & C. McLaughlin, Great Brunswick-street, Dublin.  
*Leeds and Yorkshire Architectural Society*.—Annual Dinner, Queen's Hotel. 7 p.m.  
*Manchester Society of Architects*.—Paper by Mr. Hugh Stannus.  
*Institution of Electrical Engineers*.—If the adjourned discussion on "The Metric System" is concluded at the meeting the 5th inst., the adjourned discussion on Messrs. Scott and Esson's papers will be taken. 8 p.m.

FRIDAY, FEBRUARY 13.

*Institution of Civil Engineers* (Students' Meeting).—Mr. H. A. Bartlett on "The Construction and Setting-out of Tunnels in the London Clay." 8 p.m.

SATURDAY, FEBRUARY 14.

*Junior Institution of Engineers*.—Eighteenth Anniversary Dinner, at the Hotel Cecil. The President, Colonel E. Raban, C.B., R.E., in the chair. 7 p.m.

## SOME RECENT SALES OF PROPERTY:

### ESTATE EXCHANGE REPORT.

January 22.—By GRIMLEY & SON (at Birmingham).  
Olton, Warwick.—St. Bernard's-rd., Stretton Farm, 22 acres, f., y.f. 90l. £2,250  
By BAXTER, PAYNE, & LUTHER (At Bromley).  
Bromley, Kent.—20 to 26 (even), Newbury-rd., f., w. 9.5, g. 12. 1,200  
January 21.—ELLIOTT, SON, & BOYTON.  
Cavendish-square.—58, Harley-st., u.t. 51 yds., g. 40l., y.f. 235l. 1,310  
By LEOPOLD FARMER & SONS.  
Kilburn lower-rd., u.t. 56 yds., g. 11l., y.f. 55l. 480  
Maida Vale.—248, Portdown-rd., u.t. 73 yds., g. 10l. 10s., e. 15s. 595  
St. John's Wood.—115, Clifton-rd., u.t. 38 yds., g. 15l. 4s., y.f. 80l. 600  
By MAY & PHILPOT.  
Streatham.—35, Streatham-hill, u.t. 21½ yds., g. 12l., e. 8l. 630  
By MULLETT, BOOKER, & CO.  
Hyde Park.—12, Lancaster-gate, f., p. 4,150  
By HOLCOMBE, BETTS, & WEST.  
St. John's Wood.—31, Queen's-rd., u.t. 34 yds., g. 12l. 10s., y.f. 70l. 750  
By A. SAVILL & SON.  
Homerton.—High-st., The Adam and Eve p.h., g. 1, e. 1, reversion in 70 yrs. 2,700  
Ashenden-rd., f.g. 18l., reversion in 78 and 73 yrs. 490  
Roding-rd., f.g. 27l. 10s., reversion in 89 yrs. 5,800  
Chelmer-rd., f.g. 5l., reversion in 71 yrs. 135  
Ashenden-rd., f.g. 57l., reversion in 71, 79, and 82 yrs. 1,495  
Durrington-rd., f.g. 92l. 5s. 6d. (increasing to 126 l. in 197), reversion in 71 yrs. 3,220  
Durrington-rd., f.g. 39l., reversion in 83 and 84 yrs. 1,000  
Colne-rd., f.g. 97l., reversion in 91 yrs. 1,030  
Marsh Hill, f.g. 5 3d. 4s. (increasing to 74 l. in 197), reversion in 71 yrs. 1,335  
Pincey-rd., f.g. 84 l. 15s. (increasing to 186 l. in 197), reversion in 71 yrs. 1,335  
Daubeny-rd., f.g. 46l., reversion in 80 and 88 yrs. 1,280  
January 27.—By ANSCOMBE & RINGLAND.  
Regent's Park.—34, Avenel-rd., and 8, Regent's-mews, u.t. 34 yds., g. 22l., p. 2,400  
By CRAWFORD, HARRIS, & CO.  
Croydon.—Handcroft-rd., The Cannon, p.h., a freehold rental of 21l., reversion in 49 yrs. 710  
By NIGHTINGALE, PULFORD, & PAGE.  
Kilburn.—88, Clarendon-rd., u.t. 49 yds., g. 5l. 1s., w. 62l. 8s. 320  
11, 13, and 15, Cluppensham-gdns., u.t. 62½ yds., g. 15l., w. 12l. 14s. 320  
By RUTLEY, SON, & VINE.  
Kentish Town.—44, Raglan-st., u.t. 21½ yds., g. 5l., e. 32l. 205  
Paddington.—Furnhead-rd., f.g. 5s. 8d., u.t. 60 yds., g. 40l. 705  
Kentish Town.—Leventon-st., f.g. 21l., u.t. 7 yds., e. 5l. 265  
By SALTER, REX, & CO.  
Kentish Town.—10 and 14, Wille-rd., u.t. 18½ yds., g. 4l., y.f. 87l. 690  
By E. SIMPSON.  
Old Kent-rd.—55, Trafalgar-rd., u.t. 23 yds., g. 14 5s., y.f. 34l. 175  
Peckham.—186 and 188, St. George's-rd., u.t. 60 yds., g. 7l., w. 57l. 4s. 475  
Deptford.—68, Rolt-st., u.t. 60½ yds., g. 5l., w. 31l. 16s. 300  
By FREDERICK WARMAN.  
Barnsbury.—48, 50, 56, and 58, Westbourne-rd., u.t. 57 yds., g. 30l., e. 1, 192l. (in one lot) 1,800  
Highbury.—27, Highbury-square, u.t. 4½ yds., g. 11l. 17s., e. 111l. 780  
Canonbury.—45, Canonbury-pk. north, u.t. 3½ yds., g. 5l. 10s., e. 58l. 450  
Canal End.—20, Park-lane, u.t. 23 15 36, g. 8l. 8s., e. 54l. 450  
9, Elder-av., u.t. 79 yds., g. 12l. 12s., e. 65l. 690  
Horley, Surrey.—Picket's Land, Colley Haw, and 10, w. 50 l. p. 300  
By BRADY & SON (at Manchester).  
Ashton-on-Mersey, Cheshire.—Ashford Old Hall Farm, 17½ a. 3 r. 32 p., f., y.f. 317l. 3s. 4d. 7,700  
Canal End.—20, Park-lane, u.t. 23 15 36, g. 8l. 8s., e. 54l. 450  
Grismore Bank Plot, 4 a. 3 r. 33 p., u.t. 99½ yds., g. 11l. 17s., e. 111l. 780  
January 28.—By JOHN FORT & SONS.  
Herne Hill.—15, Dulwich-rd., f., y.f. 45l. 765  
By DYER, SON, & HILTON.  
Lee.—Leyland-rd., &c., f.g. 40l., u.t. 61 yds., g. 12l. 150

By ELLIS & SON.

City of London.—1, Cross-lane, area 330 ft. f., p. 1,530  
Whitechapel-rd.—No. 203 (S), u.t. 250 yds., g. 11l., y.f. 80l. 1,550  
Westbourne Park.—62, Westbourne Park-villas, u.t. 23½ yds., g. 3l., p. 500

By GRAVES & SON.

Westbourne Park.—45, Cornwall-rd., u.t. 57 yds., g. 13l., e. 69l. 430  
Notting Hill.—147 and 149, Leadbury-rd., u.t. 57 yds., g. 20l., e. 120l. 625

By T. D. PEACEY.

Battersea.—3 and 5, Savona-st., (S), f., w. r. 500  
Poynette-rd., f.g. 42 3s., reversion in 76 yrs. 100

By R. TIDY & SON.

Leytonstone.—3, 4, and 5, Chester-ter., (with shop and workshop), u.t. 94½ yds., g. 14l., w. 50l. 49s. 595  
De Beauvoir Town.—24, Southgate-rd., u.t. 69½ yds., g. 11l. 10s., e. 44l. 430

By SWAN WOODCOCK (at Stratford).

Stratford.—6, Water-lane (S), f., y.f. 334 500  
West Ham.—12, 15, Park-rd., f., w. 57l. 45l. 700  
Leytonstone.—2, Vernon-rd., u.t. 87 yds., g. 5l., e. 32l. 330

January 29.—By C. RAWLEY CROSS & CO.

Hammersmith.—4, Kytell-cres., f., e. 1, 50l. 795  
Acton.—45, Alfred-rd., u.t. 74 yds., g. 9½, y.f. 40l. 485

By DRIVER, JONES, & CO.

City of London.—Leadenhall-st., f.g. 150l., reversion in 42½ yrs. 5,300  
By MARLER & CO.  
Kensington.—20, 21, 22, and 23, Kensington-pl. u.t. 46½ yds., g. 21l., w. 179l. 6s. 1,450  
1, Metton-rd., u.t. 20 yds., g. 6l., e. 6l. 400

By NOTT, CARTWRIGHT, & ETCES.

Balham.—23 and 25, Kossiter-rd., u.t. 74 yds., g. 16l., y.f. 62l. 500  
By MORGENTHAU RICHES.  
Wandsworth.—24 and 26, Bramfield-rd., u.t. 85 yds., g. 14l., y.f. 72l. 720

Battersea.—1, 9, 11, 13, and 17, Foxmore-st., u.t. 75 yds., g. 30l., y.f. 171l. 11s. 1,600

143 and 145, Mayrick-rd., (S), and 1, New-comen-rd. (S), u.t. 64½ yds., g. 15l., w. 71l. 500

By ROBINS, GORE, & MERCER.

Euston-road.—Nos. 399 and 394; also 13, Edens-st. (shops, workshops, &c.), u.t. 23 yds., g. 1, 350l., e. 476l. 16s. 2,000

By WM. STEVENS.

Putney.—Disraeli-rd., Violet Villa, f., p. 800  
Walthamstow.—36, Cornhill-lane, u.t. 80 yds., g. 3l. 5s., w. 31l. 4l. 810

By WESTMORE & YOUNG.

Penge.—9, Avington-av., u.t. 60 yds., g. 8l., e. 33l. 295  
By C. P. WHITELY.  
Dalston.—23 and 25, Culford-rd., u.t. 2½ yds., g. 10l., e. 74l. 505

By HERRING, SON, & DAW.

Brixton.—29 and 31, Upper Tulse Hill, y.f. 71l.; also 13, 15, 17, 19, and 21, Gladstone-rd., u.t. 23 yds., g. 1, 1,500

By R. B. BOSTOCK (at Stratford).

Upton Park.—2, 4, and 6, Crescent-rd., f., w. r. 53l. 600  
3 and 5, Crescent-rd., f., w. 53l. 410

By G. H. HEAD & CO.

St. John's Wood.—16, Queen's-rd. (S), u.t. 16 yds., g. 10l. 10s., y.f. 65l. 335

By ROBERT REID.

Mayfair.—9, Chesterfield-rd., u.t. 83½ yds., g. 10l., y.f. 25l. 8,520  
By REYNOLDS & EASON.  
Walthamstow.—35 to 43 (odd), Springfield-rd., u.t. 89 yds., g. 17l. 10s., w. 104l. 600  
24, 46, 48, 50, 52, and 54, Gladstone-rd., u.t. 89 yds., g. 32l., w. 169l. 16s. 1,020

By E. & S. SURRY.

28l., u.t. 166l. 8s. 990  
Camden Town.—60, Arlington-rd., f., w. 74l. 2s. 840  
Holloway.—41, Portnam-rd., u.t. 5½ yds., g. 6l., e. 34l. 350

By R. B. BOSTOCK.

Contractions used in these lists.—F.g. for freehold ground-rent; l.g. for leasehold ground-rent; f. for improved ground-rent; g. for ground-rent; t. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e. for estimated rental; w. for weekly rental; q. for quarterly rental; y. for yearly rental; u. for unexpired term; p. for per annum; y. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; h. for best-house; p.h. for public-house; o. for offices; s. for shops.

## PRICES CURRENT OF MATERIALS.

\* Our aim in this list is to give, as far as possible, the average prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

### BRICKS, &c.

	£ s. d.		
Hard Stocks	1 14 0	per 1,000 alongside, in river.	
Rough Stocks and			
Grizles	1 11 0	"	"
Facing Stocks	1 12 0	"	"
Shippers	2 5 0	"	"
Flettons	1 7 6	"	at railway dep't
Red Wire Cuts	1 12 0	"	"
Best Fareham Road	3 12 0	"	"
Best Red Pressed		"	"
Ruabon Facing	5 0 0	"	"
Best Blue Pressed		"	"
Staffordshire	4 5 0	"	"
Do. Bullnose	4 11 0	"	"



## PRICES CURRENT (Continued).

## BRICKS, &amp;c.

£ s. d.

Best Stourbridge		4 s. d.			
Fire Bricks	4	8	0	per 1,000 at railway depot.	
GLAZED BRICKS.					
Best White and Ivory Glazed					
Stretchers	13	0	0	11	11
Headers	12	0	0	11	11
Quoins, Bullnose, and Flats	17	0	0	11	11
Double Stretchers	19	0	0	11	11
Double Headers	16	0	0	11	11
One Side and two Ends	19	0	0	11	11
Two Sides and one End	20	0	0	11	11
Spays, Chamfered, Squints	30	0	0	11	11
Best Dipped Salt Glazed Stretchers and Headers	12	0	0	11	11
Quoins, Bullnose and Flats	16	0	0	11	11
Double Stretchers	15	0	0	11	11
Double Headers	14	0	0	11	11
One Side and two Ends	15	0	0	11	11
Two Sides and one End	15	0	0	11	11
Spays Chamfered, Squints	14	0	0	11	11
Second Quality					
Whitened Dipped Salt Glazed	2	0	0	less than best	
Thames and Pit Sand	7	0	0	per yard, delivered	
Thames Ballast	6	0	0	per ton, delivered.	
Best Portland Cement	30	0	0	per ton, delivered.	
Best Lime	21	0	0	per ton, delivered.	
Note.—The cement or lime is exclusive of the ordinary charge for sacks.					
Grey Stone Lime	12s.	6d.	per yard, delivered		
Stourbridge Fire-clay in sacks	27s.	6d.	per ton at rly. depot		

## STON

s. d.

Ancestor in blocks	....	x	xx	per ft. cube, deld.	fly.	deput
Bath	..	....	x	7	33	33
Fairleigh Down Bath	..	....	x	8	33	33
Bees in blocks	....	x	6	33	33	33
Grinsbill	....	x	10	33	33	33
Crown Portland in blocks	2	2	2	33	33	33
Darley Dale in blocks	..	2	4	33	33	33
Red Corsehill	..	2	5	33	33	33
Closeburn Red Freestone	2	0	33	33	33	33
Red Mansfield	..	2	4	33	33	33

*Hood Quality*

s. d.

Frappled random blocks	0	10	per ft. cube, deld. rly. depdt.
1 in. sawn two sides	landings	to sizes (super	
40 ft. super) .....	2	3	per foot super. "
1 in. Rubbed two sides			
Ditto, Ditto .....	2	6	" "
1 in. Sawn two sides			
slabs (random sizes). 0	1 1/2		" "
2 in. to 2 1/2 in. Sawn one			
sides (random			
sizes) .....	0	7 1/2	" "
1 in. to 2 in. ditto, ditto	0	6	" "
Barst. HALL, YONGE			
Scrapped random blocks	3	0	per ft. cube. "
1 in. sawn two sides			
landings to sizes (under			
40 ft. sup) .....	2	8	per ft. super. "
1 in. Rubbed two sides			
Ditto .....	—		" "
3 in. sawn two sides			
slabs (random sizes) x	2		" "
2 in. self-faced random			
lags. ....			
Hopson Wood (Hard Bed)	1	2	3 per ft. cube. "
1 in. 6 in. sawn both			deld. rly. depdt.
sides landings	2	7	per ft. super.
" " " " " "			deld. rly. depdt.
" " " " " "	3	in. do.	1 1/2 " "

## SLATES

£ s.

20	x	10	best blue Bangor...	13	2	6	per 1000 of 1200 at try.dep.		
20	x	12	11	31	11	13	17	6	
20	x	10	best seconds	12	12	15	0		31
20	x	12	11	31	31	13	10	0	31
20	x	16	8	best	7	0	0		31
20	x	16	best blue Portma-						
			doc	11	12	5	0		31
16	x	8	best blue Portmadoc	6	0	0			31
20	x	10	best Eureka un-						31
			fading green...	15	0	0			31
20	x	12	11	31	16	10	0		31
16	x	10	11	31	11	10	0		31
16	x	8	11	31	8	7	6		31
20	x	10	permanant green	10	10	0			31
16	x	10	31	31	9	0	0		31
16	x	8	31	31	6	5	0		31

TILES.

S.

Best plain red roofing tiles	48	per 1,000, at 7½ p. depot.	
Hip and valley tiles	3	per doz.	
Do. Ornamental tiles	50	per 1,000.	" "
Do. Ornamental tiles	52	" "	" "
Hip and valley tiles	3	" "	" "
Best Rubicon Red, brown or brindled Do. (Edwards)	57	6 per 1,000.	" "
Do. Ornamental Do.	50	" "	" "
Hip tiles	4	" "	" "
Valley tiles	3	0	" "
Best Red or Mottled Staf- fordshire Do. (Peakes)	51	9 per 1,000.	" "
Do. Ornamental Do.	54	" "	" "
Hip tiles	4	1 per doz.	" "
Valley tiles	3	8	" "
Best "Rosemary" brand plain tiles	48	0 per 7,000.	" "
Do. Ornamental Do.	50	" "	" "
Hip tiles	4	0 per doz.	" "
Valley tiles	3	8	" "

## PRICES CURRENT (Continued).

WOOD.

4 3

Deals: best 2 in. by 1 in. and 4 in. by 6 in. and 11 in. ....	15	0	s. d.	10	s. d.
Deals: best 3 by 9 in. ....	14	10	0	15	10
Battens: best 2 in. by 7 in. and 8 in., and 3 in. by 6 in. and 8 in. ....	11	10	0	12	10
Battens: best 2½ by 6 and 3 by 6 in. 7 in. and 8 in. ....	0	10	0	less than	
Deals: seconds ..... Battens: seconds ..... 2 in. by 4 in. and 3 in. by 6 in. 2 in. by 4½ in. and 2 in. by 5 in. Foreign Sawn Boards— 1 in. and 1½ in. by 7 in. ....	10	0	0	less than	
3 in. ....	10	0	0	11	11
Fir timber: Best middling Danzig or Memel (average specification Seconds ..... Small timber (5 in. to 10 in.) ..... Small timber (10 in. to 12 in.) ..... Swedish halsk ..... Pitch-pine timber (30 ft. average) ..	10	0	0	9	10
	8	10	0	9	10
	0	10	0	more than	battens.
	1	0	0		
	4	10	0	50	0
	5	0	0	4	10
	3	12	6	3	15
	3	10	0	3	10
	15	0	0	2	0
	3	5	0	3	15

JOINERS' WOOD.

Sea: First yellow  
breeze

3 in. by 1 in.	23	0	24	0
Battens, 2 in. and 3 in. by 1 in.	17	0	18	0
Second yellow deals, 3 in. by 1 in.	18	10	20	0
Battens, 3 in. by 1 in.	17	10	19	0
Third yellow deals, 3 in. by 1 in.	13	20	14	10
Third yellow deals, 3 in. by 1 in. and 9 in.	15	10	16	10
Battens, 2 in. and 3 in. by 1 in.	11	10	12	10
Petersburg: first yellow deals, 3 in. by 1 in.	21	0	22	10
Do. 3 in. by 9 in.	18	0	19	10
Battens.	13	10	15	0
Second yellow deals, 3 in. by 1 in.	16	0	17	0
Do. 3 in. by 9 in.	14	10	16	0
Battens.	11	10	12	10
Third yellow deals, 3 in. by 1 in.	13	10	14	0
Do. 3 in. by 9 in.	13	0	14	0
Battens	10	0	11	0

## PRICES CURRENT (Continued)

## METALS.

•

Sheet Iron, Galvanised, flat, best quality—		Per ton, in London		
		£ s. d.	£ s. d.	£ s. d.
Ordinary sizes to 20 g.	20 g.	16	0	-
" " 22 g. and 24 g.	22 g.	16	10	0
" " 26 g.	26 g.	18	0	0
Galvanised Corrugated Sheets—				
Ordinary sizes, 6 ft. to 8 ft. 20 g.	20 g.	13	5	0
" " 22 g. and 24 g.	22 g.	13	10	0
" " 26 g.	26 g.	14	5	0
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	20 g.	12	0	0
" " 22 g. and 24 g.	22 g.	13	0	0
" " 26 g.	26 g.	14	5	0
Cut nails, 3 in. to 6 in.				9 15 0

(Under 3 in. usual trade extras.)

LEAD, &c.

	£	s.	d.	£	s.	d.
LEAD—Sheet, English, 3 lbs. & up. . . . .	14	5	0	0	0	0
Lead in coils . . . . .	14	5	0	0	0	0
Soil pipe . . . . .	14	15	0	0	0	0
Compo Pipe . . . . .	17	5	0	0	0	0
ZINC—Sheet . . . . .	7	0	0	0	0	0
Vieille Montagne . . . . . ton	25	0	0	0	0	0
Silesian . . . . .	24	15	0	0	0	0
COPPER—						
Strong Sheet . . . . . per lb.	0	10	10	0	10	10
Thin . . . . .	11	0	11	0	11	0
Copper nails . . . . .	0	11	0	0	11	0
BRASS—						
Strong Sheet . . . . .	11	0	0	0	0	0
Thin . . . . .	11	0	9	0	0	9
TIN—English Ingots . . . . .	11	0	12	0	12	0
SOLDER—Plumbers' . . . . .	11	0	6	0	6	0
Flux . . . . .	11	0	6	0	6	0
Blowpipe . . . . .	9	0	6	0	6	0

## ENGLISH SHEET GLASS IN CRATES

15 oz. thirds.....	3d.	per ft. delivered.
" fourths.....	3d.	"    "
21 oz. thirds.....	3d.	"    "
" fourths.....	2d.	"    "
26 oz. thirds.....	4d.	"    "
" fourths.....	3d.	"    "
32 oz. thirds.....	5d.	"    "
" fourths.....	4d.	"    "
Fluted sheet, 15 oz. .....	3d.	"    "
" 21 oz. ....	4d.	"    "
" 26 oz. ....	4d.	"    "
" 32 oz. ....	5d.	"    "
" Harley's Rolled Plate .....	2d.	"    "

## OILS, &amp;c.

... or barrels

Raw Linseed Oil	in pipes or barrels	per gallon	2	2	3
"	"	"	2	2	3
Boiled "	" in drums	"	2	7	7
"	" in pipes or barrels	"	2	5	5
"	" in drums	"	2	2	0
Turpentine	in barrels	"	3	6	6
"	in drums	"	3	8	8
Genuine Ground English White Lead	per ton	20	10	0	0
Red Lead, Dry	"	20	0	0	0
Best Linseed Oil Putty	per cwt.	8	0	0	0
Stockholm Tar	per barrel	1	12	0	0

## VARNISHES, &amp;c.

Pine Pale Oak Varnish .....	0	74	0
Pale Copal Oak .....	0	70	6
Superfine Pine .....	0	12	6
Superfine Hard Church Oak .....	0	13	6
Superfine Hard-drying Oak, for Seats of Churches .....	0	74	0
Superfine Elastic Carriage .....	0	12	6
Superfine Elastic .....	0	12	6
Fine Pale Maple .....	0	16	0
Finest Pale Durable Copal .....	0	18	0
Extra Pale French Oil .....	1	7	0
Extra Pale French .....	1	7	0
White Copal Enamel .....	1	4	0
Extra Pale Paper .....	0	12	0
Best Japan Gold Size .....	0	13	0
Black Japan .....	0	15	0
Oak and Mahogany Stain .....	0	8	0
Brunswick Black .....	0	8	0
Berlin Black .....	0	16	0
French and German .....	0	16	0
French and Brush Polish .....	0	18	0

TO CORRESPONDENTS.

S. P. P. - J. B. (Amounts should have been stated.)

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

*We cannot undertake to return rejected communications.*

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and reviews.

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All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and sent to the Editor.



(For some Contracts, &c., still open, but not included in this List, see previous issues.)

Nature of Work.	By whom required.	Premiums.	Designs to be delivered
*Town Hall and Municipal Buildings ..	Chepping Wycombe Corporation ..	105 <i>l.</i> and 26 <i>l.</i> 5 <i>s.</i> ..	Mar. 4
*Soldiers' Memorial, Kingston-upon-Hull ..	Soldiers' Memorial Committee ..	Not stat'd ..	Mar. 15
*Free Library ..	Castleford (Yorks) U.D.C. ....	15 <i>l.</i> and 10 <i>l.</i> ..	Mar. 31
*Laying out Piece of Land ..	Yewell Corporation ..	9 <i>l.</i> and 1 <i>l.</i> 10 <i>s.</i> ..	April 10
*Proposed Technical School ..	Blackpool Corporation ..	6 <i>l.</i> 2 <i>s.</i> and 10 <i>s.</i> ..	April 30
*Alterations and Additions to Victoria Hall ..	Sunderland Corporation ..	1 0 <i>l.</i> 5 <i>s.</i> and 2 <i>s.</i> ..	No date.
*Designs for Public Offices and Town Hall ..	Dalring Borough Council ..	50 <i>l.</i> each to Select & Competitors ..	

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c., supplied by	Tenders to be delivered
Schoolroom, Pottery-row, Morley	Trustees	T. Roderick, Architect, 50, Gl-beland-street, Morley	Feb. 11
Address, 40 Stoke School	Conventry School Board	J. & T. Steane, Architect, 22, Little Park-street, Coventry	do.
Road Metal, &c.	Smallburgh (Norfolk) R.D.C.	W. L. Lewis, District Surveyor, Stalla-hall	do.
Street Works, St. Mary's-road, Banber Bridge	Walton-le-Dale U.D.C.	F. E. Dixon, Civil Engineer, 49, Lancaster-street, Preston	do.
Works at Kingston, Hopwood-lane, Halifax	Messrs. J. Whitbread & Sons	F. Buckle & Son, Architects, Tower Chambers, Halifax	do.
Sets, Kitchens, &c.	Sto-k-port Corporation	J. Atkinson, Civil Engineer, Town Hall, Stockport	do.
Making-up Millar-road, Bush Hill Park	Enfield U.D.C.	R. Collins, Surveyor, Court House, Enfield	do.
Surveyor's Materials	Portsmouth County Council	D. Ross, Surveyor, Kirminster, S.E.	do.
Twenty-eight Houses	Hammersmith Borough Council	F. P. Hume, Architect, Albemarle	do.
Works at W. W. Waywick (cottages, an 1 Montpelier row	North-Eastern Railway Co.	Borough Surveyor, Town Hall, Broadway, Hammersmith, W.	do.
Bridge, North-lane, York	Rotherham R.D.C.	J. W. Judworth, Engineer, York	Feb. 12
Sewers, Braunley	Portsmouth Corporation	B. Hay, Surveyor, 29, High-street, Rochester, Kent	do.
Sewers, &c., Hoyland, local	Stoke-upon-Trent Corporation	H. Young, Surveyor, Town Hall, Hoyland	do.
Sanitary Drainage	Mr. J. Curtis	A. Hellard, Town Hall, Portsmouth	do.
Chimney Stack, &c.	Stoke-upon-Trent Corporation	A. Burton, Civil Engineer, Town Hall, Stoke-upon-Trent	do.
Cottage, Victoria-road, Warrimster	Mr. J. Curtis	A. F. Long, Architect, 13, Market-street, Warrimster	do.
Schools, High-street	Stoke-upon-Trent Corporation	W. J. Thomas, Architect, Queen's Chambers, Carliff	do.
Works at M. Materials	Basford (Notts.) R.D.C.	W. W. Hawley, Surveyor, King-street, Nottingham	do.
Stone, Granite, &c. (7,500 tons)	Brivworth R.D.C.	J. O. Woodford, 16, Market-place, Northampton	do.
Public Works, Conner Estate, Aberdeen	Hackney Borough Council	S. Walker & Duncan, Civil Engineers, 3, Golden-square, Aberdeen	do.
Sanon Houses and Convenience, Kingsland High-st	Messrs. Dibb	Borough Engineer, Town Hall, Hackney, N.E.	do.
Road Materials	East Bedford R.D.C.	W. R. Nunn, Architect, Market-street, Bingley	Feb. 13
Hospital, Cuthbert-lane	Mottram-in-Longendale R.D.C.	District Surveyor, Market-square, Bedford	do.
Wall, &c., Danby-terrace, Tynemouth	Penrith-Rhynallid U.D.C.	J. Linnell, Architect, Town Hall Buildings, Hyde	do.
Sewers, near Tynhill	do.	W. J. Jones, Surveyor, Council Offices, Penrith	do.
Storage Reservoir, Menston, Yorks.	Wharfedale R.D.C.	R. J. Silcock, Civil Engineer, 10, Park-row, Leeds	do.
Two Cottages, Coleridge, Ireland	Guaranties	F. L. Leach, Architect, 10, Newgate-street, Bishop Auckland	do.
Conveniences at Refuse Depot, Clontarf, Dublin	Leeds Corporation	City Engineer, Town Hall, Leeds	do.
General Station, Offices, &c., at Train Offices	do.	E. J. Mawbey, Civil Engineer, Town Hall, Leeds	do.
Sewers, &c., Weststone-road, Macclesham	Asby-de-la-Zouche R.D.C.	S. Turner, Surveyor, Macclesham	do.
Electric Plant	Darlington Corporation	Kennell & Jenkins, 10, Market-street, Darlington, W.	Feb. 14
Sewage Pump Extension	Colne (Lancs.) Corporation	H. H. Harley, Borough Surveyor, Town Hall, Colne	do.
Stone and Bricks Granite Road Metal	do.	T. Hughes, Council Offices, Ebbw Vale	do.
Laundry Buildings, Raily Castle, Bishop Auckland	Ebbw Vale (Mon.) U.D.C.	F. Leach, Architect, 10, Newgate-street, Bishop Auckland	do.
Two Lift Gasoliders, Polk-shill	Right Hon. Lord Eardam	F. W. Stevenson, Engineer, Gasworks, Coventry	do.
Excavating, Con machine, &c. for Gasolider Tank	Hinckley U.D.C.	F. Lee, Engineer, Council Offices, Hinckley	do.
Road Works, &c. (Contracts 23 to 35)	Devonport Corporation	J. F. Burns, Borough Surveyor, 23, Ker-street, Devonport	Feb. 15
Making-up Cuworth-road, Willsborough	East Ashford R.D.C.	H. W. Harris, Surveyor, 10, Willsborough	do.
Cast Iron Pipes	Bilnburgh District Lunacy Board	Leslie & Reid, Civil Engineers, 72A, George-street, Edinburgh	do.
Cattle Market, York	Morpeth Town Council	Borough Surveyor, Bridge-street, Morpeth	do.
Road Works, Oldgate-street	do.	T. Hunter, City Chambers, Edinburgh	do.
Electric Lighting Works at Hospital, Colinton Malms.	Bilnburgh Town Council	City Engineer, Guildhall, York	do.
Private Sewer Works	East Ashford R.D.C.	F. H. Wilde, Surveyor, Albemarle-road, Willsborough	do.
Sewer, Ham street	E. Hingham District Lunacy Board	Leslie & Reid, Civil Engineers, 72A, George-street, Edinburgh	do.
Reservoir, Brook Burn	Chorley (Lancs.) Corporation	Borough Surveyor, Town Hall, Edinburgh	do.
Circular Chimney at Refuse Destructor Depot	Metropolitan Asylums Board	Council's Surveyor, Public Offices, Hendon, N.W.	do.
Supply of Materials, &c. for year	County Borough Crendon	Office of Board, Embankment, E.C.	do.
Additions to Offices at Electricity Works	Tottenham U.D.C.	Borough Engineer's Office, Town Hall, Crendon	Feb. 17
Boundary Wall, Fencing, Lodge, Conservatory, &c.	Corporation of London	Engineer to the Corporation, Guildhall, E.C.	do.
Pipe Sewer, South-west, &c.	Belfast R.D.C.	Young & Mackenzie, Civil Engineers, Belfast	do.
Police Station and Houses, Trafford Park, Manchester	Lancashire County Council	H. Little, Architect, County Office, Preston	do.
Road Metal	Middlesbrough R.D.C.	W. H. Dixon, Surveyor, Kirby-in-Cleveland	do.
Road Materials	Stokeley R.D.C.	F. Holding, Market House Chambers, Salisbury	do.
Recreation of Dormitories, &c. at Workhouse	Berthall Green Guardians	W. A. Finch, 76, Fishery-pavement, E.C.	Feb. 18
Workhouse and Conveniences near Esplanade	London C.C.D.C.	F. Howard, Town Surveyor, 20, St. Dunstons, Hampton	do.
Works and Materials	Borough of Hampton	Borough Engineer, Town Hall, Hampton, N.W.	do.
Sewers, &c.	Clacton-on-Sea U.D.C.	A. R. Robins, Surveyor, Town Hall, Clacton	do.
House, Workshops, &c. Sackville-road	Hove (Sussex) Corporation	H. H. Scott, Borough Surveyor, Town Hall, Hove	do.
Recreation of Police Station, Swanley	Kent County Council	Borough Engineer, Masey-road, Plumstead	Feb. 19
Free Water Valves, &c.	Woodwich Borough Council	J. H. Ellis, Town Hall, Plymouth	do.
Water, A. Steamer Harbour	Ealing Town Council	Borough Engineer, Town Hall, Ealing	do.
Making-up of Roads	St. George's, Civil Engineers, Warren-street, Stockport	B.M. Office of Works, Storey's Gate, S.W.	do.
Sewers, Torkington-road, Hazel Grove, near Stockport	Commissioners of H. M. Works	F. J. Wood, Civil Engineer, County Hall, Lewes	Feb. 21
New Police Office, near Town Hall	East Sussex County Council	Waters & Phipps, 2, Street-street, S.W.	do.
Surveyor's Materials	Chesterton R.D.C.	Office of Board, Embankment, E.C.	Feb. 22
Sewerage Works, Granchester	London Borough Council	Town Hall, W. P. Street, S.W.	Feb. 23
Erection of Cottages, Leaveness Asylum	Stow Union	J. S. Clerk, Architect, Ipswich	Mar. 1
Supply of Materials for Extension of Works at Asylum	Brighton Corporation	Town Clerk, Town Hall, Brighton	do.
Alterations and Additions, Stowmarket Workhouse	Corporation of London	L. L. Morgan, Architect, Cannon-road, E.C.	do.
Erection of Electric Power Station, Southwick	Middlesex County Council	County Engineer, Middlesex Guildhall, Westminster	Mar. 2
Erection of School	do.	Council's Engineer, The Broadway, Wimbledon	do.
Supply of Road Materials	Wimbledon U.D.C.	City Engineer, Guildhall, York	do.
Erection of a Central Fire Brigade Station	City and Asylum	G. T. Hine & Co., Architects, 35, Parliament-street, S.W.	Mar. 1
Un-irrigated Convenience, Biondell-street	Leeds Institute of Science, &c.	Bedford & Kilson, Greek-street Chambers, Leeds	No date
Leads, Black Lead, &c.	Culham R.D.C.	F. Chacey, 89, Finsbury-pavement, E.C.	do.
Supply of Furniture and Fittings	Staines R.D.C.	C. W. Manning, Surveyor, London-road, Asford, Staines	do.
Stone (1,500 tons), Abingdon	do.	James & Upham, Architects, 45, Quay-street, Cardiff	do.
Macedon, Flints, &c.	Builder's Society	W. W. Patillon, Architect, Livery Offices, Maest	do.
Total, Bannerman, near Bannerman, near Bannerman	Staines R.D.C.	G. W. Manning, Surveyor, London-road, Asford, Staines	do.
Rebuilding, B. Railway Inn, Ton Mawr, near Neath	do.	Oldrieve & Hinde, Architects, 11, Bridge-street, Manchester	do.
Sixty Houses, Nantviffyllt Estate, near Maestry	do.	Simpson & Duckworth, Architects, Richmond Chambers, Blackburn	do.
Sewers, Harmondsworth	do.	R. Gault & Son, Architects, 1, Cleckley-street, Bolton	do.
Reconstruction of War at Blackburn Infirmary	do.	F. J. Hughes, Architects, Estate Office, Hampton	do.
Additions to Bakery, Mitchell-street, Morley, Yorks	do.	Freemant & Co., Architects, 11, Carr-lane, Hull	do.
Two Houses, Manor Park Estate, Hampton, Middlesex	do.	do.	do.
Two Houses, Hampton, M.I. Hill	do.	do.	do.
Two Villas, Beverley-road, Hull	do.	do.	do.

[See also next page.



## PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
Borough Engineer	Stamford U.D.C.	20 <i>l.</i> &c.	Feb. 16

Those marked with an asterisk (\*) are advertised in this Number.

Competitions, iv.

Contracts, iv. vi. viii. x. &amp; xxi.

Public Appointments, xviii.

## TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us not later than 10 a.m. on Thursdays. N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under root, unless in some exceptional cases and for special reasons.]

\* Denotes accepted. † Denotes provisionally accepted.

**BOURNEMOUTH.**—For building new club room and making certain alterations and additions to the Brunswick Hotel, Bournemouth, for the Directors of Marston's Brewery Co., Ltd., Poole. Mr. Walter Andrew, architect and surveyor, Parkstone and Poole. Quantities by architect:—

Williams & Son	£1,486	A. & F. Wilson	£1,398
Jones & Son	1,423	Jenkins & Son	1,335
Maddesford & Co.	1,352	Miller & Sons	
Flaker & Peacey	1,350	Bournemouth*	1,300

**BROMLEY.**—For two houses, Sundridge Park. Mr. W. James Pamphilon, architect:—

Perry Bros.	£4,397	Duthoit	£3,815
Payne	3,896	Lowe	3,785
Arnaud & Son	3,896	Crossley & Son	3,880
Grady	3,873		

**CAMBORNE (Cornwall).**—For the erection of Council offices, fire station, &c., for the Urban District Council. Mr. Sampson Hill, architect, Redruth:—

Hodge & Mitchell, Redruth and Camborne £1,637

**CROMER.**—For the erection of an electric light station, for the Urban District Council. Messrs. O'Gorman & Hardy, engineers, 89, Victoria-street, Westminster:—

F. Minter	£3,590	H. Bullen	£3,147
R. Chapman	3,410	S. & F. Smith	3,066
T. Blyth	3,350	Barnes & Co.	2,903
W. Potter	3,329	A. Lines	2,900
J. W. Neale	2,445	Girling	
Youngs & Son	3,239	Smith, Cromer*	2,885
Geo. Elsey	3,200		

**CROYDON.**—Four houses, Eden-road, Park-lane. Mr. A. Broad, architect, 22, George-street, Croydon. Quantities by the architect:—

W. Potter	£3,173	Smith & Sons, Ltd.	£2,992
Dawson & Son	3,150	Hanscomb & Smith	2,984
Worsfold & Sons	3,079	D. W. Barker	2,956
E. J. Saunders	3,050	Akers & Co.	2,939
E. J. Burnand	3,029	Smith & Sons*	2,773

**CROYDON.**—For the erection of thirty-two cottages, Gusham-grove, Croydon, for Mr. G. C. Parsons, in accordance with plans and specifications prepared by Mr. Arthur L. Darnell, architect and surveyor, 62, High-street, Croydon:—

C. Braye	£7,994	W. Roberts	£6,683
Smart & Son	7,345	Cromk & Richard-	
W. Gowan	7,336	son*	6,067
W. Martin	7,196		

**LONDON SCHOOL BOARD.**—Repairs to GAS METERS, on a running Contract.

A.—To give the necessary notice to the Gas Company, take down meter and cart it from school to testing office and to works, repaint, return and refix it; and provide a six temporary meter during the interval, as necessary, and pay stamping fees.

B.—If the meter be found incorrect in registration, to carry out the following additional work, subject to an order from the Board:—To take to pieces, thoroughly cleanse, re-grend bearings and valves, oil diaphragms, re-adjust and execute all minor repairs.

C.—If necessary, and where the Board order new cases or diaphragms to be provided, the charges to be as follow, in addition to A and B.

Size of Meters.	A				C			
	D. Hulett & Co., Ltd.		T. Glover & Co., Ltd., and Parkinson and W. & B. Cowan, Ltd.		New Cases.		New Diaphragms.	
	D. Hulett & Co., Ltd.	T. Glover & Co., Ltd., and Parkinson and W. & B. Cowan, Ltd.	D. Hulett & Co., Ltd.	T. Glover & Co., Ltd., and Parkinson and W. & B. Cowan, Ltd.	D. Hulett & Co., Ltd.	T. Glover & Co., Ltd., and Parkinson and W. & B. Cowan, Ltd.	D. Hulett & Co., Ltd.	T. Glover & Co., Ltd., and Parkinson and W. & B. Cowan, Ltd.
3 light, per meter	£ s. d. 0 8 6	£ s. d. 0 4 6	£ s. d. 0 8 6	£ s. d. 0 8 6	£ s. d. 0 8 6	£ s. d. 0 8 6	£ s. d. 0 8 6	£ s. d. 0 8 6
5 "	0 8 6	0 4 6	0 8 6	0 8 6	0 8 6	0 8 6	0 8 6	0 8 6
10 "	0 9 1	0 6 6	0 11 3	0 12 0	0 8 6	0 8 6	0 8 6	0 8 6
20 "	0 9 10	0 7 6	0 16 3	0 15 6	0 11 0	0 11 0	0 13 6	0 9 0
30 "	0 11 11	0 10 0	0 18 0	0 16 0	0 15 0	0 15 0	0 17 0	0 12 0
40 "	0 14 0	0 12 0	0 18 0	0 16 0	0 15 0	0 15 0	0 17 0	0 12 0
60 "	0 17 6	0 14 6	0 18 0	0 16 0	0 15 0	0 15 0	0 17 0	0 12 0
80 "	1 1 0	0 16 0	0 18 0	0 16 0	0 15 0	0 15 0	0 17 0	0 12 0
100 "	1 5 0	0 18 0	0 20 0	0 18 0	0 15 0	0 15 0	0 17 0	0 12 0
150 "	1 18 6	1 1 0	0 21 0	0 19 0	0 15 0	0 15 0	0 17 0	0 12 0
200 "	2 10 6	1 10 0	0 21 0	0 19 0	0 15 0	0 15 0	0 17 0	0 12 0

Note.—Parkinson & W. & B. Cowan's prices are subject to a discount of 2½ per cent. cash monthly.

Accept tender of Parkinson and W. & B. Cowan, Limited.

**DUNMOW.**—For the erection of six cottages:—

W. Hart Gregson (Plan B)	£1,255
D. Harwood	1,200
W. Hart Gregson (Plan A)	1,090
T. A. Goodey	1,060
S. Willes & Son	1,050
F. F. Leach	1,020
Bush & Co.	990
etch & Bowtell (Plan B)	914
Richardson & Co.	900
Leitch & Bowtell (Plan A)	899
W. Hart Gregson (Plan C)	881
C. E. Hope	780
W. Lloyd	724

**LONDON.**—For the erection of a temporary car-shed at the Rye-lane tramways depot, required in connexion with the electrical working of the New Cross and Greenwich section of the London County Council's tramways:—

Walker Brothers, Ltd.	£2,190
Westwood & Co., Ltd.	1,707
J. McManus	1,663
Lightfoot & Ireland	1,618
Braby & Co., Ltd.	1,580
E. C. J. Keay, Ltd.	1,543
Westwood & Wright	1,494
Handyside & Co., Ltd.	1,477
Jukes, Coulson, Stokes, & Co.	1,475
Cross & Cross	1,399
Dorman, Long, & Co.	1,376
Fulham Steel Works Co., Ltd.	1,361
Jones & Sons, Ltd.	1,353
Bryden & Middleton	1,299
John Mundy	1,288
Baker & Co., Ltd.	1,263
A. J. Ellis	1,254
The Clyde Structural Iron Co., Ltd.	1,288

**LONDON.**—For the reconstruction of Bow Bridge, for the London County Council:—

J. A. Ewart	£30,811
Somersell & Co.	23,677
Pethick Brothers	19,672
Mowlem & Co.	19,355
Facey & Son	18,947
Carter Brothers	17,951
Cochrane & Sons	17,922
M. Dinne	16,367

**LONDON.**—For new filth screens, hydraulic engines, and gear required at the Crossness outfall in connexion with the enlargement of the main drainage system on the south side of the Thames, for the London County Council:—

Fulleton, Hodgkiss, & Barclay, Ltd.	£7,900
Watt & Co.	7,000
J. Cochrane	6,118
Glennfield & Kennedy, Ltd.	5,700
Stewart & Co. (1902), Ltd.	4,430

**LONDON.**—For alterations to business premises, City-road, for Messrs. Betts & Co., Ltd. Mr. H. Phelps Drew, architect, 33, King-street, Covent Garden, W.C. Quantities by the architect:—

F. G. Minter, £798; W. Norton, Chelsea\*, £787; Wilkinson Bros., 817

**LONDON.**—For the erection of the first portion of St. James's Church, West Ealing, W. Mr. William Pywell, architect, Cumberland House, Hanwell, W.:

S. F. Halliday	£6,812	J. Bentley	£6,590
Kingerlee & Sons	6,767	Goddard & Sons	6,435
Dorey & Co.	6,620		

**LONDON.**—For the erection of chimney-shaft and making alterations and additions to Nos. 50b and 50d, Peckham-rye, S.E., for the Quantock Sanitary Laundry Co. Mr. Arthur Carnar, architect and surveyor, 66, Oakhurst-grove, East Dulwich, S.E.:

Balaam Bros.	£920	A. P. Maers	£895
King & Son	930	W. T. Champion	846
G. Parker	897		

**SANDBACH.**—For additions to school and almshouse, Globe Pottery, Colbridge, for the Governors. Mr. Alfred Price, architect, Sandbach, Staffs. Quantities by the architect:—

Birchall Bros.	£1,645	Bennett Bros.	£1,392
J. J. Longden	1,524	C. & J. Grant	1,359
G. A. Foster	1,459	T. Godwin, Hanley*	1,350
H. Howlett	1,398		

[The allowance for old material is deducted in each case.]

**SCARBOROUGH.**—For the execution of sewerage works, Scalby-road, for the Town Council. Mr. H. W. Smith, C.E., Town Hall, Scarborough:—

Cooke & Co.	£781	o	o	Bestman & Sons,
A. Coultas	740	o	o	Victoria-road,
W. T. Petch	698	o	o	Scarborough*

£524 x6 6

**SUNDERLAND.**—For the erection of a church and schools, Monkwearmouth. Messrs. Potts & Son, architects, 57, John-street, Sunderland:—

Tiffin	£7,574	o	o	W. B. Cooper	£5,469	o	o
S. Ranken	5,928	o	o	J. B. Scott,			
J. Armitage	6,428	o	o	Monkwear-			
J. W. White	6,325	o	o	mouth, Sun-			
Shaftoe	5,959	o	o	derland	5,449	x9	4
Robertson & Sons	5,774	x8	o	Taylor & Wel-			

ford 5,446 6

**TADWORTH (near Epsom).**—For stabling, &c., at Tattenham Park Hotel, for Messrs. Page & Overton, Ltd. Mr. A. Broad, architect, 22, George-street, Croydon. Quantities by the architect:—

W. Potter	£485	Pearson & Co.	£430
E. J. Burnand	459	Smith & Sons	390
D. W. Barker	435	A. King*	358
Dawson & Son	433		

**TYLORSTOWN (Wales).**—For additions to school, for the Ystradgynfwrgh School Board. Mr. Jacob Rees, architect, Hillside Cottage, Pentre, Glam.:

M. Morris, Ferndale 1,273

**YORK.**—For additions and works at Municipal Offices, for the Corporation. Mr. A. Crier, City Engineer, Guildhall, York:—

F. Shepherd, Lead Mill-lane, York\* £275



## LONDON SCHOOL BOARD TENDERS.

At the last meeting of the London School Board the Works Committee submitted the following lists of tenders. Mr. T. J. Bailey is the Board's architect:—

\* Recommended for acceptance.

**ANCONA-ROAD.**—Special school (mentally defective) 4 classrooms of 20 each, and enclosing, draining, and tarping the additional land:—  
Garrett & Son ..... £4,451  
F. & H. F. Higgs .. 4,416  
Holliday & Green-wood, Ltd. .... 4,318  
Johnson & Co., Ltd. 4,296  
Lawrence & Sons .. 4,296  
Treasure & Son .... 4,242  
Fulford & Co. .... 4,237  
Simpson & Co. .... 4,200

Rice & Son ..... £4,199  
Thomas & Edge .... 4,177  
T. D. Leng ..... 4,174  
Smith & Sons, Ltd. . 4,061  
J. & C. Bowyer .... 4,025  
J. & M. Patrick .... 4,019  
Maryland & Sons.... 3,660  
Appley & Sons\*.... 3,369

**BERGER-ROAD.**—Manual training centre for forty children, with water-closets and urinal:—  
Grover & Son ..... £1,454  
Allen & Sons, Ltd. . 1,450  
Marchant & Hirst .. 1,407  
Gregar & Son ..... 1,391  
Shurmer & Sons, Ltd. 1,386  
Clarke & Hacey .... 1,340  
Lawrence & Sons .. 1,338  
F. Bull ..... 1,308

Fatman & Fothering-ham, Ltd. .... £1,200  
Treasure & Son .... 1,218  
W. M. Dabbs ..... 1,221  
Outhwaite & Son .. 1,201  
C. Cox ..... 1,168  
Willmott & Sons.... 1,161  
Lathey Bros.\* .... 1,153

**COBOURG-ROAD.**—Providing inside water-closets for staff of girls' and infants' departments, and channel under boys' and girls' lavatory ranges; altering weir of latrines of boys', girls', and infants' offices; providing additional asphalted dado and sparge pipes to urinals and access to rain-water pipes; and trapping sink to school-keeper's house, &c.:—  
H. Line + 10 per cent. on schedule prices.  
Unassigned ..... 437  
Falkner & Sons ..... 437  
Johnson & Co. .... 319

W. Dowds ..... £270  
W. V. Goad ..... 258  
Maxwell Bros., Ltd. . 250  
E. Procter ..... 240  
Rice & Son\* ..... 239

**ESSEX-STREET.**—Refitting boys' and infants' offices; providing sparge pipes and automatic tanks to urinals; rebuilding girls' offices further away from school buildings and refitting girls' p.t. offices on roof; refitting existing lavatories where at present provided with tip-up basins, and substituting glazed open channels for the present horizontal wastes; providing teachers' lavatories; office and urinal accommodation for the male pupil teachers, and part new drainage scheme:—  
G. Parker ..... £3,630  
J. T. Robey ..... 3,315  
Marchant & Hirst .. 3,245  
R. P. Beattie ..... 3,180  
Willmott & Sons.... 3,166

Lawrence & Sons .. £3,152  
Durbin & Katesmark 3,051  
Williams & Son .... 3,033  
Falkner & Sons .... 3,015  
Johnson & Co.\* .... 2,931

**LUCAS-STREET (Improvements).**—Providing and fixing complete low-pressure hot-water apparatus to three halls, eighteen classrooms, cloakrooms, corridors, and lavatories (B & C 1):—  
G. Davis ..... £656  
J. Grundy ..... 656  
Comyn Ching & Co. 579  
Werner, Pfeleiderer, & Perkins, Ltd. . 584

Hadow & Sons .. £475  
Brighside Foundry & Engineering Co., Ltd. .... 469  
Cannon & Sons\* .. 449

## B. NOWELL & CO.

STONE MERCHANTS & CONTRACTORS.  
Chief Office.—**Warwick Road, KENSINGTON.**  
Norway, Guernsey, and Leicestershire  
Granite, Kerb, Pitching, and  
Yorkshire Stone.

ESTIMATES GIVEN FOR EVERY DESCRIPTION OF ROAD MAKING.

## ST. JOHN'S HILL SITE (Divisional Offices).—

Holloway Bros. .... £5,042  
(London), Ltd. .. £5,243  
Lawrence & Sons .. 6,210  
Smith & Son ..... 6,008  
Lathey Bros. .... 6,061  
Hudson Bros. .... 6,033  
Rice & Son ..... 5,999  
Bulled & Co. .... 5,937

F. & H. F. Higgs .. £5,042  
E. Triggs ..... 5,846  
J. & M. Patrick .... 5,779  
Simpson & Co. .... 5,770  
Johnson & Co., Ltd. 5,620  
Lorden & Son .... 5,439  
Garrett & Son .... 5,424  
Appley & Sons\* .. 5,414

## SANDFORD-ROW.—Providing and fixing wire-

netting:—  
Croggon & Co., Ltd. .... £45 0 0  
Braby & Co., Ltd. 35 2 6  
Gardiner & Son .. 35 0 0

E. J. Pike ..... £30 10 0  
Thomas & Co. .... 30 0 0  
Ltd. .... 30 0 0

## STORES, CLERKENWELL (Books and Apparatus).—

Quarterly inspection and adjustment of weighbridge:—  
Parnell & Sons, Ltd. .... 18 6 for each inspection.  
W. & T. Avery, Ltd.\* .. 12 6 " "

## SUPPLY of attendance boards, on a running contract:—

R. Smith ..... £1 10 0  
Hammer & Co., Ltd. .... 1 3 0  
London School Furniture Co. .... 1 0 0

Each. ....  
W. Martin ..... £0 18 6  
Goodall, Lamb, & Heighway, Ltd. 0 18 0  
T. Cruwys\* ..... 0 12 4

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# The Builder.

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Design for a Town Church (Scane Medallion, Royal Institute of British Architects, 1903):—  
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 Section }  
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By Mr. E. F. Reynolds.

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### School Buildings and the Education Act.



T the present moment nearly all Local Authorities are interested in the new Education Act. For a long time there has not been so important a movement as the transfer of the elementary schools throughout the country to the Local Authorities, usually a Town Council, or a County Council. With the general question we are not concerned, either in regard to the transfer of existing schools or to their future management. It may, however, be desirable to say something upon the question of the school buildings, which is one of the most important, and, in some respects, difficult points with which the new Local Authorities will have to deal.

So far as regards the Board schools, which must now be called by their new title of "provided schools," the matter is simple. The buildings of these schools and the teachers' houses are handed over, bag and baggage, to the new Authorities, and they will have to be kept in repair or enlarged out of the rates. When, however, we come to the existing Voluntary schools, or, to give them their new name, "non-provided schools," the matter is by no means so simple, except where the managers lease their buildings under the Act of 1870 to the Local Authority, when the latter will, if the lease is properly drawn, of course be liable for all repairs. In regard to these schools in the future the secular instruction is wholly under the jurisdiction of the Local Authority, either a Town Council or a County Council; but, by Section 7, Sub-Section D, of the Education Act, the managers are to provide the school-house free of any charge, except for the teacher's dwelling-house (if any); and they must, out of funds provided by them, keep the schoolhouse in good repair and make such alterations and improvements in the building as may be reasonably required by the Local Education Authority. Then follows this proviso: That such damage as the Local Authority consider to be due to fair wear and tear in the

use of any room in the schoolhouse for the purpose of a public elementary school shall be made good by the Authority. It is obvious that this section is one which is likely to cause considerable difference of opinion, and it is equally certain that the burdens which the managers will have to bear in regard to buildings will vary very much according to the disposition of their County or Town Council and to the individual views of the Surveyor of the Authority. But even the most good-natured and conservative Councils are likely to be hard taskmasters. The general check upon Local Authorities is the fear of the ratepayer, but in the case of the buildings of the non-provided schools this will not exist, and by far the easiest way in which the Local Authorities can show their educational zeal will be by causing the managers of non-provided schools to keep them in first-class condition, and to enlarge them whenever there is the slightest necessity. Because, as has already been pointed out, the managers must—the exact word is "shall" in the section, which, under the circumstances, is legally equivalent to "must"—keep the schoolhouse in good repair. Further than that, they have, as we have said, to make such alterations and improvements as may reasonably be required by the Education Authority. Should there be any difference of opinion as to the reasonableness of the requirement, it shall be determined by the Board of Education; in other words, by the supreme authority, whose great object will certainly be to improve elementary education. A result of an appeal, therefore, to the Board of Education in regard to buildings is almost certain to be in favour of the Education Authority, unless its requirements are ridiculously exaggerated.

An even more difficult question will be the application of the proviso which we have already quoted as to fair wear and tear. This is a phrase which is somewhat novel in connexion with buildings, and is not very easy of construction in regard to schools. From the context the words do not appear to include all internal repairs, otherwise Parliament would, we should suppose, have made the Local Authority liable for the repair of the schoolroom. The Legislature, on the contrary, appears to have considered that there was some special damage re-

ceived by a room when used as a schoolroom, since we have in connexion the several words, "wear and tear," "use of any room," and "for purpose of a school." If, therefore, the future managers of a non-provided school are under the impression that ordinary repairs will be paid for by the Local Authority, it is by no means certain that they are not under a delusion. Wear and tear of a schoolroom may in fact be regarded as something equivalent to extraordinary traffic on a highway. In other words, it is rather damage than mere usage of a room in the ordinary sense for which the Education Authority will be liable. For example, if we take the periods at which rooms should be painted internally as every seven years, and if, owing to the use of a room as a schoolroom, the lower part of it required painting in three years, then we take it that the Local Authority would be liable to pay for the painting of half the room at the end of the third year, or of the whole of the room if half of the room alone could not be painted. But if at the end of four years more—that is, at the end of seven years from the time when the Local Authority began to use the school—a room had to be painted, the expense of this would have to be borne by the managers, because, in the normal course of things, the room, even if it had not been a schoolroom, would have required painting at the end of this period. This is only one example, but our readers who are technically interested in buildings can imagine many more for themselves. Probably the simplest way of settling all disputes would be for the Local Authority and for the schools, or some body representing them, to agree upon one person for every county or town who should decide all the questions that may arise between them in regard to the repair of buildings.

Another point, though less important, should be noted—namely, that the Education Authority is, under the Act, entitled to use any school furniture and apparatus belonging to the managers of a non-provided school. Nothing is said as to the persons by whom the repairs are to be made, and it is not clear, having regard to the fact that the Local Education Authority is only to use and not to become owner of the existing school furniture, that the managers will not have to repair it so long as it is capable of



being available for use. But new equipment will be paid for by the ratepayers, not by the managers.

### THE ARTS AND CRAFTS EXHIBITION.—III.



**JEWELLERY** and decorative work in metal, silver more especially, has shown a good deal of new life in this country during the last few years, though none of this vitalising influence has as yet penetrated to the fashionable jewellers' shops, where one still sees only commonplaces or worse; it must be looked for in the work of individual artists who do not work for the shops, but for their own clients and purchasers. An occasional exhibition of the works of special artists has been seen in London; but the Arts and Crafts Exhibition affords the best opportunity for its display on a large scale; and in the present exhibition this class of artistic work is largely represented.

The possible forms of jewellery design would seem to be practically almost infinite, especially when with gold and silver are combined the colour and flash of precious stones and the more varied colour to be obtained from enamel; yet one is conscious of a certain effort, in designs exhibited at the Arts and Crafts, after novelty for the sake of novelty—an effort sometimes but not always successful; and the exhibition can show some jewellery which is rather more curious than beautiful. In articles of use, too, in silver work, use seems to be sometimes overlooked in the desire for an unusual form, as in the silver soup tureen in Case 490 in the central hall. This has a high and narrow bowl, coming to a point at the bottom—a bad shape for getting the ladle into; it stands far too high for convenience in use, and the support, a series of perforated conventional trees, is too light and too unstructural. The proper shape for a soup tureen is much better shown in the example in Case 491, by the Keswick School of Industrial Arts.

The most important and interesting work in silver is the Triptych by Mr. and Mrs. Dawson (419), in the middle of the floor in the North Gallery. This is a purely artistic conception; an effort to use silversmith's work to illustrate an abstract idea. It stands some 20 in. high; a centre with folding doors supported between boldly modelled uprights showing very free treatment of the metal in scroll forms. The whole work illustrates "sleep" or "repose." On the outer sides of the folding doors are enamel panels representing poppies, beautiful in rich colour. On opening the doors, the inside of one has an enamel picture showing a young man resting on the hedge from ploughing, the other door an old man seated beside a cottage; the centre space shows a mediæval port or harbour with a mediæval ship entering it. Beneath this are the lines from the "Faërie Queene" which give the key to the whole—"Rest after toil, port after stormy seas, Ease after war, death after life, doth greatly please."

Above is a winged head with the inscription "YINOS." All the details of the silver work are more or less symbolic, and at the same time add to the decorative effect. This is really a poem in silver and enamel, and a very beautiful and remarkable work, both in conception and execution.

Something of the same kind is aimed at in some of the work exhibited in the West

Gallery by Mr. Alexander Fisher and assistants, but hardly with the same success. The Triptych overmantel in bronze, silver, and gold, "The Court of Love," is too architectural in its forms for metal work, and the forms are those of a rather commonplace modern Gothic. On the same stand the chalice in silver repoussé, enamel, amber, and precious stones (c) is an example of the "new art" style of design for this kind of work, in which the stalk ramifies out into half-naturalistic branch-work, ragged and uncertain in line, giving a rich effect as a whole, but not clean or certain in detail. The same kind of work reappears in the large jewel-box on the neighbouring stand, by the same artist. It is bad style, and its vogue will not last long. Compare this with such a thing as the silver cup by Countess Gleichen (k in Case 165), and see how superior in style is this clean-lined symmetrical cup with its Greek-like handles, and the bas-relief frieze on the bowl of the cup. Mr. Fisher's "Mirror in Bronze Silvered" is a remarkable bit of work which looks as if it had come from a Renaissance atelier, both in its exuberance and in its faults of design; it is a hand mirror in which the handle is formed by a nude Venus, whose hair flies up as if blowing in the wind; and the mirror, in the form of a shell, is supported by these windy locks of hair. This is just what a Renaissance artist might have done, and it is an excellent piece of work in its way; but structurally the connexion between mirror and handle is very bad, and the nude figure is degraded by being used as a handle, in spite of ancient precedent.

The value of pure and well-designed form in silver is illustrated in the silver chalice set with carbuncles, letter f in Case 490 (the same case which contains the soup tureen we objected to); this, designed by Mr. W. A. White, and executed by members of the Guild of Handicraft, is a really artistic bit of work; so is the silver and enamel compote bowl (d) by the same designer and executants. And in Case 165 in the West Gallery may be found two beautiful silver buckles by Mrs. Bethune, each consisting of two little figures in alto-relief; the one marked i is the best, inasmuch as the figures are playfully treated; those in the other buckle (g), which seem to be founded on a Greek grave-relief, are a little too serious, even pathetic, for their position. The playful use of the figure in objects of everyday utility is well enough; its more serious use in such positions rather jars on one's sense of the fitness of things. One charming example of the playful use of the figure is to be found in Miss Read's "Silver Salt-cellar" (j in Case 180), which has a shallow glass bowl to which a silver mermaid is attached, her tail underneath, her figure bowed forward with hands extended over the salt—probably in allusion to the salt sea; at all events, it is a very pretty bit of fanciful design.

The exhibits representing jewellery and personal ornament consist largely of necklaces, a class of article which offers perhaps more scope for effect than any other kind of adornment; and the majority of these consist of a combination of gold or silver chains with precious stones or enamel. The latter material, which affords the opportunity both for colour and symbolic design, is now becoming very largely used in personal ornament. Some rather original examples of

the use of enamel are shown among the things in 163 made by members of the Guild of Handicraft; little oblong upright enamel pictures with a finish of gold filigree on the upper side, partly for attachment, but which also adds a point to the design. There are some things among the jewellery which ought hardly to have been in this exhibition; a pin with a great realistic-looking insect of some kind at the top of it; a wreath with rubies in naturalistic imitation of a rose spray, &c.; and the lady who would venture to wear the "necklace with pearl blisters and topazes," e in Case 163, would be a bold person, and would probably be thought so. But most of the work shown is in the best taste, and some of it of great beauty. Of imitations of artificial objects, which are the bane of the ordinary commercial jewellery, there is, as may be supposed, little or nothing. Where gold chains are used as part of a necklace, we like them to be as delicate and fine as possible; silver may be used in more massive proportions; but gold chains should express both the value and the ductility of the metal by their delicate proportions. This is well illustrated in some of the Guild of Handicraft work in Case 163; the muff chain, for instance, letter c, with the gold cunningly and delicately twisted; the gold necklace set with opals (o), and the neck-chain (k), with enamel work and pearls, the pearls prettily enshrined in cages of twisted silver. Here and there we come on new fancies such as this; but generally there is not very marked originality in the ornament exhibits; they resolve themselves into the more or less decorative combination of chains and precious stones. Some of the best and most refined work is to be found in Case 169, exhibited by Mr. and Mrs. Arthur Gaskin; the necklaces lettered n and p, and the enamel pendant q, are especially worth notice.

Book-binding and printing are represented in the South Gallery, in a good many examples. Nearly all the book-bindings are good, though there may not be many that are especially original or striking. This is perhaps in one respect a merit. It does not do to attempt to make bindings too symbolic or to put too much meaning into them; this is making the outside of the book compete with the contents, whereas it should be subordinate to them; the exterior should have a decorative appearance, but not strive to compel attention away from the literary contents, for which it is only a cover and protection. Among the best bindings shown are Mr. Douglass Cockerell's "Shakespeare's Poems" (331 d), a green pigskin with very rich floral ornament in gold tooling of a close pattern, covering the whole surface. This illustrates one method of effect, richness of decorative treatment. The same designer's "In Memoriam" illustrates an opposite method, plain panelling with a single ornamental feature consisting of the initials "A. H. H." in a wreath, both appropriate and pleasing in effect. We do not see any advantage in the use of bare wooden "boards" in the large copy of Plutarch (f). Morris's "Lectures" (332 b), bound by Miss Katherine Adams, has a good design of a foliage border surrounding an upright title-panel. The large volume of "The Church Towers of Somerset" (338 j), bound by Miss Philpott, is treated in a special manner which suits the idea of an architectural book, giving a certain architectural style to the binding; and in the same case is a good



binding ( $\beta$ ) by the Camberwell School of Arts and Crafts, in a pattern which forms alternating squares of enriched and nearly plain surface. There is some very fine typography to be seen in the open books which form special illustrations of printing; especially the "Paradise Lost" by Mr. Cobden Sanderson (with the original spelling restored—"whose mortal tast," &c.), and in the same exhibitor's "Ideal book or Book Beautiful," which in typography and the arrangement of the page merits its title. The system of giving the names of all concerned in the work is carried to rather an absurd extent; the compositor's and pressmen's names are given; the man who designed the title, the man who wrote it out for the engraver, and the engraver. Why not add the man who cast the type and the man who mixed the ink?

In taking leave of the Arts and Crafts we may congratulate the Society on an exhibition which is perhaps of more varied interest than any which they have held, though some former exhibitions may have shown individual works superior to any in this one.

#### NOTES.

THOUGH we very much wished to see the new street from Holborn to the Strand called "Gordon Avenue," in memory of the noblest Englishman of his day, we think the London County Council may be congratulated on their choice of names. "Kingsway" is brief and appropriate, and has a fine and stately ring about it; and "Aldwych," which is said to have been the suggestion of Mr. Gomme, the Clerk of the Council, has the merit of historic significance. In future, however, we should like to see more of the system so largely adopted in Paris, of commemorating eminent men in the naming of streets.

WE confess that we become more and more sceptical of any practical results from the appointment of Royal Commissions. There is something positively melancholy in seeing a number of able men make careful investigations and an elaborate Report which is so much waste-paper unless there is some kind of political or popular pressure to cause it to become a basis for legislation. For this reason we do not anticipate much result from the Royal Commission which has just been appointed to inquire into the question of the traffic and communications of the Metropolis. Take, for example, the question of communication between the different railway termini. Each of these is in the hands of a private company, and however desirable it may be that there should be a systematic connexion between the different railway stations of London, it requires the consent of a number of separate and independent bodies, not only the railway companies, but the different Local Authorities. We trust, at any rate, that the Commission will recommend the handing over of the streets of the Metropolis to the London County Council. It is only by having one central body to manage the streets of London that there can ever be satisfactory management. In many respects the increasing of the importance of the districts of London and the making of them into boroughs was a retro-

grade step from the point of view of the systematic treatment of the communications of London.

**Safety on Rail-** It is stated that the Directors of the London and North-Western Railway Company have decided to send a Committee to the United States to investigate American methods of railway management, and it is satisfactory to see that our large companies are not too insular to be willing to learn something from the working of other systems; but in this connexion the figures given by the chairman of the London and South-Western Railway Company at the half-yearly meeting will be read with especial interest. From this statement it appears that although in the United States the railway line mileage exceeds that of Great Britain by about nine times, in our country nearly eighteen passengers per mile are carried to one in the United States. In 1901 the Chairman stated that whilst not one passenger was killed in Great Britain, 249 deaths were caused in the United States, the corresponding figures as to those injured being 476 on British railways to 4,128 in America. If the respective number of passengers carried is considered this disproportion is very great, and, having regard to the congestion of traffic which exists near the Metropolis and the unfavourable conditions of climate under which, for some portion of the year, the traffic has to be maintained, this speaks highly for the management of our railway companies in this respect. Our own belief is that in regard to the safety of passengers American railway management may almost be called reckless, in comparison with English. In a book on American railways written some years ago by American engineers, it was frankly stated that no insurance company would take the lives of the officials in the travelling post-office vans; and in the same publication it was maintained, with the most cynical candour, that it was foolish to risk capital in constructing a new railway on the best methods until it was seen whether it would have a remunerative traffic—it should be run up in the cheapest manner first, as an experiment; and the fatuity of English companies in spending money on the best construction in new branch lines was ridiculed!

**Gas in North London.** CONSUMERS of gas in the very extensive area north of the Thames supplied by the Gas Light and Coke Co. will welcome the revolt of a section of the Company's shareholders at the recent half-yearly meeting against its Court of Directors, if it results in an improvement in the business methods adopted by the Company. The London County Council, recognising that cheap gas of low candle-power is more valuable to the consumer than costly gas of high illuminating power, has promoted a Bill to reduce the standard illuminating power of the Company's gas from 16 to 14 candles, and the standard price by 2d. per 1,000 cubic feet, in addition to a further reduction as recommended by Sir James Rankin's Committee. The Gas Light Co., on the plea that it cannot afford to make this reduction, has decided to oppose this Bill, in spite of the fact that the South Metropolitan Co. and the Commercial Co. have already voluntarily

made similar reductions. It is gratifying to note that Sir George Livesey, who is one of the Company's shareholders and at the same time one of the most eminent authorities on gas supply, spoke favourably of the London County Council Bill and unfavourably of that promoted by the Company. It is difficult to understand the opposition of the Company to the proposal to reduce the standard illuminating power by 2 candles with a corresponding reduction of 2d. in the standard price, except on the supposition that the Company hopes by opposition to effect a better bargain—an altogether forlorn hope in view of the voluntary reductions made by the other Metropolitan Companies.

**Tyburn and Rebuilding in Edgware-road.** A SITE has been cleared by the pulling down of some houses at the southern end, on the east side, of Edgware-road, for the erection, at a cost of 7,000*l.*, of new headquarters for the Church Army, to comprise the administrative offices and a clubroom and refreshment-bar, in connexion with the men's training-home at the rear of the new premises. One of the old houses, No. 12, had retained the ironwork balconies or verandahs on its first and second floors which it is said were built to accommodate the sheriffs and other officials who were required to attend the execution of sentence upon criminals at Tyburn. The gallows were kept in that house. Timbs writes that when they were no longer used there (that is, after November, 1783) the gallows were sawn into pieces and made into stands for beer-casks in the cellars of the adjacent Carpenters' Arms public-house, rebuilt, as the New Inn in 1875. The exact position of the gallows is still a controverted question, due most probably to the circumstance that they were not always erected on the same spot at that, the later, Tyburn. The most trustworthy authorities aver that in more recent times they stood a few yards distant, southwards, from the corner of Edgware-road and Bryanston-street, opposite the site we indicate. Another account says that a lease of No. 49, Connaught-square cites that house as standing on the spot. In his "History of Marylebone," Smith records that the gibbet stood during many years on a mound at the corner of Edgware-road, near the turnpike, on the spot since occupied by the toolhouse of the Uxbridge-road Trust. The removal of Tyburn Gate in 1829 is commemorated by the inscription on an iron tablet set against the Park railings opposite the end of Edgware-road. Messrs. Hudson & Hunt have been appointed architects of the new buildings for the Church Army.

**The Renovation of the Sheldonian Theatre.** THE Report of the Curators of the Sheldonian Theatre, Oxford, on the restoration of the ceiling pictures, contains food for thought and some humorous ideas. It appears that the damage to these pictures has been caused by the cupola, which was erected early in the last century, having been leaky; but the Curators with some satisfaction announce that this defect has been practically overcome, and that it is now watertight, "unless in exceptionally violent storms." The further statement that this has been effected at a cost of nearly 180*l.*, however, makes it a matter of surprise that this work was not accomplished some eighty



years ago. Another cause of the damage was traced to the fact that workmen had found the back of the pictures a convenient depository for "shavings, sawdust, old nails, and other rubbish," and, moreover, had placed some of the paint intended for the cornices and walls on the pictures. The Report of Mr. R. J. Nairn discloses the painful fact that the cornice which appears to support the ceiling is really a sham, being constructed only of deal painted to represent granite, and itself supported by iron rods from the timbers above. It would therefore appear that if Oxford moves slowly in the matter of renovation, it led the times in jerry-building.

At Messrs. Dowdeswell's galleries is to be seen a pretty large and representative collection of the landscapes of the late Mr. Charles Davidson, an old member of the Society of Painters in Water Colours. They are not all of equal value, some of them, such as the large one of the Lledyr Valley (47), savouring rather of conventional "picture-making," but there are others of more characteristic interest. The first one on the catalogue, "At the Mumbles, Swansea," with the boats casting strong shadows on the shingle, is a very true piece of work. Among others that may be mentioned as of special excellence are "Autumn near Reigate" (7), with the sunlight on the foreground; "A Sussex Common" (14); "On the Hills above Bettws-y-Coed" (18); "Approaching Storm, Dartmoor" (24); "On the Moor" (43), a fine composition out of very simple materials; and the small drawing, "Cornfield, Streteley-on-Thames" (49), one of the very best, showing merely a cornfield on a steep slope or curve with a belt of trees making a higher curve above, one of those little bits of effective composition which often are of more real artistic value than larger and more elaborate works.

At the Society of Fine Arts is a collection of water-colour drawings by Mr. E. Wake Cook, exhibited under the title "The Quest of Beauty (real and ideal)." A large proportion of these are drawings of architectural subjects, many of them from Venice, partly prompted by the feeling, as expressed in the artist's introductory note, to the catalogue, that Venetian architecture is getting into so precarious a condition owing to the effects both of time and of changes made by the hand of man, that it is a duty on the part of artists to do all they can to at least preserve faithful records of buildings which may soon pass away. "It would be an artistic calamity if this 'Sea Cybele' should crumble to a memory, leaving nothing standing but modern counterfeits of her past glories, up-to-date shipyards, factories, and hotels." Every one will sympathise with this feeling; and Mr. Cook has done his task well in respect of this portion of his work. His architectural studies are very careful, very highly finished, and in every way admirable. We may mention especially "Porta della Carta" (1); "Browning's Palace," the Rezzonico (4); and "The Loggetta" (60), recently destroyed in the fall of the Campanile—a drawing of special value in every sense. There is a very large drawing of the Campanile itself

(58), also of special value now, though perhaps a little deficient in power; delicacy in dealing with small and highly-wrought architectural detail is Mr. Cook's strong point. A study of "Marble Pavement in the Forum, Rome" (48) is also very interesting. Among the landscapes, the best is a beautiful little drawing of a view "Near Arthog, Barmouth" (27). The "ideal" is represented by some imaginary scenes of temples and trees, with nude figures, somewhat after the feeling of one class of Turner's works. There is a good deal of beauty in these, though to be entirely successful in such imaginary creations demands the hand of a great artist. It is in the representations of ancient architecture that the strength of the collection lies, and this should recommend it to the attention of our readers.

#### MAGAZINES AND REVIEWS.

THE *Art Journal* opens with an article on "Albert Moore: an Appreciation," by Mr. A. L. Baldry. We think he exaggerates Albert Moore very much. That Moore deliberately set aside the mere "subject picture" as an inferior form of art is intelligible enough, and he was right enough in regard to the highest purposes of art, although there is a great deal more to be said for the subject picture, in its best form, than some of the "pure art" critics quite realise. But if Moore "conceived and practised what he believed to be the noblest form of pictorial art," one can only regret that his ideas as to the noblest form of art were so very inadequate. His pictures represent simply physical beauty devoid of intellectual meaning; very charming to the eye in all cases, but in most cases presenting nothing to the mind. The "Quartet" is a happy exception; it has a fine symbolical meaning in addition to its charming decorative effect; but it is in this sense very exceptional among his works. His graceful young women, draped and undraped, are for the most part creatures absolutely without expression or any evidence of soul—merely beautiful lay figures; and if that is supposed to be "the noblest form of art," so much the worse for art. A short article is devoted to the pottery work of Mr. W. Moorcroft, a head of a pottery firm at Burslem, who has aimed at striking out a special character in the work produced under his direction. In the illustrations given it is difficult to judge from black and white only of what must depend very much on colour treatment. They are described as "characterised by a particular hue of colour which may be described as a pale celadon with deep marine blue enrichments, while yellow and green are sparingly introduced." In other respects the special character of this pottery seems to consist in a rather free use of floral ornament without interfering with general grace and symmetry of line in the whole object. An article on Sir E. Waterlow's landscapes is another contribution to the number. The *Contemporary Review* has an interesting article by the Rev. John M. Bacon on "The Mechanism of the Air," based on observations of cross currents of air made during various balloon ascents; not only horizontal but up and down currents, the behaviour of which seems often to be very curious and unexpected. This the writer observes, is a vital factor in the ventilation of cities:—

"That the ascending currents of the atmosphere carry up quantities of dust and impalpable matter which they leave floating in the upper levels till washed down by rain, is a patent fact. But it requires a visit to the regions far up, and an analysis of the air there met with, to learn that a veritable dust ocean lies over towns, often of great depth, yet always having a definite limit above which it is possible to climb and then to find oneself in a pure sky of extraordinary transparency and deepest blue."

And he implies that the vertical currents of the atmosphere furnish inter-communication between these pure air-spaces and the inhabitants of the town:—

"The vast engine of the atmosphere which we have been regarding drives its machinery up to his very door. Give it only fair play and its invisible turbines will be at work, whirling up to the aerial sea the tainted air and disease germs about him, and

bringing down on him the health-giving air from the pure depths."

But what is "giving it fair play"? This is a question rather briefly disposed of by the writer in a concluding sentence in which he recommends "the cutting away of all overhanging trees and creepers, the maintaining of constant draught through chimneys and ventilators, and (happily a growing habit) the keeping open of windows through the night."

The *Magazine of Art* contains the commencement of a new experiment—an attempt to teach perspective by a painter (Mr. W. L. Wyllie) in a common-sense manner and without geometrical diagrams. It may be doubted whether this method would be quite equal to the teaching of architectural perspective, though even in regard to this we have always been of opinion that the majority of perspective text-books puzzle the learner with a number of quite unnecessary complications of diagrams. In ordinary picture work perspective is a simpler matter, and only needs that certain leading facts should be grasped and retained in the mind. Mr. Wyllie shows very clearly, by sketches, the relation of figures and other objects in a landscape to the horizon and to the spectator's position, and he is quite clear as to what the horizon is, a point on which there is a good deal of confusion in the minds of many people. He also draws attention to a point which is often practically overlooked—viz., that shadows are, practically, parallel, and therefore converge like all other parallel lines. How often we see a sketch in which all the shadows are at the same angle on the paper, without reference to the point of sight. The articles, of which this is the first of a series, are entitled "Nature's Laws and the Making of Pictures"; perhaps a better title than "Perspective," which to the mind of the average reader at once suggests diagrams. Mr. Wyllie is no doubt quite right in saying that many even of painters have very uncertain notions about perspective; in fact, we have found painters hopeless over a problem of perspective which to an architect would seem an exceedingly simple one. The same issue includes an article on Indian art at Delhi, and one on "British Arts and Crafts in 1903," in relation of course to the Arts and Crafts Exhibition; but we doubt whether the scope of that exhibition is wide enough for it to be called British. The writer of the article, Mr. Vallance, indeed half suggests that the Arts and Crafts Society, having shown the way (assuming that they have done so) had better close, as it is only affording opportunity for base imitations of some of the characteristics of its exhibits. To our thinking many of the exhibits themselves are far from being sane and good art; we prefer the continuance of the exhibition, but we wish it would strive after a wider basis and less of mere peculiarity under the pretence of originality.

The *Monthly Review* contains a most picturesquely written article, signed by Evelyn March Phillips, on the Villa d'Este at Tivoli, its history and recollections, accompanied by some illustrations from photographs.

The *Architektonische Rundschau* publishes as its principal article an illustrated essay by Herr Von Schwindrazheim on "National Art in Schleswig-Holstein," which deals really, however, with national or popular architecture. The illustrations given of some of the street houses and country houses and cottages are very interesting; the town houses perhaps the most so, especially the fronts of two old houses on Friedrichstadt and that of a very old house in the High Street of Husum. Among the separate plates those which will most appeal to English architects are the two simplest; a design for working-class cottages, by MM. Otte and Wipperling of Berlin, an irregular terrace of small houses shown in two very pretty chromo-lithograph prints of front and rear elevations; and a sketch for a country house, almost in outline, by Herr Kronenberger of Munich. The more important plates illustrate, among other things, a Kaufhaus in Berlin, by Herr Jatzow of that city, the front of which is a mass of windows divided up by narrow stone piers running the whole height of the front and finishing at the top in a kind of capital; the details are all clever with that kind of modern German cleverness which gives one a shudder. A large villa in the outskirts of Stuttgart, with rough-dressed stonework in the basement, ashlar above, and half-timber above, that is more pleasing than many German country houses;



Herr Eitel of Stuttgart is the architect. The number contains an illustration also of one of MM. Fellner & Helmer's numerous theatres, that at Graz—a piece of respectable classic in their ordinary theatre style.

In the *Berliner Architekturwelt* the Art and Music Academy at Charlottenburg, by MM. Kayser and von Grosse, of Berlin, is a fine and effective building in general grouping, in Free Classic style and without the eccentricity of detail so often prevalent in modern German Classic architecture. The plan is only given *en bloc*, showing a front block with a large quadrangle and garden in the rear. Among the other illustrations is an "Idea" for a great gymnasium or body-training school, by Herr Werle, which shows a very bold architectural conception with rather extravagant details, and an interior of an immense monumental vaulted swimming-bath. The whole thing is a kind of architectural dream (the Germans are great in this kind of thing), but not without interest.

The *Antiquary* contains an article, with illustrations, on a fine seventeenth-century silver-mounted sword recently found in Hull. It was found in the roof of an old house in High-street, and bears the date 1658. Mr. Charles Dawson writes on "A New Classification of Sussex Pottery," its reference to a loan collection which he has brought together and which is now on view in the lower room of the Gatehouse at Lewes Castle, and which is stated to afford the means of establishing old Sussex pottery as a distinct class of ceramics. The collection will shortly be dispersed, and therefore those who are interested in the subject should lose no time in seeing it.

The *World's Work*, a new publication, has an interesting article on "What the British Unionists Saw" in workshops in the United States. The thing that seems to have struck them most was the extent to which machinery did the work done by men in England. "American industry is great because men sit in chairs moving levers, and massive devils do mighty tasks at their bidding"; a curious contrast to the old "down with machinery" cry in times which can still be remembered in England. The whole article is very suggestive for those who are interested in American manufacture *versus* English. The same number contains an illustrated article on "Office Buildings in Steel and Stone"—American high buildings to wit; there is nothing new in it, however.

*Temple Bar* contains a long article "On Some Old Oriental," meaning China, signed "N. T. B." It is not only interesting, but embodies, in one way or another, a good deal of information on the subject.

*Knowledge* presents us with an architectural article, on St. Sophia, by Mr. Antoniadi, consisting of some of the principal facts in the history of the building, along with a restored view of the interior as it may have appeared just after completion, showing, among other things, the crowd of lamps suspended over the floor which raised such enthusiasm among contemporary witnesses. Mr. A. Fowler, F.R.A.S., contributes the first of a series of articles on "The Chemistry of the Stars."

The *Gentleman's Magazine* contains a short article by Mr. A. Francis Stewart on "The Saracens in Sicily," which, though not professedly architectural, deals with a subject that is connected with architectural developments in Sicily.

In *Scribner*, under "The Field of Art," Mr. H. R. Marshall discusses the question "Shall artists be trained in our Universities?"—a subject on which it appears that there is a good deal of debate in the States at present. He sums up in favour of it, as tending to give the artist larger and broader ideas on the intellectual basis of art. Many artists clever in technique are no doubt wanting in intellectual perception, as the walls of the Royal Academy annually testify; but would University training improve them and would it not stand in the way of that mastery of technique which must be trained for when young, and for which nothing can compensate? The same number contains an article on "Pictresque Milan," by Miss Edith Wharton, with some charming illustrations by Mr. Peixoto.

*Harper* contains a popular article, illustrated, on the Roman wall, under the title, "The Edge of an Empire," by Mr. E. Lester Arnold, which may serve to induce some people to go and look at a celebrated antiquity which all have heard of and few have taken the trouble to see.

The writer's opening sentence on this head is worth quoting:—

"The kindly schoolmaster, conducting a youthful intelligence on a tour through ancient history, sometimes points out that the Roman Emperor Hadrian, when vexed by northern barbarians, built a wall across England from Tyne to Solway. His maps indorse the fact, and youthful fingers trace the thin black line indicating its course over hill and valley with mild wonder; but there, for scholar and pupil alike, the matter generally ends. Yet that wall still stands to-day, forgotten of tourists, bitterly despoiled by generations of shepherd builders, but nevertheless much as it was when English history was but in the beginning—the very front and buckler of a bygone empire, eloquent in each yard of its seventy miles, the greatest, the most neglected, the least valued of our national antiquities!"

What is coming to our great quarterlies, once the strongholds of anonymous criticism? Here is the *Quarterly* with three signed articles in it; "South American Animals and their Origin" by R. Lydekker; "A Conspectus of Science," by Sir Michael Foster; and "The Early Art of the Netherlands" by Julia Ady. We should be sorry if the *Quarterly* joined the ranks of the personally written magazines, in which articles are read (and too often published) because of the writer's signature and not because of the contents. The advantage of the anonymous review is that it leads the reader to estimate an article by its inherent power, not by the authority of a name, and to take the trouble of forming a judgment of it for himself. Sir Michael Foster's rather dry article is a review of certain catalogues of scientific literature. Miss (or Mrs.) Ady's article is, like several other recent essays, inspired by the Bruges exhibition, which has directed so much attention to the early Flemish painters. The writer seems well acquainted with her subject. She suggests an explanation of the peculiarly realistic tendencies of the Flemish painters. They did not paint, like the Italian masters, for the church and the people; they painted for the wealthy burghers of Bruges and Ghent, Brussels and Louvain, a cultivated and somewhat materialistic class; "accordingly they strove to reproduce the sheen of silk, the gloss of velvet, and the sparkle of jewels, with minute care and accuracy, working slowly and surely, on a comparatively small scale, and bestowing infinite pains on every part of the picture, they succeeded in attaining a degree of finish and brilliancy which has never been surpassed." And after all, perfect execution seems to be what retains its hold longest in art. Intellectual ideals may change, but the mastery over technique will always keep its place. The same number contains also an important article on "The Port of London," being a review of the Report of the Royal Commission on the subject, the conclusions and recommendations of which the article for the most part supports.

The *International Quarterly* is the title of a new quarterly magazine edited by Mr. F. A. Richardson, which seems to aim at a very wide range; and though all the articles are in English, we presume from the polyglot nature of the list of authors that some of them are written in other languages and translated into English. Among the articles which are on subjects of interest to our readers is one on "The American Workman and the French," written by M. Jules Seigried, Member of the French Chamber of Deputies, in which a parallel, or contrast, is drawn between the condition and character of the French and the American workman. The difference in the scale of wages between the two, which is tabulated for various trades, is very remarkable, though against it must be set the fact that lodging, or house room, is much more expensive in the States. The following passage is significant:—

"It is known and believed in America that intelligent labour is sure to be rewarded, either by a promotion sometimes rapid and even astounding, or by a premium received immediately. We have noticed the importance of invention in the business development of America. The workman plays a great part in this search for the new. Numerous inventions have been made by workmen who knew the practical handling of their machine, and the direction in which its perfecting might be sought. Did these American workmen do this for the love of art? Who knows? Perhaps to some extent they did, for I believe that the workman of the New World possesses proper pride and a disinterested spirit. But he also knows well that every invention which will be a source of profit to his employer will also redound to him, and that he will not be forgotten. When thousands are seeking the chances are that

some one will find, and this is the reason, I think, why so much is found out in America."

The *International* also contains a good article by Mr. Russell Sturgis, professedly on "Recent American Architecture," but which in reality includes a good deal of criticism bearing on art and architecture generally, independent of country.

The *Nineteenth Century* contains an article by Mr. E. B. Havell, the Principal of the Government School of Art at Calcutta, on "British Philistinism and Indian Art," which should be read by our rulers, if they have grace to profit by it; our readers will readily guess what is the main argument of such an essay; but the argument has rarely been better and more forcibly put. The writer says, with absolute truth, that in England art is now regarded as a mere toy for the rich, which they may have or may not, according as they want it; in India, where there are no native schools of art, "art lives and is felt as much by the ryot as by the maharajah." Yet this native art we are doing our best to poison out of existence by a system of South-Kensingtonising. It is satisfactory, at all events, that the present Viceroy of India seems to be conscious of the mistake, and may be able to do something to rectify it. An article on "A Working Man's View of Trade-Unions," by Mr. Jas. G. Hutchinson, contains a great deal of good sense and wise suggestion. One point to which he specially draws attention is that the supposed qualifications for a man to become a member of a trade-union are far too easily accepted as existing, in the desire to make recruits; and that membership of a union thus by no means carries with it the proof of a high standard of efficiency. There are other suggestions in the article which managers of trade-unions would do well to consider.

#### THE ARCHITECTURAL ASSOCIATION.

The usual fortnightly meeting of the Architectural Association was held on Friday evening last week in the Meeting-room of the Royal Institute of British Architects, No. 9, Conduit-street, Regent-street, W., Mr. H. T. Hare, President, in the chair.

The minutes having been read and confirmed, and some nominations having been announced, the following gentlemen were elected Members of the Association, *i.e.*, Messrs. W. Sykes George, T. C. Mannock, P. H. Keys, Gordon Williams, and Ingleson C. Goodison. Messrs. A. Burnell Burnell and R. H. Kerr were reinstated, and the following gentleman was, on the motion of the Chairman, elected by acclamation, *i.e.*, Mr. J. W. Simpson, F.R.I.B.A.

Mr. R. S. Balfour, Hon. Secretary, stated that on February 12 the following class would commence, *i.e.*, "Hygiene, Ventilation, Lighting, and Heating," Mr. Max Clarke, lecturer.

Mr. Balfour also announced that the annual supper of the Camera and Cycling Club would take place at the Holborn Restaurant on February 21, at 7 p.m. The Camera and Cycling Club will be glad to receive the names of any members who could attend the supper and assist in the entertainment.

The Chairman announced a further donation to the New Premises Fund from Mr. Zephaniah King (second donation), 3*l.* 3*s.*

Letters regretting absence that evening were announced from Sir L. Alma Tadema, Mr. Walter Crane, Dr. A. S. Murray, Mr. R. Phene Spiers, and Mr. F. C. Penrose.

The Chairman said he wished to say a few words as to the Class of Colour Decoration. This class in past years had had a fair number of members, and it had been carried on for a number of years with great success. The subject was an extremely interesting one, and he was quite sure that those members of the Association who had in the past availed themselves of the teaching to be had in the class had benefited very much by it. It was, therefore, a matter of considerable regret that the class was beginning this year with only two members. He hoped that any members who felt disposed, and were able, would join the class.

What is the Real Value of Greek Work to the Modern Artist?

Professor G. Baldwin Brown then read the following paper:—

In one sense no apology is needed for introducing before an architectural audience the familiar subject of the artistic work of the



Greeks. The supremacy of the Greeks in some of the branches of the plastic and constructive arts, their excellence in all, are universally admitted, and the advantage for the modern practitioner of a study of acknowledged masterpieces cannot possibly be gained. But one remembers the old story of the Athenian citizen who voted for the banishment of Aristides, because he was weary of always hearing him called "the just." It is possible that in like manner some who are here present may be a little tired of having the unapproachable excellencies of Greek statues and buildings set continually before them as a sort of reproach to modern shortcomings. If voting could be quite secret, and no one could know who had put in the black balls, a ballot among the younger and more ardent members of the professions of architect or statuary might result in something like a temporary ostracism of Pheidias and Ictinus, who would be followed into exile by Vitruvius and all his Renaissance imitators. It is quite possible, at any rate, that there is latent in some minds a certain feeling of impatience with regard to the exalted claims which are sometimes put forward on behalf of the arts of Greece, and it should be said at the outset that this paper is not written from the point of view of the professed classicist, in whose judgment the ancients could do no wrong. There will be some attempt, at any rate, to discriminate between what is of lasting and universal value in Hellenism, and what was for the time only, or was imperfect and even on faulty lines. At the same time it is to be feared that the "justness of Aristides" will figure very largely in what follows, and those present must put it down to the nature of the subject rather than to the writer's intention if he fall at times into the sermonising vein. The theme of Greek work is not a "subject of the day." It does not "palpitate with actuality" or "bristle with points of controversy." It does not offer the interest of a fight. A generation ago this kind of interest would have been attached to the subject, for there was then a pronounced antagonism between the volarities of the classical and romantic ideals, that is now quite out of date. In the first half of the last century romanticism in literature and in architectural practice was militant. Its attitude towards the neo-classicism of the previous generation was an aggressive one, and in France, at any rate, where they take these artistic questions seriously, the adherents of the two schools nearly came to blows. This intensity of personal feeling belongs to the past, and the Law Courts at Temple Bar represent perhaps the final effort of the Gothic revival as a form of artistic propaganda. In the present day we have settled down to a reasonable eclecticism that sees good in most of the established traditions.

This eclecticism is not a symptom of decadence, it is not a Laodicean indifference, but rests on an easy confidence that we are the "heirs of all the ages," and, from our place "in the foremost files of time," can survey the past and appropriate from it whatever seems to suit our personal needs. No one in the present day will break his lance upon the Greek façade in the spirit in which Ruskin tilted against it in his "Lectures on Architecture and Painting." The opposition which in the present day the votary of classicism will have to meet is not a militant opposition. He will find in some quarters people who are slightly bored by Hellenic achievement, and, though they accept it as beyond the reach of criticism, decline to trouble themselves to analyse its qualities or to assimilate its standards. He will find in other quarters a tendency to accept Greek work in a somewhat patronising spirit, with the proviso that it must have got a little fuzzled and warped and wavy through the lapse of ages, before the sensitive modern eye can take delight in it. It is not the case that the medievalist will sometimes offer a sort of apology for his admiration of Greek work, on the plea that, as we now possess it, its charm is so largely aided by the mellowing touch of time? The sculptor of to-day will sometimes tell us that the corroded condition in which works like the Elgin marbles have survived is to their advantage as works of art, and that they look better with the texture that time has given to most of the surfaces than they can have appeared in their pristine freshness. Mr. Walter Pater threw out the somewhat paradoxical suggestion that Michelangelo left his marble figures unfinished in order to obtain the same sort of effect that

he saw in time-worn antiques. The notion in itself is, of course, absurd, for the state in which so many of Michelangelo's works have come down to us is due partly to his own temperament and partly to the circumstances of his career; while he imparted at times the most exquisite finish to marble, as in the Pieta at Rome, or the torso of one of these very same unfinished works, the "Slave" of the Louvre. The notion, however, though in itself absurd, is very characteristic of "romantic" art criticism.

There is, indeed, not a little affectation in the modern worship of the undefined, and to this a right understanding of Hellenic work supplies a much-needed corrective. It is a first principle in the study of that work that it must be accepted as it was at the moment of its completion, absolutely clear in its definition and thorough in finish. The finish that the Greek craftsman put on his work is the secret of some of its finest qualities. It is precise and smooth, while it yet shuns the rigidity and lifelessness that some of the neo-classic styles in the modern world have taught us to know and to avoid. It is, however, only shapes that are perfect in their beauty and expressiveness that can bear the pitiless exposure which exact finish carries with it. If form be not really fine and studied in all its contours, then "sensitiveness of surface," "suggestion," and "texture" make a very pleasing and attractive substitute. But it is only a second-rate achievement to cheat the eye with a vague impression of the artistic in broken colour and light and shade. The Greek artist would have looked on this device with something of contempt, and we can imagine how Lucian's satire would have played about the work of the artistic genius who did not quite know his own mind.

Greek work, accordingly, may be taken or may be left alone, but, in any case, the qualities by which it must be judged are those it possessed when it left the artist's hand, and not certain adventitious qualities it may have derived from the accidents of the centuries. Quite enough of this work has come down to us practically untouched for us to be able to judge how the work looked under the sun of Hellas. Though a good deal of the marble sculpture is corroded, of the bronze encrusted with patina, though the buildings have descended to us in a state of ruin, yet there are specimens or portions of each kind of work that are almost perfectly preserved, while smaller objects, such as coins, small bronzes, gems, gold ornaments, are sometimes as fresh as if they had just come from the workshop. No doubt there is an indescribable charm that may be given by "the mellowing touch of time," and certain forms of Greek art, such as the terra-cotta statuettes, owe not a little to the broken tints, the dimpled surfaces, of the age-worn material. These particular works were always, however, rather sketchy in style, and do not properly illustrate the point at issue. There are, on the other hand, many kinds of work in which we give no value to these accidental graces. A perfectly preserved Greek coin—and the world holds no more beautiful work of art—is always more admired by an artist than one to which time has added "texture," and the contours of a hydria are not improved when one of the handles is broken off.

What now is the true value to the modern artist of Greek work of this kind, frankly accepted in the Greek spirit?

The answer to this question in its broadest aspect is already conveyed by implication in the query itself. It is obvious that the answer must be, to a great extent, an expansion of the simple thesis that it is the spirit of Greek work rather than its outward features that will be found of real value to the modern practitioner. The Classical Orders have details that have been usefully employed in Western European buildings from the time of the Renaissance downwards. The forms in question are, in themselves, arbitrary forms, meaningless to the modern intelligence, and their continued employment in modern work is by some strenuously opposed. The movement known as the New Art Movement, for which Scotland, to its pride or to its shame, seems to be in some part responsible, aims at substituting for these conventional forms other forms devised on each occasion by the constructing artist. These forms, whatever else may be said about them, are, at any cost, original, and it is claimed for them that they

are more interesting than the time-honoured exemplars which for three or four centuries since the Renaissance, each succeeding generation has tamely accepted from the last. So far as at present appears, the Classical Orders seem likely to hold their own; but it is quite an open question whether this is due to any inherent æsthetic virtues which they possess, or merely to the innate conservatism of the human mind. In other words, there may be a real, even a profound and cogent, artistic reason for the continued employment in certain kinds of work of Classical forms; and if this reason can be made clear, then the forms are no longer dead forms, but living, in that they answer to the needs of the present hour. On the other hand, the forms may be only retained as a mere matter of tradition, and if this be the truth, it may fairly be argued that they have become a sort of incubus on architectural practice, and by their deadening pressure flatten this into the academic. With regard to this question of the continued use in modern times of the ancient models, it is clear that it is no part of the business of the architect of to-day to erect Greek temples like the Madeleine at Paris, or, as at London and Edinburgh, to force the forms of the Erechtheum into the service of modern requirements. Our architectural classicism of the early part of the last century went too far in the attempt to transplant into the surroundings of modern life in North-western Europe the special forms of plan and elevation that suited the social and religious purposes and the climate of the Greeks. In Scotland much of the work of Hamilton and of Playfair, such as the High School at Edinburgh or the Royal Institution that faces Princes-street at the bottom of the Mound, are too artificial in their classicism to suit the taste of the present day, which, after the battle of the styles, has settled down, as we have seen already, to a moderate and common-sense view of things.

Perhaps in our own country St. George's Hall at Liverpool goes as far in the recreation of the antique as modern taste will allow. It is a monumental structure designed for a stately outward effect, and for actual uses fully in accord with the spirit of Attic culture. Hence the style has a natural suitability to the purpose of the building, while it is treated in so fresh and original a fashion that we have no sense that art is in bondage in it to archæology. A more limited employment of classical forms for domestic as well as for monumental purposes, we find in the neo-classic town architecture of eighty or a hundred years ago, of which the work of Robert Adam, in Edinburgh and London, is a central example. The scheme of the buildings in question is not classic, for the chief element in their architectural effect is the wall pierced with window openings, and this is not a form used in the antique world; but the details are largely drawn from the "repertory of ready-made details" just referred to. The question is whether the continued use of these is only a matter of unreasonable habit, or has for its justification some solid artistic grounds.

The merit of these features in themselves as perfected by the form-giving genius of the Greeks will be readily conceded, but the objection to their continued use is based on the fact that, though admirably fitted for their original purpose and surroundings, they have now become trite and conventional forms, with no significance for the world of to-day.

May it not be argued, however, that this very familiarity and conventional character of the forms in question is an architectural advantage? If the effects of architecture depend so largely on composition—that is, on the relations of proportion among the parts—the less attention the parts attract to themselves the better. The original features which the New Art movement has introduced into notice challenge attention by their novelty and sometimes by their strangeness, and even their uncouth aspect. Attention is in consequence distracted from the general effect, which depends on the harmony of relations, and is directed to the parts rather than to the whole. If these novel forms were good in themselves, we might be content to wait till we became familiar with them, and they dropped in consequence into the background. As a fact, however, the creation of satisfactory tectonic forms is a very much more difficult matter than some people imagine, and a repertory of features that are to take the place of the forms matured by the Greek masters of old is not the work of a single day or generation.



The question here posed of the artistic value of the stock of material features handed down to us from the antique is only a sub-question embraced within the larger inquiry formulated in the title to this paper, and it is well to begin by regarding the subject in its wider aspects, and to discuss rather the spirit of Greek work than the practical models which it supplies to the builder of to-day.

The spirit of Greek work can be best understood if we contrast the most characteristic artistic expression of the Hellenic mind, the Doric temple, with a monument that embodies as perfectly the opposite artistic tendencies which have been already referred to under the term "Romantic." The French cathedral of the thirteenth century shares with the Greek temple the distinction of representing the highest development of which architecture has shown itself capable. The two buildings are complementary to each other, each possessing characteristic qualities that the other lacks. Each is the expression of the ideal of an age.

The pedestalled isolation of the Classical fane, the clear-cut precision of its parts, where every ratio of size and place is studied, every profile matured with fastidious attention, are characteristically Hellenic; and by their own language these architectural features convey the central idea which in the moral life, in society, and in the state the best of the Greeks were ever striving to realise. Against this Hellenic definiteness and lucidity may be set the comparatively mystical temper of the Middle Ages, and the cluster of multitudinous details, that in picturesque illusive outlines enfold the thirteenth-century cathedral, are creations just as characteristic of the romance and enthusiasm of the North.

Much of the impressiveness of mediæval buildings depends on the suggestion of mystery. Their interiors are amplified in effect by a disposition of the masses and the voids, which offers a "something beyond" in whatever direction we turn our eyes. Professor Freeman has remarked about the Gothic church: "Place yourself where you will, the view is boundless, nothing occurs to force a limit on the eye in any direction; interminable rows of columns branch away to every point, arch is seen through arch, every feature suggests something beyond itself . . . even the apertures of the triforium, and the narrow passages of the highest range, give a hint of something yet further, of interminable mazes leading you know not whither."

Through this characteristic mediæval buildings appeal to the imagination to an extent unparalleled in the more severely bounded Classical structures, and they derive from this their special hold on our sympathies. Robert Louis Stevenson said somewhere that he liked a great cathedral; it was the form of mountain scenery that pleased him best. This is a whimsical way of putting the important æsthetic truth that the forms of architecture have not a little in common with the grander aspects of natural scenery.

The effects of mass, of height, of vastness, the charm of complex detail, the mystery of light and shade, we find on the one hand among the hills and forests, and on the other amid the towers and the aisles of our great mediæval monuments. In both cases the æsthetic impression is largely due to varying effects of lighting. Shadow, which by its suggestion of the unseen increases apparent magnitude, is a potent element in the sublime effect of the masses of both Nature and art. We are accustomed to study our great churches in the broad light of day, which fills their empty spaces and pitilessly exhibits to our view the fragmentary monument, the bare altar slab, the ruined shrine. Those who have been fortunate enough to visit some of these immense interiors in the gloaming, or at night when they are only partially illumined, know how they gain in the half-light both in added vastness and in the suggestion of complex beauty in details which we cannot fully explore.

It is at such times that we can reproduce to ourselves the aspect that the church wore in mediæval days better than in the full light of morning, or while the simplified modern rites are being performed at the rifled altar. The imagination will then readily travel back to the ages of faith and enthusiasm, when these colossal fanes were reared and embellished, with never-ending extensions of their spaces and ceaseless elaboration of fittings and enrichment. If placed alone at night in an interior like that of Canterbury,

or Lincoln, or Durham, the most pronounced classicist would surrender himself to the mystical suggestion of the scene, and recall the memories which the ancient walls enshrine. At such times we can fancy in the gathering darkness that there are altars and shrines along every aisle, and that every altar has a carved and painted canopy, each monument its screen of cut marble or of gilded iron. We see in imagination the last rays of the fading daylight enter, subdued but enriched, through the glowing windows, every pane of which is blue, or sanguine, or green, or gold. Anon the silver lamps and the iron cressets will be lit up, and we watch the faint radiance as it steals along the aisles, kisses the clustered pillars, and dies away into darkness below the fretted vault. Next, the voices of the singers, and the mellow notes of the wooden organ-pipes peal out for evening prayers; and then, still later, when all are gone, silence and gloom settle down upon the measureless spaces of the interior. But it is not wholly dark nor all untenanted. There at the extreme eastern end a light is set within the window niche, that through the night its rays may make dimly visible to the watchers the costly treasures piled around some venerated tomb. In their chamber hard by sit the guardians of the shrine, and now and again the footsteps of other vigilant custodians of relic or of treasure wake the echoes of a distant chapel as they tend a lamp or make fast a door. The hours pass away, and there is a stir among these ghost-like denizens of the mysterious shadow-land, and soon from the central tower the deep notes of a muffled bell sound forth the nightly summons to prayer. Pendant lamps are lighted above the altar. One or two ministrants enter the church and pass on into the Recess to robe. Then along the vaulted aisle or from the southern transept, perhaps still half asleep or moving as if in dream, glide the dark-frocked monks or white-stoled canons to their office of vigil or of matin. The voices rise in the palm, and echo along the dim and cavern-like nave.

With this general impression in our minds of limitless complexity, of surroundings only partly apprehended, that offer from every side some fresh appeal to the imagination, let us contrast the opposite impression of absolute lucidity which we receive from the severely bounded forms of the Greek architectural monument. For this purpose we must select a building as nearly as possible complete. A ruined temple like the Parthenon is of little help save for the study of details, because it has lost just that characteristic of absolute symmetry and evenness which is the quality with which we are for the moment concerned. The comparatively perfect temple beneath the Acropolis, the so-called Theseum, is on rather too small a scale when measured with the rock-like masses of the Parthenon overhead, to produce a full architectural impression. A large temple, however, of an early period, roofless, but on the exterior otherwise well preserved, stands at Paestum, in Southern Italy, and this is happily the best known and most accessible of all extant examples. The great temple at Paestum is so situated that one comes upon it suddenly after walking a few hundred yards from a bustling little railway station, whither a crowded local train has transported us along five-and-twenty miles of hot and dusty railroad from Salerno. It bursts into view in a moment as we round the corner of a wall—a vast, clearly defined mass, golden in the sunlight against the grey green vegetation of the plain and the blue of the distant promontory. Its platform rises sharply on every side from abundant tufts of the beautiful *acanthus mollis*, from which is derived the leafage of the Corinthian capital, while in regular and continuous order the ponderous Doric shafts are ranged upon its topmost level, and bear above them the great horizontal incus of the entablature. The brilliantly illumined columns alternate with darkened interspaces, and in monotonous succession they follow each other in diminishing perspective along the receding face. Side corresponds exactly to side, end to end, and above the columns there is everywhere the horizontally bisected entablature, with the alternating triglyphs and metopes. The strong shadow cast by the projecting cornice and the gleaming strip of the corona crown the whole with an unbroken skyline.

The impression is at first one of overpowering magnitude, and the secret of this effect it would be interesting to trace. As a fact, the length of the building is much less than half that of

the National Gallery in Trafalgar-square, yet no one ever received from the latter any impression of size. It is not, however, an impression of complexity, for the similarity of the alternating forms, by which we measure the bulk, forces itself on our attention, and we cannot escape obtaining from each of these forms a perfectly clear and definite impression, both in itself and in its relation to the other forms with which it is combined. The satisfaction which the eye receives, at first from the general mass and next from the forms in themselves and in their relations, is so complete that we ask for nothing more. We do not realise, or at any rate do not lament, that the building is absolutely plain, devoid of every touch of ornament, and of any colour save that of the actual material in which it is wrought.

There could be no more convincing refutation of Ruskin's famous paradox that the function of the architect is merely to supply a framework for the display of decoration in carving and colour. The artistic effect here is purely one of form, and the example supplies a potent argument in favour of those who contend that both architecture and sculpture are arts of form and of form alone. From the natural colour and texture of the materials employed they derive all the value that is possible, but except in the interiors of buildings where other considerations come in, they do not ask to be painted. Architecture, moreover, again in its monumental aspects in exteriors, as an art of form is independent of ornament. No one to whom Paestum comes as a vision of power and beauty ever troubles about the untenanted pediment or the empty metope slabs. The austere plainness of the fabric only brings into clearer relief its inherent qualities of form and perfection.

For the secret of the effect of a fine monument of Grecian architecture is due first of all to the studied relations of form and size among a number of similar and often repeated parts.

Proportion, it need hardly be said, is the primal secret of the æsthetic effect of architecture, and no builders ever understood so well as the Greeks how to compass this effect by the simplest means. When the first overpowering impression of majestic repose we receive from a fine Greek monument has passed from the mind, we find ourselves balancing part against part, the uprights against the horizontals, the architrave against the frieze, the triglyphs against the metopes, the height of the column against its thickness, and finding everywhere the most absolute satisfaction in relations which we feel could not be more harmoniously combined.

As mere forms, through their shape and size and relations, the parts of the Greek façade give this satisfaction to the eye and to the sense, but we receive a further impression, and one of a more complex and intellectual kind, when we note the clearness with which each of these parts proclaims its place and function in the organism of the whole. Furthermore, a closer study directed towards the features in themselves, apart from their relations, exhibits each form worked out to the minutest detail, so as to satisfy alike the eye by its contour, and the intelligence by the fitness of its shape for the work it has to perform.

If we try to express now in a word or two some of the more definite and more practical benefits to a designer of a study of Greek work in this most monumental form, we may claim that it illustrates in the clearest and most convincing fashion some of the more important tectonic principles that apply to construction and decoration in general. Of tectonic principles Greek work is, indeed, the compendium. The Greeks are by no means always right, but their practice in these respects is more consistent and logical than that of any other artistic people. As a general rule they conceived with singular clearness the conditions of the artistic problems with which they had to deal, and were alert to seize, and give effect to, the suggestions of the material and the process which appeal so often in vain to the opinionated modern craftsman. But this expression "tectonic principles" must be further defined and illustrated.

[Owing to pressure on our space this week we are reluctantly compelled, contrary to our usual practice, to divide the report of the Architectural Association meeting. The remainder of the paper, with the report of the discussion, will appear in our next issue.]



# THE ARCHITECTURAL ASSOCIATION SPRING VISITS:

I.—ROYAL COLLEGE OF SCIENCE AND VICTORIA  
AND ALBERT MUSEUM, SOUTH KENSINGTON.

The first spring visit of the session was made on the 7th inst. to the Royal College of Science and the new museum buildings now in course of erection at South Kensington, under the able guidance of Mr. Aston Webb, A.R.A. The Association visited these buildings in February last year, when, however, little more than foundation work had been completed; but the large party which assembled on Saturday clearly showed the interest which is being taken in these great schemes.

Mr. Aston Webb, with his usual unvarying kindness, was present, and when members had assembled opposite the Imperial Institute he gave a short and succinct account of the general lines upon which he had planned the Royal College and its relation to the neighbouring public buildings. A great deal of interest attaches to the fact that for almost the first time in the history of our country some definite attempt has been made by the powers that be to combine in one large architectural scheme the various Government buildings relating to science and higher education, and though, perhaps, the buildings separately are somewhat heterogeneous, the fact that one axial line passes through the centre of the Natural History Museum, the new Science buildings, the Imperial Institute (now London University buildings), the Royal College of Music, and the Albert Hall, and almost strikes the Albert Memorial, is a distinct step in the right direction. In order to further emphasise the general homogeneity of the group, and to enhance the symmetrical lay out, Mr. Webb has arranged the main entrance to the Royal College exactly opposite the entrance to Mr. Colcutt's building, and with the latter's permission he is reproducing at either end the domed pavilions which project in advance of the main frontage, and the new college will, therefore, reciprocate the general lines of the institute as to plan, while in elevation the long and low proportion of the former will not in any way vie with the latter. Those who were fortunate enough to be near Mr. Webb in the progress over the buildings must have been struck afresh with the mass of detail to be considered in the problem, and the masterly way it has all been arranged so that the efficiency of the college, both for professors, students, and the general public, is of the greatest. Some account of this appeared in the *Builder* for February 22, 1902, and therefore mention will only now be made of particulars then not touched upon.

The college is divided into two sides, chemical and physical, buildings relating to the former being placed on the east and to the latter on the west; the parts which require large rooms, such as lecture theatres and laboratory, are placed behind the main frontage; while the science library is placed on the first floor, over the central entrance. In this way it has been possible to design a symmetrical front with floor lines of the same heights all through, and, moreover, greater freedom from vibration has thus been secured to the more important experimental parts behind. This question of vibration is one of great importance in a scientific building of this nature in which the most delicate and exact experiments will be carried out, and Mr. Webb has gone into every detail with the various professors, and has embodied their requirements in his plans, so that it seems as if everything possible has been done to insure the success of the undertaking. For instance, to protect the physics buildings from the vibration of Queen's-road traffic, two underground parallel walls of concrete, with a space between them, have been interposed between the building and the road. As all iron and steel work had to be eliminated, the physics buildings are vaulted in concrete, 6 in. thick, filled in above with dry coke breeze, upon which ordinary concrete floors will be laid. These floors, however, will not touch the central piers, which are to act as "steady points" having projecting stone tables built into them, the piers themselves being constructed alternately of brick and concrete, with layers of felt in between to further minimise vibration. It is not too much to say that the building affords a fine example of the subordination of everything to the practical demands of science, and yet this has been attained without any loss of architectural character, and in some cases, such, for

instance, as the vaulted ceilings, is probably a distinct gain. The great chemical laboratory, 75 ft. by 92 ft. by 30 ft. high, and the two fine lecture theatres, though well advanced, will be worthy of a more lengthy description when nearer completion.

Passing over to the museum buildings, considerable progress has, of course, been made since the visit of last year, and much that is interesting in the way of stone and iron work is now to be seen. One of the predominant factors in the plan has been the difficulty, always experienced in buildings of this kind, to get the public to visit galleries arranged anywhere above ground floor level, and therefore it was decided to cover the whole site without any internal light areas, making all galleries top-lighted, with the exception of those facing Cromwell-road, which are lighted from it. These latter galleries are 32 ft. wide, as experience has proved that up to this distance exhibits on the back wall can be well seen, with average window space in the wall opposite. These galleries are on three floors, the ground floor being 10 ft. above Cromwell-road, thus allowing of a well-lighted basement story, while the top floor is entirely devoted to students. At the back of these, and running right and left of the central entrance, is the great gallery, 700 ft. in length, 50 ft. wide, and 50 ft. high, with apses at each end, while at the north-west portion of the site is a fine circular gallery 110 ft. in diameter.

It should be mentioned that in this building also considerable attention has been paid to the mitigation of vibration; the whole of this brickwork is being built in cement, external and internal walls being 4 ft. and 3 ft. in thickness respectively. A Plenum system of ventilation, assisted in places with radiators, by which the air will be changed four times an hour, ought to effect a great improvement in the ventilation as compared with the present Museum; but it will be interesting to note if the system ultimately carries out all that is expected of it.

It is not possible to give a longer description now of all the many interesting points, but it is hoped that the Association will be able to visit these buildings each year until their completion. The nation has waited many years for a due appreciation of the needs of its science workers, and for a fitting storehouse for the national works of art, but both these requirements are at last within measurable distance of being fulfilled, and fortunately the fulfilment will take the outward expression of a fine architectural conception.

A vote of thanks, proposed by Mr. Louis Ambler, to Mr. Aston Webb for his kindness and trouble, concluded a most successful visit.

## THE SURVEYORS' INSTITUTION.

An ordinary fortnightly meeting of the Surveyors' Institution was held on Monday at No. 12, Great George-street, Westminster, Mr. Arthur Vernon, President, in the chair.

Mr. Penfold, Hon. Secretary, having read some donations to the library and library fund, and a vote of thanks having been passed to the donors,

Mr. W. Woodward read a paper, entitled "Some of the Difficulties which Present Themselves to the Architect and Surveyor Practising in London." Difficulty, or "rebuff," number one was as follows:—A lessee desires to pull down some business premises and to erect a new structure upon the site. He instructs his architect accordingly and directs him to apply to the freeholder for the terms upon which his wishes may be gratified. The first requisition of the agent of the freeholder, and a perfectly fair one, is that an undertaking to pay his fees, whether the transaction is carried through or not, shall be given; this is done, and the ground rent is ultimately settled. The ground rent is based upon the estimated value at so much per foot superficial over the whole site, and before the building is started it is found that the London County Council possesses very different views as to the area to be built upon, and for which the ground rent has been agreed. This is rebuff number one for the architect, and he so informs the agent of the ground landlord, pointing out that inasmuch as—for the public benefit—he cannot build upon the whole area for which his client has paid so much per foot superficial, he thinks that the rent should be reduced in proportion to the reduction of the building area. The architect, having waited for a month or

two for the legal or official mind to grasp the difficulties of drafting a building agreement, submits his drawings to the agent of the freeholder, and here the second little rebuff is met with; the force of the blow, however, depending to a large extent upon the freeholder or his agent.

The author said he had had transactions with at least four of the great London ground landlords, and whilst, with some, no more practical, simple, inexpensive, and expeditious method could be suggested, with others dilatoriness, vexatious requisitions, and costly impositions seemed inevitable. The fact that they were dealing with architects of experience and position, acting for responsible clients, did not weigh sufficiently with some of those gentlemen. The certainty that the new building would form a splendid security, and that the real interest of the ground landlord was at the end of the building term, sometimes escaped the agent's consideration, and after many months, perhaps, during which set after set of drawings had been submitted, the architect might find that the design of the chimney stacks was not thought to be satisfactory; that the shop front was not to their liking; that apparent as well as real support to the superstructure was desirable; and that the plate glass, for the space for which the lessee had paid so heavily, must be encroached upon by heavy stone piers. Every attention should be devoted to the architecture, so that London might be gradually improved in that direction, but when freeholders' requirements resulted in immediate loss to the lessee, he thought it was only fair that some of that loss should be borne by the freeholder. After this second rebuff, the architect went to Spring-gardens, and, armed with the certified drawings of the District Surveyor, found that, under Section 43 of the 1894 Building Act, he had to make special application to the Council to put up his new building, because it "deviated" from the old building. Before the Building Act Committee of the Council the architect's drawings were subjected to as complete an analysis as calm disregard of the value of time, and equal indifference of the value of property, could secure. Perhaps the architect had conceived that his designs fell in with a section of the Act dealing with his particular building, and so they might, but the gentlemen at Spring-gardens would discover that another section of the same Act could be brought into action. Again the experience and position of the architect were disregarded, and the officials would quite unnecessarily worry themselves over some utterly unimportant piece of construction which had not, perhaps, been clearly shown, and they reported to the Committee, and ultimately the architect might be informed that his drawings had not been approved. If the London County Council demanded wider streets and more open space round a building, coupled with reduced heights, those requirements resulted in improvements shared by the whole community, and the cost should be shared by the same community, not fastened solely upon the unfortunate building-owner, who should be fairly compensated for any loss he might sustain.

Assuming that the consent of the Council had been obtained, the architect was notified accordingly, and had to prepare a third set of the drawings, one of which had had to be drawn to an engineer's—and not an architect's—scale, and he was handed over to the District Surveyor. Here he might be on better and safer ground, but it would depend to a large extent upon the knowledge, experience, and practical-mindedness of the District Surveyor as to how far the architect might proceed. Possibly the District Surveyor might be a little nervous on structures, as such; or he might discover, in the fields before him, that even the gleaners at Spring-gardens had left a little to be gathered in. He gathered it, and pointed out that, unless party-walls, which the architect considered quite good and sufficient for the purpose, were taken down and entirely rebuilt, he would put Spring-gardens again on his track, in the shape of a "dangerous structure notice." The defective wall matter having been settled, the architect discovered that there was another public authority, i.e., the Borough Council. The architect was informed that the hoarding let by a client to a bill-poster on terms which would perhaps pay for the unnecessary party-wall business must not be posted over with advertisements at all; that if the architect did



not disfigure his stone front by soil-pipes and ventilating pipes he would hear of it; that if he attempted to emulate the works of the Borough Council in daring to put water-closets and urinals underground (although, perhaps, better ventilated than those of the Council), he would be proceeded against, as he would if he had the audacity to extend a vault under the footway or roadway to the extent of 6 in.; and finally, that the Council had, in the exercise of its wisdom, said an emphatic "No" to the London County Council's "Yes" to oriel windows which the architect had been dreaming of for years. Then there was, perhaps, a threatened injunction in regard to a small window, say, glazed with ground glass many yards off. The payment of 200l. and 150 guineas costs might allow the work to proceed after a loss of three months' time. The builder hinted that he should have to make a claim because the delay had carried him into short days. Then the adjoining owner made a claim for loss by reason of his trade having been interfered with by the dust and other nuisances to which he had been subjected during the building operations. An objection was raised by the water company on the ground that an attempt had been made to get three instead of two gallons at a flush, a few additional questions were raised by the District Surveyor and by the Sanitary Authorities, but all at last were disposed of, the lease granted, and the accounts all squared up.

All this was no imaginary case, and as a remedy he said the great ground landlords of London should work on better and more practical lines. They should make it quite clear, before settling the ground rent, what their ideas were as regards materials, general architecture, shop fronts, &c.; they should be far more expeditious in their dealings and not quite so grasping, as some of them are, in squeezing every penny they can out of the man who has to confront all the difficulties to which reference had been made, and to whom a little less rent would be of very great service.

The London County Council was, little by little, taking upon itself too much of the detailed work of the architect. It sought to enlarge its area of control over everything material and immaterial connected with building operations in London, so that unless some curb were placed upon its activity it would soon be almost impossible to even touch a brick without having first obtained the sanction of the Council. The architects' department of the Council was too much controlled by the committees, the majority of the members of which had vague notions of such highly technical matters as those of the business of the architect. The Council should not be converted into a large architectural atelier at the expense of the ratepayers. There was need for more consistency on the part of the Council. For instance, some members of the Committee saw no objection to iron and glass covered ways to hotels, restaurants, theatres, &c., whilst others were totally opposed to them. The result was sometimes this: if A was fortunate enough to get his drawings before one part of the Committee his proposed shelter would be approved; but if B was unfortunate enough to get his drawings, for a similar shelter, in the same street, before another part of the same Committee, his application would be refused. Why did not the Council say "We will not have these shelters at all," or "We will permit them subject to certain clearly-defined restrictions as to height, projection, &c."? Why should not Borough Councils say distinctly whether they will or will not permit water-closets in basements, where ventilation can only be obtained from the pavement lights or under the shop stallboard? At the present time some Councils do not intervene if the work is properly done, whilst others will not permit the water-closets at all. Then as to means of escape in case of fire under the Factory Acts, why could not a few practical architects be appointed, as a tribunal, to visit buildings under consideration and say at once what must be done to make the buildings they visit safer for exit in case of fire? Instead of this, a long list of requirements was sent, many of them indicating fads and imaginary catastrophes. Then there were the worrying, vexatious, and unnecessary set of requisitions sent once a year by the Theatres Committee of the Council, and two or three years after these had been complied with another and fresh set was sent; and these were, all the time, only "suggestions," and the executed works might have to be altered.

Then why should not one ordeal serve for one building? First, there were the requisitions of the London County Council, then there was the District Surveyor, and then the Borough Council, and when they all had been satisfied, there was the sanitary inspector. A central body should lay down, once for all, clear and explicit rules and regulations regarding the building; that when that central body had been satisfied everything appertaining to the building (except the rights and easement of adjoining owners) should be regarded as settled; that such settlement should be in the hands of a few practical architects and surveyors, and that the London County Council, instead of seeking to extend its powers, should curtail them within their legal and legitimate limits.

He would suggest that rights of light cases should be taken out of the hands of the judges on the bench and be referred to a tribunal consisting of two or three architects and surveyors and one legal assessor; the expenses would be comparatively trifling, the expedition in settlement would be ten times greater, buildings would not be unnecessarily mutilated, and London would stand a better chance of being more rapidly rebuilt. The growth of London needed an entire alteration in the management of building matters. It was absolutely essential that a more practical and unwieldy department be created, with a Minister responsible to Parliament at its head.

Having referred to the want of clearness in Acts of Parliament, particularly the 1894 Building Act and the Workmen's Compensation Act—a want of clearness accentuated by the omission of all punctuation—Mr. Woodward referred to the proposed amendment of the 1894 Building Act, which, he said, would seriously affect all building owners in London. He could well see that compliance with the requirements of the County Council might render our street architecture much more unsightly than even now legislation made it, and that the combination of external iron fire-escapes, external iron soil-pipes and angles of 63½ degrees, must lead to a new style of architecture.

Mr. Howard Martin, in proposing a vote of thanks to the lecturer, said that perhaps the most interesting part of the paper was the entirely new light it shed on the character of the London architect. Most surveyors had had occasion to settle terms of agreement of all kinds with architects, and they had been accustomed to approach them (the architects) with a little fear and trembling. They had found architects hard-headed, shrewd men of business, singularly well able to take care of themselves and their clients. But architects were pictured in the paper as simple-minded men who fell into all the pitfalls made for them, and he knew of no character, in fact or fiction like the architect represented, unless it be Una in the Faerie Queen, who had no protection from the wiles of the wicked world, except her beauty and the purity of her personal character. There was another side to what had been written by the author of the paper. The author was a little hard on the ground landlords of London and their surveyors, who were surely not to blame if the innocent and guileless architect took a site without first ascertaining what portion of it he could cover with buildings. While it was annoying, too, to find that there were building requirements made by the Local Authorities, which, in their discretion, were exercised sometimes to one's advantage and sometimes to one's disadvantage, he was not sure that it would not be more annoying to find that there was a cast iron rule made to act in every case and always to be enforced. The requirements of the London County Council were defined by statute, and while, perhaps, no one knew what the statute meant in all points, architects appeared to be fairly well informed, and, within small limits, they knew what they could do. As to the approval of plans by the freeholders' architect or surveyor, he admitted that hardships sometimes happened if that architect set himself up as an arbiter of taste, and forced his opinions on another architect of taste, even in matters unimportant to the freeholder. But he did not think that such cases were numerous, and as a rule the freeholders' architect was very willing, provided the client's interests were secure and the building was to be solidly erected, to leave the lessee's architect to deal as he pleased with the special requirements of the work. As to ancient lights, they would all, probably, agree

that what was wanted was an exceedingly simple, instructive, and inexpensive tribunal which could settle questions rapidly. The reference to sanitary inspectors would remind them of many galling experiences. He thought that few of them had not had experience of the ignorant sanitary inspector who was given a set of rigid rules, and these he was afraid to depart from in any case because of his ignorance, and he insisted on unsuitable and expensive arrangements in cases where they were useless and even hurtful.

Mr. P. E. Pilditch said, in seconding the vote of thanks, that the author seemed to have been badly treated by representatives of five or six different classes of persons. As to elevations in London streets, and freeholders and their architects or agents refusing to permit the whole front of shops, &c., to be given up to plate-glass, he hoped that Mr. Woodward had not been designing some of those truncated elevations which looked like the vanishing lady—with head and body, but no legs. He had a great deal of sympathy with the view that in our London architecture we ought as far as possible to show that there was an obvious substructure—a foundation upon which the superstructure exists. He knew that in some cases the lessee wanted as much show-case room as he could get, and in proper measure this was understandable, but we were not in New York, and we did not put everything aside for utility and without regard to aesthetic considerations, and he thought there was a good deal to be said for our practice to have reasonable piers. There was one respect in which the London County Council was sometimes the cause of delay. Sometimes drawings had to go before several Departments and Committees, and when that was so there was delay, owing to the want of centralisation in the Council's work which arose, not from any fault of the officials who administered the Act, but from the fact that the Council was housed in several buildings; one part of the Architect's Department was in Warwick-court and another part was in Spring-gardens, and so on, and there was no opportunity for the departmental staffs to meet together with that frequency which would do away with delay. He thought it would be a good thing for architects when those doing the difficult work falling upon the Council's representatives were housed under one roof. The suggestion as to light and air was a good one, i.e., that there should be a tribunal to deal with these matters. But the tribunal Mr. Woodward suggested was not the tribunal that was proposed by the Joint Committee of the Institute of Architects and the Surveyors' Institution, and he did not think it would be quite so good a tribunal. The tribunal of the Joint Committee was more on the lines of the three surveyors appointed under the party wall sections of the Act—not necessarily the same men in each case, but men who were appointed by the architects dealing with the matter in the first instance. If there was to be any serious alteration in the way light and air cases are administered, there would have to be some alteration in the law as well as in the tribunal, for the tendency was growing to lay down rules of law contrary to the old laws, and much more onerous in its burden upon the owner of the servient tenement than formerly.

Mr. H. H. Collins said he agreed with almost all that Mr. Woodward had said, for the grievances he mentioned were not imaginary. He had had something like forty years' experience of the Metropolitan Board of Works, and, worse, the London County Council, and while the officials were very courteous they were not always amenable to reason. If all these restrictions were put upon property its value must be diminished. As to the superficial area available for building on a particular site, it was only fair to the intending purchaser that the vendor should call attention to the fact that there was a certain line of front to which he would be compelled to build. It was true that the architect could discover that for himself, but it was often the case that the client did not come to the architect until long after the transaction had taken place. There was a grievance which had not been mentioned; when everything had been arranged, and one was ready to carry out the building, there was the tyranny of the trades unions, and often the work was delayed on that ground. As to sanitary inspectors, Mr. Martin's remarks were a little unfair. They were often "angels in disguise," benefiting the community to a great extent. The sanitary



inspector had to administer the Act of Parliament prepared by the County Council, and the rules and requirements were printed. As to light and air some alteration in the present procedure was required, but he agreed with Mr. Pilditch that any fresh tribunal would be useless if the law was to stand on its present footing, because decisions would have to be based on the ruling of the House of Lords. He thought that light and air actions were sometimes fostered by surveyors, and he had no hesitation in saying that certainly 25 per cent. of light and air cases were very little less than cases of blackmail. There were members of the profession who encouraged that kind of thing, and it would be well if something could be done to prevent this. The expense and trouble to the architect caused by the County Council was well known to the architect, though surveyors might not be so well acquainted with it. An architect would submit a set of drawings, and if he made one-eighth of an inch difference in his drawings he was asked to submit another and another set, and the expense, trouble, and irritation were great. There was no finality, and one never knew when one had finished with the County Council. Architects would be content if the Council would say what they wanted, and then, when the requirements were complied with, be satisfied. He thought Mr. Woodward was wrong as to oriel windows, but as to Clause 43 of the Building Act, it was a dead letter, and it was not surprising, for Acts of Parliament were most vaguely drawn because the Council and other bodies, instead of getting the expert opinion of the Surveyors' Institution and other professional bodies, left the matter to amiable gentlemen who knew nothing about building. It cost that Institution about 1,000l. to make the unworkable Act of 1894 as workable as it even is. In section 43 were the words: "no more land shall be taken," and it would have been thought that "land" would have been interpreted in the usual way, but the judges had concluded that it also meant the second, third, and fourth floors of a building. As a district surveyor, he would advise them not to apply to District Surveyors to pass anything under section 43. As to the amendment of the Act now under consideration, if passed it would be a cruel and unjustifiable thing, and it had already created a great amount of consternation in the City and elsewhere, and there was to be a meeting at the Mansion House to discuss the matter.

Mr. Howard Chatefield Clarke said he ventured to dispute several of the indictments contained in the paper. Was it true that the great ground landlords gave undue trouble or imposed undue restrictions on the building lessee? That was not his experience. There were two or three large west-end building estates where undue trouble to the lessee's architect in the passing of the plans was not a fact and where the utmost farthing for rent was not obtained. The freeholder's architect or surveyor must have some power of refusing the plans or of modifying them, but there was not much difficulty in getting plans passed on the big estates. Sometimes they might find, as he did recently, that the lessee's architect had provided a range of water-closets on the ground floor near an entrance, and he refused to pass the plans on that ground, and the architect, in this case, thanked him for pointing out the defect. He would rather take land from a large estate with its restrictions than from the small freeholder and his advisors. As to the amount of land available for building, that was what surveyors had to find out. It was their duty to find out what amount of land could be built upon and what restrictions there were as to light and air, &c., and he did not think there was any very great hardship in that. As to the County Council, was there any real difficulty in getting drawings passed when the architect had paid proper attention to the requirements of the Act? The fact was that it was when they had gone outside the Act that trouble took place. The County Council had a great official work to perform, and their work was carried out for the good of the many. We did not want a second Drury-lane or Clare-market district to grow up in London; we want London to become the finest city in the world. The conditions of the Council objected to were framed to give more air space, light, and decency in this great metropolis. Mr. Collins said the amendment of the Building Act was unjustifiable. That remained to be seen;

but the object was to give better provision in factories for escape from fire, and surely every one must feel that every precaution should be taken to prevent the recurrence of a Queen Victoria-street fire. He did not think they should let it go forth that they regarded the amendments to the Act as unjustifiable, though the Bill would have to be seriously amended. As to the question of light and air, the Joint Committee suggest that, first of all, cases should be referred to the third surveyor, as in partly-wall matters, and if that were done 99 out of every 100 cases would go no further; but there was a provision that if the parties were not satisfied with the surveyor's decision the matter could go to a tribunal formed more or less on the lines of the Tribunal of Appeal. If the Bill of the Joint Committee could be carried it would be found to be a workable scheme, and would knock the whole question of light and air on the head. The Bill ought to pass, for there were great hardships under the present law.

Mr. Henry Lovegrove asked if it were true that the ground landlord's surveyor demanded to be paid whether the transaction came off or not? He would be paid something, but not the full fee. As to the rights of light, no matter how good the Bill of the Joint Committee might be, it would not pass the House of Commons while there were so many lawyers there. Many trumpety claims were being made for compensation for loss of light.

A member having made some remarks in which exception was taken to some of Mr. Woodward's conclusions,

Mr. Wheeler, K.C., said that the true way to solve many of the difficulties referred to was to constitute a proper land court or tribunal of appeal. What was required was a land court or supreme court dealing with these matters.

Mr. Thomas Blashill said that fourteen years ago, when he went to the London County Council as Superintending Architect, a great deal of the procedure was well in hand, but a great deal more had to be created. His staff when he left, was more than doubled, and for responsibility for what was done. The Superintending Architect could not carry everything on his back, but he had under him officers, who could not be there to defend themselves, who did a great deal of the work, but everything came under his cognisance before it reached the Committee, and so he was responsible. Mr. Woodward had not had the forethought or consideration to bring any specific case before the meeting, nor had any one else. Was that not surprising? People did not go to Spring-gardens to carry out the law, but in order to avoid carrying out the law—to avoid the stringency of the Act of Parliament—and if they could manage that without going to the Council so much the better. As no cases had been brought, there was very little to answer. Mr. Woodward complained not only of the London County Council, but of the District Surveyors, the Borough Councils, and every one else. His position in the paper was that of a misinformed man, who seemed to be ready to take land without seeing it, although every step he took was against enemies. One of his grievances was that there was no punctuation in Acts of Parliament! When a man was driven to that he was in a bad way. He would advise any gentleman who thought like that to spend a shilling and buy the Building Act and read it, and when he had understood it as near as he could, let him get the Liverpool Act or the Glasgow Act, and then he would see how tenderly he was treated in London comparatively. We were not able to build in 10-acre fields in London, but upon thoroughfares and close to land of adjoining owners, and regulations were necessary. It seemed to come to this, that regulations would have to be made by architects in each particular case if all objections were to be met. All they did at the London County Council was to see that drawings were according to the Acts of Parliament. Drawings were examined to see if they infringed the law in any other way than that about which the application was made, and that was objected to, but certain architects used to send in drawings making innocent applications but containing infringements in other respects, and when the simple thing was agreed to they told the District Surveyor that the drawings for the whole thing had been agreed to. The Council got taken in more than once that way, and the result was that the Council tried to see everything afterwards. Everything should be shown clearly in the drawings,

and nothing that was not wanted. No copy of drawings was asked for except what was absolutely wanted, but if drawings were wrong, fresh ones had to be supplied later. As to glass-covered shelters, they were used, and were convenient at theatres, &c., and permission was given to erect them only for the purpose of protecting people who were often lightly clad. Then public-houses asked for them—not for purposes of shelter, but for purposes of advertisement, and the Council were not able to grant such applications. Applications to the Council were dealt with by experienced officers, and not by juniors—by men, often, who had passed with distinction the examinations of that Institution or similar bodies, and they had had a hundred times the experience of any gentleman who had spoken that evening. The members of the Building Act Committee of the Council necessarily became men of great experience in these matters of building law, and there were men on the Council who had had four or five times the experience in these matters that professional gentlemen gave to their pupils. As to the proposal that three or four architects shall say what is to be done. Where were they to be found, and what were they to be paid? The best plan was to have something like the present arrangement. Some four or five years ago the London Chamber of Commerce complained to the Council about the hardships they were suffering under the Factory Act as to the delay in passing plans, and he had been able to show that the delay was reasonable. There was nothing at all in Mr. Collins's complaint as to the  $\frac{1}{4}$ -in. difference in drawings.

Mr. E. W. Hudson suggested that the discussion should be adjourned.

The Chairman said he did not think there was any need to do that, and he put the vote of thanks to the meeting.

The motion having been agreed to, Mr. Woodward briefly replied, and the meeting terminated.

#### ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS.

A MIDLAND COUNTIES district meeting of the Association of Municipal and County Engineers was held in the Council House at Birmingham, on Saturday, January 31, and was largely attended by members from all parts of the country. Mr. T. H. Yabbicom, C.E., of Bristol, President, was in the chair, and among those present were Messrs. W. Weaver, Kensington; J. T. Eayrs, Birmingham; W. Harpur, Cardiff; J. Lobley, Hanley; T. de Courcy Meade, Manchester; A. D. Greatorex, West Bromwich; J. Price, Birmingham; J. S. Pickering, Nuneaton; G. Green, Wolverhampton; P. G. Killick, Gainsbury; H. J. Martin, Sireatham; E. J. Silcock, Leeds; C. C. Smith, Sutton, and others.

The Lord Mayor of Birmingham was present at the opening of the meeting, and heartily welcomed the members to Birmingham. He was sure these meetings would tend to increase the practical knowledge of the members and would also be beneficial to the community at large. In his opinion they were raising the standard of knowledge of Municipal Engineers, and bringing about a better state of things regarding the health of the community.

The President having taken the chair, thanked the Lord Mayor for his reception and welcome to the members of the Association.

Mr. Pickering, Honorary Secretary, mentioned that, in accordance with the resolution passed at the last winter meeting in Birmingham, a small Committee, consisting of Mr. Price, Birmingham; Mr. Greatorex, West Bromwich; Mr. Wike, Sheffield; Mr. Lovegrove, Hornsey; and himself had been considering the question of by-laws relating to land, streets, and buildings, and were to issue a full report to the Council.

Mr. J. Price, Birmingham, mentioned the formation of a Public Officers' Club at 4, Whitehall Court, for which he bespoke the support of municipal engineers.

#### Ventilation of Sewers and Drains.

Papers on "The Ventilation of Sewers and Drains" were then read by: Mr. R. Read, Mr. A. W. Cross, Mr. H. H. Humphries, Mr. T. Caink, and Mr. C. Chambers Smith, Surveyor to the U.D.C., Sutton. The following is the paper by Mr. R. Read, City Surveyor, Gloucester:—

This subject has been a fruitful source of



controversy for the last twenty-five years, but it has rarely been discussed under more favourable conditions than the present. Usually the papers on this subject are crowded in amongst a number of others, or they are discussed by people who have no real knowledge of it; but here we have a gathering of gentlemen, each one of whom has a system of actual live sewers, in daily operation, under his charge; and it is only those who have studied the working of a system of sewers for at least twelve months, so as to observe them under all conditions of weather and season, who are capable of forming a correct judgment on the matter. And even to such a gathering the author would appeal—as a counsel for the defence would appeal to the jury—to dismiss all prejudice and preconceived assumptions from their minds in regard to the subject in order to deal with it upon its actual merits.

Let us consider, then, what is the action of a system of sewers and drains, and why it is necessary to ventilate them. A system of sewers consists of a number of branches, converging into main trunk sewers, which again converge into an outfall sewer; about nine-tenths of the whole would probably be pipe sewers, ranging from 9 in. to 18 in. diameter, and the remaining one-tenth would probably be brick sewers. The upper ends, or branches, will probably have the steepest gradients, the main trunk sewers somewhat flatter, and the outfall sewer the flattest gradient of all. House drains and street gullies will be connected at every few yards along the whole of their length: so that a system of sewers is a system of perforated pipes having varying gradients, converging to a common outfall. The discharges from the house drains are intermittent, but as their aggregate length is about five times that of the sewers, their numbers enable them to create a continuous current through the sewers, except possibly at the extreme upper ends of the branch sewers, for a distance of from 50 yds. to 100 yds. from the summit, where the drains may not be sufficiently numerous to produce a continuous current in that length of the sewers. If a system of sewers is to be self-cleansing it must be so proportioned and graded that the flow of sewage has a minimum velocity of 3 ft. per second, or about two miles per hour, which is sufficient to discharge the sewage at the outfall from the majority of towns in two or three hours. If in some cases the gradients are not sufficient to give that minimum velocity, special methods of flushing must be resorted to, in dry weather, to keep the sewers free from deposit. If deposit occurs in a sewer it arises from one of the following causes:—1. Flat gradients. 2. Insufficient flushing either at the water-closets or in the sewers themselves, the water-closets being the proper initial point of flushing, as from this point it traverses both drains and sewers. 3. Inefficient, or neglected, street gullies and manhole buckets; and 4. What sometimes happens in a new district, insufficient live drain connections, that is to say, the sewer will be laid in the street of sufficient size for future requirements, but there may be only half a dozen houses built and occupied for several years; the result is that, however well the sewer is graded or constructed, the sewage from this small number of houses is lost in it, the water running away and leaving the solids stranded behind it, to be shifted on a further stage by the next discharge from the house drains.

If a deposit occurs in any sewer from bad design or bad construction, this can only be remedied by reconstruction on better lines and levels, but ventilation has often been blamed for calling attention to this requirement. All the causes of deposit mentioned above are more or less preventable, and if there is no deposit in a well designed and constructed sewer, why is ventilation necessary? The dry-weather flow of sewage through a system of sewers gradually increases and decreases in quantity—that is to say, from a minimum at about 3 a.m. it gradually increases to a maximum about 3 p.m., remains near the maximum until about 7 p.m., when it will begin to decrease until it reaches the minimum again at 3 a.m. This, of course, means that a large amount of air must be displaced from the sewer, while the sewage is increasing in volume, and a corresponding amount of air taken into the sewer as the sewage decreases. The air which is displaced by the sewage must go somewhere, either up the house drains

or through any manholes or ventilators which may have been provided.

Complaints of nuisance from sewers are generally confined to the six months of the year between the end of March and the end of September, and more especially occur after a few days, or a week's dry weather; then the ventilation is generally blamed by the public as the cause of the trouble. Ventilation is necessary to provide for the escape of the air displaced by the rising sewage, or the air would be under compression, and would force any traps which might be inserted for keeping it in the sewers, and the longer the time required to sufficiently compress the air to force the traps the worse would be the final result.

The methods of ventilation now in use may be classified as follows:—1. Openings in the manhole and lamphole covers, at the street surface, at various intervals ranging from 40 yds. upwards, but usually about 60 yds. to 100 yds. apart, the openings varying from 36 sq. in. per manhole upwards. 2. Vertical shafts attached to buildings, trees, telegraph poles, or self-supporting, 4 in., 6 in., and 9 in. diameter. 3. Various combinations of surface gratings and ventilating shafts, generally in wrong proportions and positions, owing to legal difficulties. 4. Connections to factory chimneys. 5. Various patent systems of induced current ventilation by means of gas jets, water jets, or compressed air. 6. Systems of deodorising the gases given off at the manholes by the introduction of chemicals.

The first system discharges sewer air or gas immediately under the noses of the people, and is uncertain in its action. The second is an improvement on the first, inasmuch as it discharges the sewer air at a point varying from 20 ft. to 60 ft. above the street level, where it is not so noticeable, and has the advantage of being exposed to any wind which may be blowing. The third system, a combination of surface grids and vertical shafts, has seldom had a thorough trial in the proper proportions, and arrangement, which are necessary to harmonise with the action of the sewers and thus convert it from a haphazard into a scientific and reliable system. The remaining systems are altogether too costly for general application, although they are occasionally useful for isolated cases of offensive manholes, to avoid the expense of a reconstruction of sewers.

Let us now consider what happens to the sewer air, in a well-constructed system of sewers and drains, with the sewage flowing at the minimum rate of 3 ft. per second. In the summer time the temperature of the flowing sewage would range between 50 deg. and 52 deg. Fahr., and the sewer air over the flowing sewage would range between 52 deg. and 55 deg. Fahr. in twenty-four hours, while the outer air at the ground level during the same period may range from 50 deg. Fahr. up to 75 deg. or 80 deg. Fahr.; and, speaking generally, during the summer months the sewage and sewer air are at a lower temperature than the outer air, while during the winter months the reverse will probably be the case. But although this is true as a general rule there are times during possibly each twenty-four hours in which the relative temperatures overlap each other. This is especially the case at sunset in the summer time, when the radiation from the surface of the earth reduces the temperature of the air in contact with it at the ground level to the same or a lower temperature than that of the sewer air. The result is that in cases where the sewer is ventilated only by gratings at the street surface an escape of sewer gas occurs, generally just about dusk in the evening. But after a few days of dry weather the outer air has a low percentage of humidity, and the longer the drought continues the greater is the capacity of the outer air for absorbing moisture. The result is that any wet surface, such as the surface of the flowing sewage, and which is generally the only wet surface available, gives off watery vapour freely. This watery vapour is charged with organic matter from the sewage, and, having about half the density of dry air at the same temperature, it naturally rises from the manholes into the open air, and thus causes a nuisance. This continues with increasing offensiveness as long as the dry weather lasts, and usually the break up of the dry weather is preceded by a fall of the barometric pressure, which again releases a further quantity of watery vapour, charged with organic matter from the sewage, and the nuisance is at its

maximum, because the sewage is in its most concentrated form, the sewer air is at its maximum quantity, and the outer air is at its greatest capacity for absorbing moisture. It is this watery vapour under these conditions that the ventilation has to deal with, and which cannot be dealt with by any other means, although flushing may be a temporary remedy; but even if the Borough Surveyor doubles his daily consumption of water for this purpose, it would be a mere flea-bite compared to a good shower of rain. The municipal sewer-flushing can only touch the sewers, and has no effect on the house drains, which can only be flushed from the water-closets, the sink, and the bath wastes.

If the sewers discharge the sewage to the outfall at the minimum rate of 3 ft. per second, it should arrive there long before it has time to set up putrefaction; therefore the watery vapour rising from the sewage should not be putrid; but it generally is so, for three reasons, viz.:—1. The alternate wetting and drying of the sides of the sewer, owing to the rise and fall of the sewage. 2. The discharges from the house drains are more or less decomposed, owing to the interposition of the intercepting trap which acts as a cesspool; and 3. For want of proper ventilation.

In the absence of any deflecting influence, vapour rising from any wet surface rises perfectly vertical, but being of so light a character, it is easily deflected in any direction, and watery vapour rising from the surface of sewage in a sewer would naturally rise vertically against the crown of the sewer, and would roll slowly along the top of the sewer in an upward direction. But the motion is exceedingly feeble, and, therefore, the motion of the sewage flowing at the rate of 3 ft. per second, is a comparatively powerful force, which easily carries the watery vapour with it down the sewer, by friction of the two surfaces of water and air in contact; and the friction of the air and vapour against the crown of the sewer acts as a brake, retarding, but not preventing, the flow of air and vapour in the same direction as the sewage. The vapour following the flow of the sewage naturally eddies up each drain opening which it comes to, and also expands into the manhole chambers, so that the velocity never increases to the same rate as that of the sewage; but at the upper ends of the branch sewers, where the flow in the sewer for the first 50 or 100 yards is as intermittent as that of the house drains, the sewage has not the same power over the vapour, and its natural tendency to rise vertically may be sufficiently strong to carry it out at the top manhole grating, from that short length only, and thus gives rise to the popular error that the sewer air from the whole system of sewers rises towards the upper manholes of the system. This action can easily be proved by forcing smoke from an Eclipse machine into a manhole, say in the middle or at two-thirds from the lower end of a street sewer, with the smoke nozzle in the sewer, pointing up the gradient, and it will be found that the smoke will appear in succession at all the manholes below this until the sewer is full of smoke, when it will also come out of the manholes above the point of entrance.

Any system of ventilation, to be efficient, must coincide with these actions of the sewage and sewer air; each length of sewer between a pair of manholes must have its own system of ventilation, the inlet being at the upper end of the length, at the street level, and be kept as small as practicable, and the outlets distributed at even distances over the length below to the next manhole, and be as numerous as possible. This can only be done by abolishing the interceptor, and making the ventilating shafts on every house drain assist in ventilating its own length of sewer, between the nearest manhole on either side of it. In this way, a large number of ventilating shafts above the houses are brought to bear upon the one inlet at the upper end of the sewer, say, 100 yards length of sewer, and, therefore, the air enters at this inlet with a velocity greater in proportion to the difference between the area of its opening, and the aggregate of the number of shafts between it and the next manhole below, and the greater the excess of the shaft outlets over the manhole inlets, the stronger will be the velocity at the inlet and the less liable will it be to be reversed.

If there is any wind, however slight, or from whatever direction it is blowing over the tops of the outlet shafts, provided that it is not artificially deflected, this will only increase the



velocity at the inlet. This proposal has always been met by the statement that you are passing the sewer gas through the house drains, and thus endangering the health of the inhabitants of the houses; and it was to try and prevent this that the intercepting trap was adopted, without investigation of any kind, into the Model By-laws in 1877, because the doctors said that "sewer gas must be cut off from the houses." As an abstract proposition this requirement is perfectly correct, but the method of carrying it out by means of the intercepting traps is both absurd and dangerous. The trap is no protection to the house whatever, the real safeguard being the soundness of the drains. If the drain is sound the trap is absolutely useless, and a dangerous obstruction; and if the drain is not sound, the trap is also useless, because the emanations from the drain itself, and from the stagnant sewage in the trap, are quite sufficient to poison the whole household without any aid from the sewer. Intercepting traps, in their most approved form, hold about two gallons of stagnant sewage; they cause a retention of from 25 per cent. to 30 per cent. of the solid matter in the trap; they paralyse the flow through the whole length of the house drain, and cause it to become coated with putrid sewage throughout; and they absolutely prevent proper ventilation of the sewers. They are liable to be forced from the sewer side by the compression of the sewer air against them by the rising sewage; they necessitate a brick chamber and a so-called fresh air inlet, which has by force of circumstances to be placed within a very few feet of the front door or front window of the house, and every time the drain is used the mica flap-valve in connexion with this fresh air inlet is violently closed, and if the valve is not very soon broken by this violent flapping action, the compression of the air in front of each discharge from the water-closet against the sewage in the intercepting trap partially untraps it. The drain air then passes on into the sewer, and the sewage dribbles slowly into the inlet side of the trap, and slowly out of the outlet side, in the feeblest possible manner, into the sewer charged with putrefied organic matter, which the sewer ventilation, in whatever form it may exist, has to deal with and gets the blame for. Equilibrium is restored by the sewage filling up the trap, and the process is repeated by the next user of the drain; but in the majority of cases the flap-valve at the fresh air inlet is either not air-tight, or is broken, and if the intercepting trap escapes being forced, owing to this defect in the fresh air valve, a strong puff of drain air is discharged under the windows or by the front door of the house during every use of the drain. The usual result of this is that the householder promptly stops up the fresh air inlet altogether, and then the last state of the intercepting trap and drain is worse than the first. And besides all this, the intercepting trap is liable to partial stoppages by an excess of paper, or a dish cloth, or any solid matter being put down the drain; then the sewage rises in the intercepting chamber and drain, until it has obtained sufficient head to force the obstruction, and some 30 sq. ft. of brick surface is fouled with sewage. But occasionally the head in the chamber is not sufficient to force the obstruction, and then the builder, or the inspector of nuisances, or both, have to be called in, the obstruction is pushed down to the bend in the sewer junction, and a message sent to the surveyor, that the sewer is blocked, although the neighbouring drains are still running.

In the majority of towns now, all drain joints are made in cement, and the drains thoroughly tested before being allowed to be covered up or used, and strict regulations are made as to the fall, usually not less than  $\frac{1}{4}$  in. to  $\frac{1}{2}$  in. to a pipe being specified, and any inspector on testing the pipes, and finding one with a back fall—or merely level without any fall at all—would immediately condemn the drain and have it pulled out and relaid. But the same inspector, under the Model By-laws, is compelled to introduce into the lower end of the flattest part of the drain an intercepting trap, which causes an obstruction from 6 in. to 8 in. deep, full of stagnant sewage; and the believers in this trap assert that they are thereby saving the lives of the inhabitants of the house by cutting off the sewer gas, a statement which is altogether erroneous, as the trap is simply a manufactory of sewer gas on every house drain, pouring sewer gas into the sewer, which any system of ventilation of the

sewers is blamed for, and is powerless to deal with or prevent.

The patentees of a certain chemical process contend that owing to the temperature of the sewer air being generally cooler during the summer than the outer air, it is impossible for it to rise out of the sewer during the summer months, especially if charged with the heavier gases of decomposition, and that it accumulates during these months, to be discharged during the autumn or winter, when the sewer air is generally warmer than the outer air, and in this way they account for epidemics such as typhoid and diphtheria occurring in the autumn. But this statement about the differences of temperature during the summer and winter months is only partially correct, as has been shown in an earlier part of this paper. There are times during the twenty-four hours, more specially about sunset, when the temperatures overlap each other, and thus bring the sewer air out into the outer air; and there is also the difference in density of the watery vapour, as compared with the outer air, constantly acting in dry weather, as well as the fall of the barometric pressure, causing discharges of sewer air into the outer air, quite independently of the relative temperatures.

In conclusion, the author would like to try an experiment by omitting the intercepting trap on all drains which are outside the houses; the drain will thus get a better gradient throughout, and no possible harm can be done to the householders, while great benefit would accrue to the sewer, which would be properly ventilated and be kept much cleaner.

Mr. C. Chambers Smith, in his paper, said:—"The wind bloweth where it listeth, and thou hearest the sound thereof, but canst not tell whence it cometh or whither it goeth." Such is the impression gathered after reading through a number of statements in scattered papers on ventilation in general—and of drains and sewers in particular—which is dependent upon the variable and fickle movement and temperature of the atmosphere. It is some fifty years ago since attempts at the ventilation of sewers were made in London; and although at that time considerable thought and attention were given to the question as to whether sewers could be ventilated in the same manner as mines, and several experiments were made, the idea was given up, and a notable authority pronounced that it was impracticable. Spasmodic attempts have been made at various times and places, chiefly by connecting sewers with furnace chimneys, to induce currents of air to sweep through sewers with a more constant energy and direction than could be obtained by atmospheric influences only; but such attempts have, either through entire failure or meagre results, not attracted the attention of surveyors to the extent of their being generally adopted.

We have almost universally fallen back on the question as to whether open manhole covers or vent shafts should be adopted, or in some instances whether any ventilation at all should be allowed, with the notion that, if the sewer gases could be "bottled up" in the sewers, the difficulty of dealing with them would be obviated.

Many have been the tests of the movement of air in sewers, vent shafts, manholes, &c., amongst which may be mentioned those by the late Mr. W. Santo Crisp at Wimbledon, and by Mr. E. George Mawbey, a Past President of this Association, at Leicester; the conclusion come to by both these gentlemen being that the wind "was" the factor requiring the greatest consideration in determining the arrangements and positions of ventilating shafts." Mr. Mawbey gives some diagrams of his tests which seem to show that temperature is also an important factor, and, generally speaking, when wind velocity is high, and the air temperature low, the greatest current through vent shafts is obtained.

The author does not know, unfortunately, of any tests which show the length or capacity of the sewers which may be affected by a vent shaft, and it would be valuable information, tending to a better understanding of the subject, if, when ventilating tests at vent shafts were made, the volume of the air and the capacity of the sewer affected thereby were noted. The author assumes it will be granted that ventilation of sewers is necessary. "Bottling up" is impossible, as the sewer

gases will find their way at some point or other into the atmosphere—so that the more perfect and constant the ventilation of drains and sewers is made, the better for the community.

The duty of dealing with organic refuse of all kinds is a necessity, and is not a very popular subject. We would all like to avoid the question as much as possible. But, by approaching the matter in a scientific way, much has been done in successfully treating liquid and solid refuse, and converting them into innocuous and harmless (and, in many instances, beneficial) products. It now seems to the author that gaseous refuse should also be approached in a more scientific and methodical manner than has been done hitherto.

At the Sanitary Congress held in Manchester last September, at a meeting specially to consider the question of ventilation of sewers, some of the members went not merely to the extent of discussing ventilation *per se*, but so far as to discuss the question of treating the sewer air by cremation or by chemicals, so that the pathogenic germs and poisonous gases should be destroyed—no doubt an excellent proceeding, if it can be brought within practical limits. Before such treatment of the gases necessary they should be brought under control both as to volume and place of exit from the sewer. This consideration brings us to the weak points of all methods of ventilating drains and sewers by utilising atmospheric influences only—namely, that in no such method can the volume of air or point of exit be controlled.

Apart from any question of treating the issuing sewer gases, the control of the volume and direction, as well as the choice of a place of exit, are important matters as regards ventilation of itself, and any method which gives such control and choice is based upon correct principles. The author considers it hopeless to obtain control if atmospheric influences alone are depended upon, and he is driven to the conclusion that mechanical means must be resorted to for efficient ventilation of drains and sewers, notwithstanding the apparent failures resulting from attempts at such means in the past. The "Shone" system, introduced by Messrs. Shone & Ault last year, seems to promise success in the direction referred to, inasmuch as the authors have approached the question in a scientific manner, and in a way which has been influenced by their long practical acquaintance with coal mine ventilation. This system, simply described, is a means of extracting air from drains and sewers by a fan driven electrically or otherwise, and the controlling of all air admitted to the drains and sewers by openings regulated in diameter in accordance with the volume desired to be admitted at any one point, and the vacuum available at that point. By such means it is claimed that fresh air is admitted at a soil pipe or interceptor, drawn down the house drain, away to and along the sewers to the fan, and thence up a vent shaft (in a chosen position) into the atmosphere. The volume of air admitted can be proportional to the sewage flow, or in other words, to the population served. The authors of the system state that one-tenth of a cubic foot per minute per inhabitant will give an excellent dilution; and, basing a comparison on some analyses of sewer air by Dr. Letheby, the CO<sub>2</sub> would be increased from the normal of 4 parts per 10,000 in the outside atmosphere to  $\frac{4}{1}$  per 10,000 in the air issuing from the vent shaft. As a trial installation will be completed and tested at Leicester in a short time, and another installation completed at Darley Abbey, we shall soon know whether Messrs. Shone & Ault are justified in their claims. If they should be, a great step in the efficient ventilation of drains and sewers will have been reached. In conclusion, the author would point out that, as regards the after-treatment of sewer air, the regulation of the admission of air to the drains and sewers is a means of keeping down the volume of air to be treated by cremation or otherwise within reasonable limits.

Mr. W. J. Steele, A.M.Inst.C.E., Deputy City Engineer of Bristol, said Bristol had frequently been mentioned as a city where the sewers were not ventilated; it might, therefore, be interesting to consider the general conditions of its sewerage system. All the manholes and lamp-holes on the sewers in the city were sur-



mounted by closed covers, and no means were intentionally made to provide a communication between the sewers and the atmosphere. There were eight outfalls into the River Avon, fitted with tidal flaps, the head against the bottom of which, at high-water of ordinary spring-tides, varied from 7 ft. to 20 ft. Six small storm overflows from one intercepting sewer discharged into the River Frome, four being fitted with flaps. The city formed a basin, the general level of whose perimeter was about 240 ft. above the Ordnance datum, and whose centre was about 27 ft. above such datum; consequently the fall on the sewers was considerable. All street gullies were trapped. Since 1882, drains connected to the sewers had been provided with an intercepting trap. On the building side of this trap a communication was made with the atmosphere, and another near the highest point of the drain. Every building used for human habitation was provided with at least one water-closet, usually of the pedestal form, and all roof-water, bath and sink waste-pipes, discharge over trapped gullies. Prior to 1882, intercepting traps were not compulsorily fixed in the drains, although some were voluntarily, but before this date the sink-stones, water-closets, baths, and similar fittings were provided with some form of trap. Possibly there were several instances where a roof water-pipe forms a means of communication between the sewer and atmosphere, owing to there being no water-seal between such pipe and the sewer; unfortunately, however, the number could not be stated with any degree of accuracy. If any notification of bad smells in or about buildings was received, the sanitary inspectors of the health department immediately made an investigation, and, if necessary, caused the drainage system to be modified on the lines indicated. During the year ended December 31, 1901, over 4,800 systems were amended. During the year ended December 31, 1902, only ninety-one complaints were received of bad smells in the streets, and these were in every case found to be from gullies, which, from defective traps, had the water-seal broken. From what had been stated above, was it possible to say that the practice, as applied to Bristol, of not intentionally providing any means of communication between the sewers and atmosphere, was wrong in principle?

What were the functions of a sewerage system? In his opinion, they were the means of removing the liquid refuse of a community with as little danger to the public health as was possible; even on economic grounds, the health of the inhabitants of a town was of importance, as lowered vitality means loss of earning power. The death rates were as reliable a test of the health of a community as was at present known. A diagram was submitted showing the death rates per 1,000 living during the ten years 1891 to 1900 inclusive of the average of the thirty-three great towns, and those which might reasonably be said to be of a similar character to Bristol and Croydon were inserted, although they did not quite resemble Bristol, inasmuch as they were of a residential character, whereas Bristol was principally a manufacturing locality; but as they were celebrated for low mortality rates, it had been thought advisable to include them. The income of the average individual is likely to be higher in a residential locality than in one of manufacture—an important factor in considering the health of a community. Moreover, the risk of death in the former, owing to the nature of occupation of the inhabitants, was less. The epidemic diseases—diphtheria, fever, and diarrhoea—were given, as they were said to be the only diseases in which sewer air played any part directly or indirectly. The infantile mortality was given as showing the chances of life of infants under one year. From all causes, the Bristol rate was higher to a degree in the order named than that of Croydon, Brighton, and Portsmouth, equal to that of Leicester, and lower than all others. From diphtheria, the Bristol rate was higher than that of Bradford and Nottingham, but lower than all others.

From fever, the Bristol rate was higher than that of Croydon, but lower than all others. From diarrhoea, the Bristol rate was higher than that of Croydon, but lower than all others. The infantile mortality in Bristol was higher than that of Croydon, but lower than all others. The responsible authorities in Bristol had quite an open mind on the question of sewer ventilation in general, but they held the view that it had never been demonstrated that the practice

at present applied in Bristol was prejudicial to the health of its inhabitants. In considering the subject as a whole, he ventured to submit that the numerous experiments made in various towns had been somewhat incomplete, and thought if any general principle could be laid down, it should be done by a Commission representative of Preventive Medicine and Engineering which might experiment throughout the United Kingdom.

Mr. J. Price, Birmingham, proposed a vote of thanks to the authors of the papers. He had seen Mr. Cross's apparatus at work in King's Norton, and was surprised at the large volume of air passing through, induced by a small water spray. The system of ventilation adopted in Birmingham had been by open ventilators in the streets, added to by high shafts. As to mechanical ventilation, he investigated a system some years ago where it was proposed to build high chimneys, furnaces, and fans at a cost of 125,000l. for the installation and 12,500l. a year for the working expenses. Any system adopted by a municipality must have some relation to cost.

Mr. J. Parker, Hereford, said that four of the authors agreed that the old system of ventilation by open gratings at the street level was a failure, and the majority gave a modified approval of ventilator shafts with outlet and inlet openings. Mr. Read objected to the intercepting trap, but it was here, and had come to stay for some time. He was entirely out of sympathy with both the arguments and conclusions of Mr. Cross. His objection to Mr. Cross's invention was that without the water spray the method was costly and complicated, and with the water spray it was absolutely impracticable. Air inlets or outlets which depended upon the correct action of either mica or aluminium valves were, for reasons stated in Mr. Read's paper, absolutely unreliable. The invention had thus all the defects of the shaft system, without its economy. As to Mr. Cross's proposal to use the water spray in the way suggested as a motive power to promote sewer ventilation, in the interests of the water-consuming public he entered his emphatic protest against it. The risks attending such connexions were great. Indeed, modern rules and regulations as to water supply forbid such a connexion.

Mr. Savage, Birmingham, said, in considering what remedy to apply they had first to consider with what they had to deal. In the first case, a defective sewer in which putrefaction was taking place; in the second, a clean sewer free from deposit, but giving off most offensive smells. Clearly reconstruction was the proper remedy in the first case, or failing that continual flushing; but as regarded the second, why should they go to the expense of costly systems which aimed at destroying by cremation or other means the germs of disease so popularly supposed to be associated with foul smells, but which existed more in imagination than reality?

Mr. W. Weaver, Kensington, said this question had been before the Local Government Board and the London County Council for twenty years, and they had had the best advice and engineering skill that money could procure for them, and the result was they recommended, first, that the sewers should be properly constructed, and, second, that they should be kept clean and provided with a current of fresh air running through them. If he was laying out a model town, he would not have a single siphon-trap, and then he would expect to have a constant flow of fresh air through the sewers. But they had got the siphon-trap, and it had come to stay, like a poor relation. He was quite at one with Mr. Read and the other authorities who agreed that the siphon-trap was a great mistake. But the trap had come to stay, and the question was, What was to be done to remedy the present state of things? Mr. Caink seemed to advocate the bottling up of the smells in the sewers, and the filtering them through a respirator. Of course, in some exceptional positions, that might be advisable. He believed they did something of the kind in the House of Commons—not of filtering the speeches before they got out to the public, but of filtering the air before it got into the speakers. They had a meeting of all the engineers of London two years ago, presided over by Sir A. Binnie, to consider what should be done to meet sewer smells in London. They were entirely at one in objecting to the siphon trap, but looking to the

complication of old drainage and so on, they could not recommend the abolition of siphon traps on the drains, unless the whole of the drainage was reconstructed, but they recommended wherever a siphon trap was inserted that the householder or whoever was doing the work should put up a ventilating pipe on the sewer side of his interceptor. But he was sorry to say that their recommendations, when sent round to the Local Authorities, did not find acceptance, and they were thrown back on shaft pipes.

Dr. Dearden, Manchester, said they were starting experimental works in Manchester with reference to the ventilation of the sewers. They had given instructions to Professor Delepine, as an expert bacteriologist, to take up the question of the air in sewers and the relation which it bears to the health of the people, and he had no doubt they would be able to publish important results. He was surprised that four of the authors considered the proper way to ventilate the sewers was to utilise the ventilating shafts of the house drainage system. That was not their idea in Manchester.

Dr. Bostock Hill, Birmingham, said he could see that the intercepting trap was not beloved of engineers, and he did not wonder at it, but at the present time it would undoubtedly be dangerous to the health of the community to dispense with it.

Mr. E. J. Silcock, Leeds, said anything which retained or retarded the flow of sewage added to its septic condition and its smell. He was one of those who favoured the abolition of the intercepting-trap. The sewer and the drain were all part of the same system, and as every drain contributed its quota towards the smell, so every drain should contribute towards the removal of that smell. The arrangements of inlets and outlets with flaps attached to them was open to grave objection. He had never yet seen anything in the way of a mechanical flap which would maintain itself in proper repair for any time.

Mr. T. de Courcy Meade, Manchester, said the intercepting-trap to-day was not liable to foul if properly laid with the ordinary fall. In Manchester they had thousands of the improved intercepting-traps, and he did not think they had one complaint a week of the stopped interceptors. He thought it was a very dangerous thing to propose the abolition of intercepting-traps, and he entered his protest against it.

Mr. Harpur, Cardiff, said they had open street ventilators, and on the high levels of the town he had introduced automatic flushing-tanks of a capacity of 2,000 gallons, fitted with Austin's porous cells charged with permanganate of potash. By deodorising in this way they killed the stinks and found it an almost instantaneous cure. He strongly recommended the use of these automatic flushing tanks, where similar conditions to Cardiff exist.

Mr. Dawson, Banbury, said he agreed with Mr. Read that ventilation was necessary to provide for the escape of the air displaced by the rising sewage. He considered the closing of street-grids and the putting up of shafts the simplest method of ventilating the sewers.

Mr. Gloyne, London, said he would like to know how far the effect of the water spray would be felt so as to be beneficial in sewers of different sizes. He suggested that the cost of the water could not be "taken at nil" and that the cost of supervision, renewals, and repairs, should be taken into account. His experience was that it was impossible to overcome the sentimental objection on the part of the public to the shafts proposed by Mr. Cross, however great the proof to the professional mind that no sewer gas escaped from them. He considered aluminium flaps would be as likely to get out of order as mica flaps in practice. He was of opinion that Mr. Cross's proposal was very far from being ready for practical application. Some years ago he fixed half a dozen of the apparatus described by Mr. Caink at Eastbourne, and he had no complaints afterwards respecting the particular manholes in which they were placed. An objection to the arrangement was that it could not be fixed in shallow sewers. As long as the "Model" by-laws were in force the abolition of the intercepting trap as proposed by Mr. Read was practically impossible. He hoped that Mr. Steele would give the Association the benefits of the experiments being carried out at Bristol when they were complete. He would like to ask why it was considered necessary to ventilate house drains at Bristol and not sewers, and suggested



that the practice from this point of view appeared inconsistent. His suggestion was that the goal to be aimed at in ventilation was a "breathing" action with filtration or deodorisation of the "breath" exhaled. He thought Mr. Caink was working in the right direction but that his apparatus was too complicated. He suggested the following resolution:—"That this meeting requests the Council of the Association to approach the Society of Medical Officers of Health with a view to taking steps jointly with them for carrying out experiments, tabulating returns, and issuing reports towards endeavouring to obtain a satisfactory solution of the question of sewer ventilation."

Mr. Harrison, Birkenhead, said he had carried out experiments with a view to discovering the action of so-called fresh-air inlets to house drains. In each case the ventilating shaft was above the eaves but below the ridge of the property. He found that the so-called fresh-air inlet sometimes acted as an inlet and sometimes as an outlet, according to the direction of the wind.

Mr. Dickinson, Thame, stated that he had carried out numerous experiments and had come to the conclusion that the intercepting trap of the house drain should be abandoned, and that sewers and drains should be dealt with as component parts of one system. He would also abolish the so-called "air-inlet," whether near the surface grilles in streets, and ventilate through the "outlet" ventilators on house drains, which he suggested should be carried up to a safe height.

Mr. Watts, Bishop's Stortford, said that the "Liermur" pneumatic system of sewerage had been recently installed in his district and was working satisfactorily.

Mr. Hull, Coventry, agreed with Mr. Smith that sewers could not be ventilated by natural means, but that proper ventilation could only be accomplished on a plenum system. He considered 44 parts of C<sub>o</sub>, per 10,000, mentioned by Mr. Smith, impossible of fulfilment, but said no harm would ensue in admitting 8 parts of 10,000 into the free air.

Mr. Rodwell, Skipton (Rural), said, owing to complaints respecting smells from open gratings in streets, he had fixed four Webb sewer gas lamps and had closed all gratings within a radius of a quarter of a mile. The complaints had now ceased. Some might attribute the remedy as a result of blocking up the manholes and grates, but as a proof that the lamps were doing good work, it was found upon a night inspection that there was a marked absence of smell upon entering the sewers. In some parts of his district the street gratings were closed and the sewers ventilated through shafts fixed to houses, and in these districts there was no complaint of smells.

Mr. Mallinson, Skipton (Urban), said that although the "Model" by-laws of the Local Government Board had been adopted by his council, the intercepting-trap required under the by-law was not insisted upon, and the public sewers were ventilated through the house drains. The system did not appear altogether satisfactory, and he considered that some mechanical means were necessary to properly deal with the volume of sewer gas in sewers. He had one of Webb's Sewer Gas Lamps fixed, which was satisfactory.

During the afternoon the members were entertained to tea by the Lord Mayor of Birmingham.

#### ARCHAEOLOGICAL SOCIETIES.

ROYAL ARCHAEOLOGICAL INSTITUTE.—At the general meeting on the 4th inst., Mr. Herbert Jones in the chair, Mr. Alfred C. Fryer read a paper on "Fonts," with representations of Baptism and the Holy Eucharist, which was illustrated by lantern slides. 1. *The Baptism of Christ*.—The treatment of this scene on English fonts follows the account given in the gospels, although it has been pointed out that the succession of events are depicted as all occurring at the same moment. Thus we find the Holy Spirit is descending as the dove while our Lord is being baptised by St. John the Baptist, instead of after he has come out of the river Jordan. Accessories not mentioned in Holy Scripture are added, such as angels holding the tunic of Christ, and trees which are possibly intended to personify the Jordan. On the rune-inscribed font at Bridekirk, Cumberland, the Jordan is rising up in a heap, which some authorities believe was intended to symbolise the water going forward

to meet our Lord, while others consider it is thus depicted in order to give the idea of perspective. On the font at Castle Frome, Herefordshire, the Jordan is represented by circular lines, and Christ, who is undraped, with His hands placed on His breast, stands up to his waist in the water, while the artist has depicted four fish swimming about—two on either side of our Lord. St. John the Baptist, with a mantle on his right arm, stands on one side of the stream and places his hand on the head of the Saviour. The First Person of the Blessed Trinity is shown as the Hand, or *Dextera Dei*, giving the benediction, and the Third as the Dove. Thus all Three Persons of the Blessed Trinity are represented on the sculpture of the Castle Frome font as being present at the baptism of Christ. This is a most unusual arrangement, as in art we do not often find more than two are portrayed. One of the exceptions is on the font at Gresham, Norfolk, where all the Three Persons are depicted by the artist who sculptured it; while another exception is met with on the font at Southfleet, in Kent. The Saviour is always represented undraped and standing in the river Jordan up to His waist. His hands are at His side at Bridekirk, Wansford, and in other representations. Sometimes His hands are crossed on His breast, as at Grantham; sometimes they are raised in benediction, as at St. Nicholas, Brighton; and sometimes they are extended in the ancient attitude of prayer, as at Lenton, Nottinghamshire. St. John the Baptist is generally portrayed in his raiment of camel's hair, and at Southfleet the head of the camel is actually adorning the lower part of his garment. At Shorne he has a long gown, with sleeves; and at St. Nicholas, Brighton, we find him vested in alb and girdle, holding a round-shaped vessel, which is, doubtless, a chrismatory, and a napkin on a rudary. At Sioley he pours water out of a round bowl on the head of Christ; at West Haddon he holds an open book; and at Grantham, Gresham, and other places he kneels upon a rock. 2. *The Rite of Baptism* is usually represented by a priest immersing an infant or a grown-up person in a font. The sculpture on the fonts at Darenth, Fincham, and Thorpe Salvin were described, and mention was made of twenty-seven representations which are met with in Kent, Norfolk, Somerset, and Suffolk, on fifteenth century octagonal fonts. The various problems surrounding the sculpture on the Kirkburn font were discussed, and details of the three figures on the pedestal of the Upton font (Norfolk) were given. These represent three sponsors (two women and one man) dressed in the lay costume of the fourteenth century. The god-father and one god-mother hold rosaries in their hands, while the other god-mother carries the infant in swaddling bands. The date of the font is most likely A.D. 1380, and it was doubtless erected by the contemporary Lord of the Manor of Upton.

John Botetourt or Buteourt, as a memorial of the baptism of his only daughter and heiress, Jocosa, who is doubtless the infant represented in her godmother's arms. 3. *The Last Supper*.—We have in England two representations of the last supper as ornamentation on two fonts dating from the twelfth century. In both cases a long, straight table is employed. At North Grimston (Yorkshire) the sculpture is over 10 ft. in length. Christ is seated in the centre and six Apostles are placed on either side. Considering the Last Supper from an artistic point of view, Mrs. Jameson reminds us that there is great difficulty in dealing with this subject in consequence of the number of figures and the monotonous and commonplace character, materially speaking, of their occupation. This difficulty evidently presented itself to the artist employed on the Norman font in St. Nicholas's Church, Brighton, and consequently he only introduced our Lord and six of the Apostles. 4. *The Holy Eucharist*.—On twenty-one fifteenth-century fonts in Kent, Norfolk, Somerset, and Suffolk the representation of the Holy Eucharist is represented at the moment when the priest, robed in Eucharistic vestments, stands before the altar in the act of elevating either the chalice or the sacred Host. At Great Glemham and Woodbridge in Suffolk the priest, however, has left the altar and has turned towards a man and woman in order to communicate them. In both instances the priest is simply vested in alb and crossed stole, while the communicants hold the houseling-cloth

before them. The sculpture depicts the ladies in the butterfly head-dress of the date 1483, which betokened a lady of rank. The interesting representations of the Holy Eucharist on the fonts at Shorne and Southfleet, in Kent, were described, and the fonts at Sutton and Tuddenham St. Martin were mentioned as containing statues round the pedestals. These statues represent the celebrant and attendants at the celebration of the Holy Eucharist. At Tuddenham St. Martin the celebrant is not vested in a chasuble, but in a cope fastened with an ornamented morse, and one of the assistant ministers carries over his arm a long cloth, which is possibly intended for the sudarium. Mr. R. Garraway Rice, Mr. Mill Stephenson, Miss Grafton, and the Chairman took part in the discussion.

BRITISH ARCHAEOLOGICAL ASSOCIATION.—A meeting was held on the 4th inst., Mr. C. H. Compton, V.P., in the chair. The chairman read a paper on the Castle of Dunstanborough, situated on the East Coast of Northumberland two miles north of Honick and about ten miles south of Bamborough, with which it was confused in some of the early chronicles. The castle and manor was the seat and estate of Edmund, Earl of Lancaster, a younger son of Henry III., and devolved to his son and heir Thomas, who in the ninth year of Edward II. converted the manor house into the castle. Earl Thomas was the premier noble of the English Baronage, and headed the confederated Barons against the King for the expulsion of Piers Gaveston and the Spencers. He was defeated by the King's troops near Borough Bridge, and taken prisoner to Pontefract, where he was tried and executed. His brother Henry subsequently obtained restitution of the estates, including the Castle, which afterwards devolved upon John of Gaunt, who married Blanche, grand-daughter of Earl Henry. The Castle continued in the Lancastrian family till the reign of Henry VI., and was captured by the Yorkists after the battle of Hexham. It changed owners more than once during the wars of the Roses. It is described in the year 1550, fifth of Edward VI., as in wonderful great decay. It appears to have belonged to the Crown in the tenth of Elizabeth, and was granted on February 6, twenty-second of James I., to Sir William Grey, Baron of Warke, and afterwards became the property of the Earl of Tankerville, in whose family it remained until recent times.—Mr. R. H. Foster brought a large number of beautiful photographs, taken by himself, to illustrate the paper; and Mr. Gould, Mr. Price Stretche, Mr. Forster, Mr. Patrick, and others took part in the discussion which followed.

#### Illustrations.

##### DESIGN FOR A TOWN CHURCH.

WE have devoted our illustration plates this week to the design for a town church which has gained the Soane Medallion at the Institute. There have not been many occasions, of late years, on which we should have felt justified in giving so prominent a place to the winning design, for during a good many recent years the designs sent in for the Soane have been disappointing and below the mark of former years. This year, however, the medal has been well contested; the designs sent in show a high average of ability, and the one by Mr. E. F. Reynolds, to which the medal has been awarded, was unquestionably the best in regard to general architectural power and the careful study of detail; the perspective is one of the finest architectural drawings we have seen for some time.

The position of the choir seats is, of course, quite wrong, both for ritualistic and practical reasons; but to some extent the instructions to competitors are to blame for that.

The author has sent us the following notes as to his intentions in the design:—

"In the conditions for the design for a Town Church issued by the R.I.B.A., competitors were referred to certain remarks by the former President, Mr. Emerson, as to the unsuitability to modern worship of the mediæval plan, with its altar removed from the congregation by the extreme length of the chancel; and as to the possibility of reverting in some degree to the type of the Early Christian church, with its altar placed in a shallow apse close to, and in full view of, the people.

It was evidently intended that this sugges-





IN PERSPECTIVE VIEW

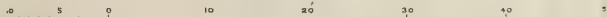
DESIGN FOR A TOWN CHURCH. BY MR. E. F. ROYCE.  
PERSPECTIVE VIEW



...and, whilst some authorities believe was simply vested in alb and crossed stole, while full view of, the people.  
intended to symbolise the water going forward the communicants hold the houseling-cloth It was evidently intended that this sugges-



9. VAULTS are Chapel, Vestry, Narth, Pulpit, and the West Gallery. The entrance group of vaults has three main vaults. The space between the western, North and eastern vaults and the upper vaults of the results were Chapel and Vestry. These are utilized for the Morning, afternoon and evening services of the opposite, and also for the various chambers, boudoirs. The paper group, measured 28' 6" from the results over the North and South Chancel are placed on each, giving an understanding of each other.

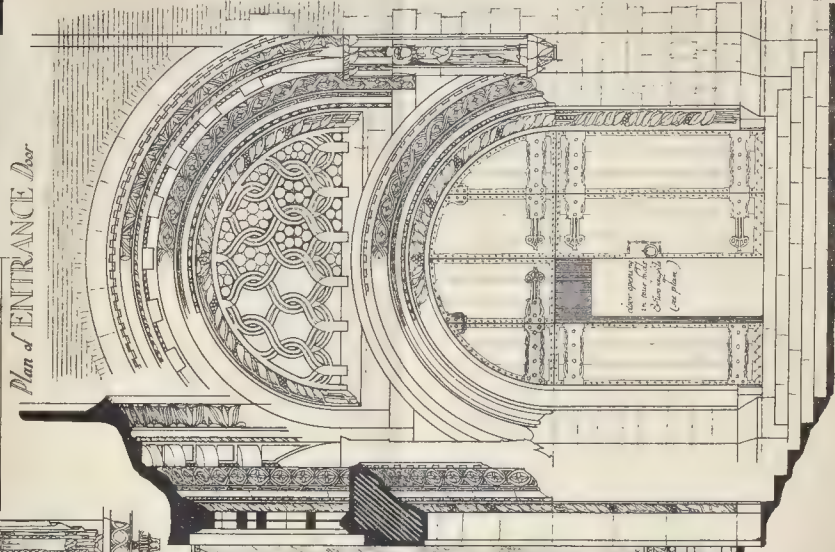
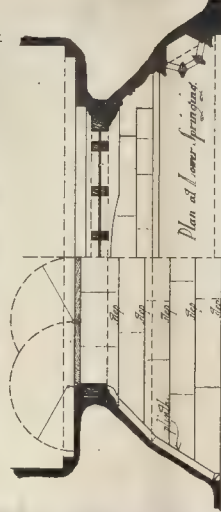
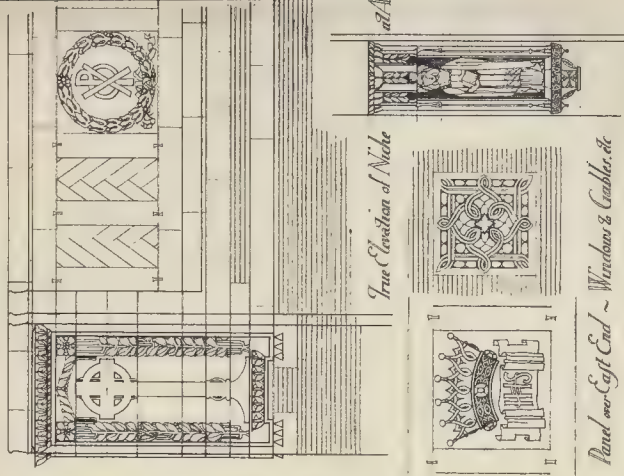




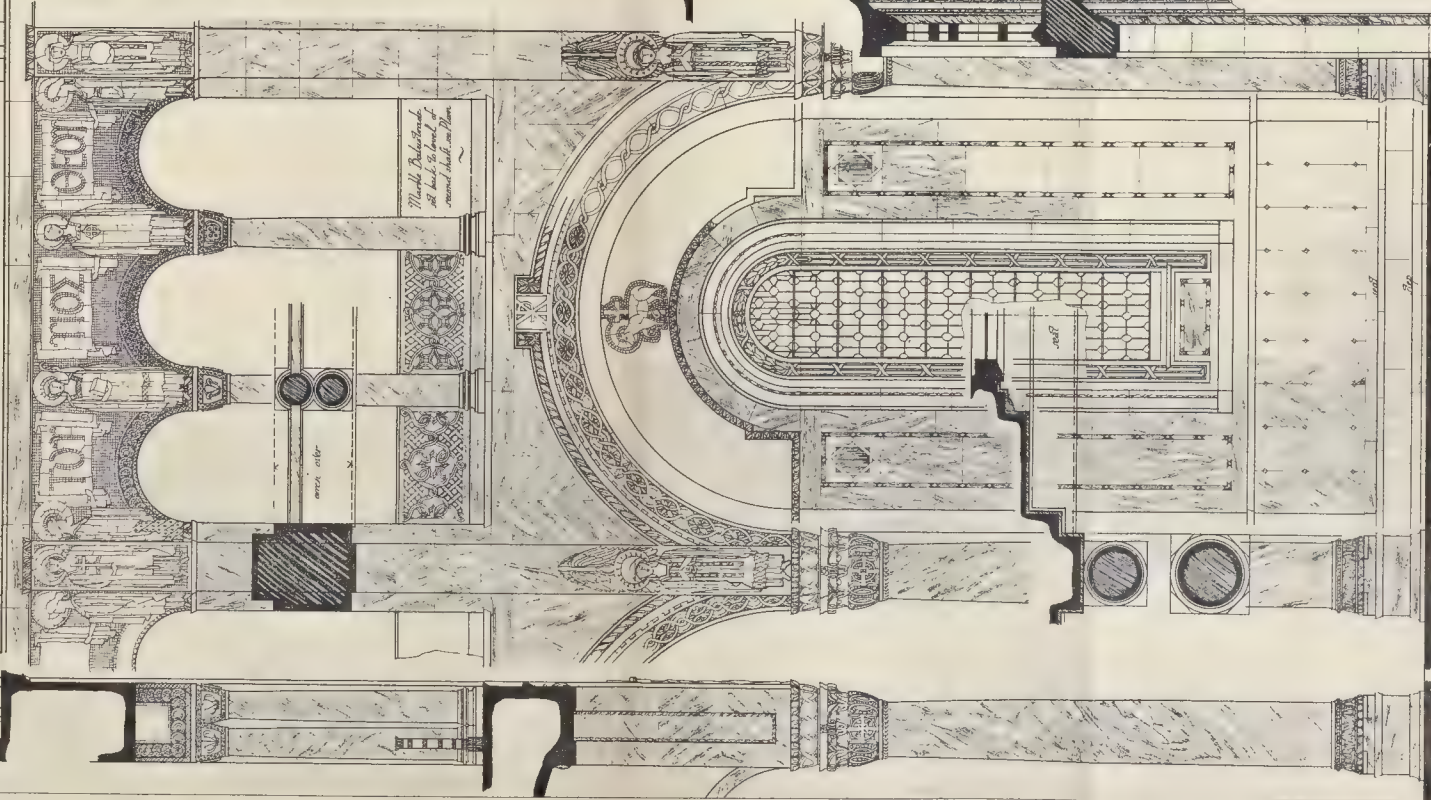




*Elevation of PARAPET & South Gable.*



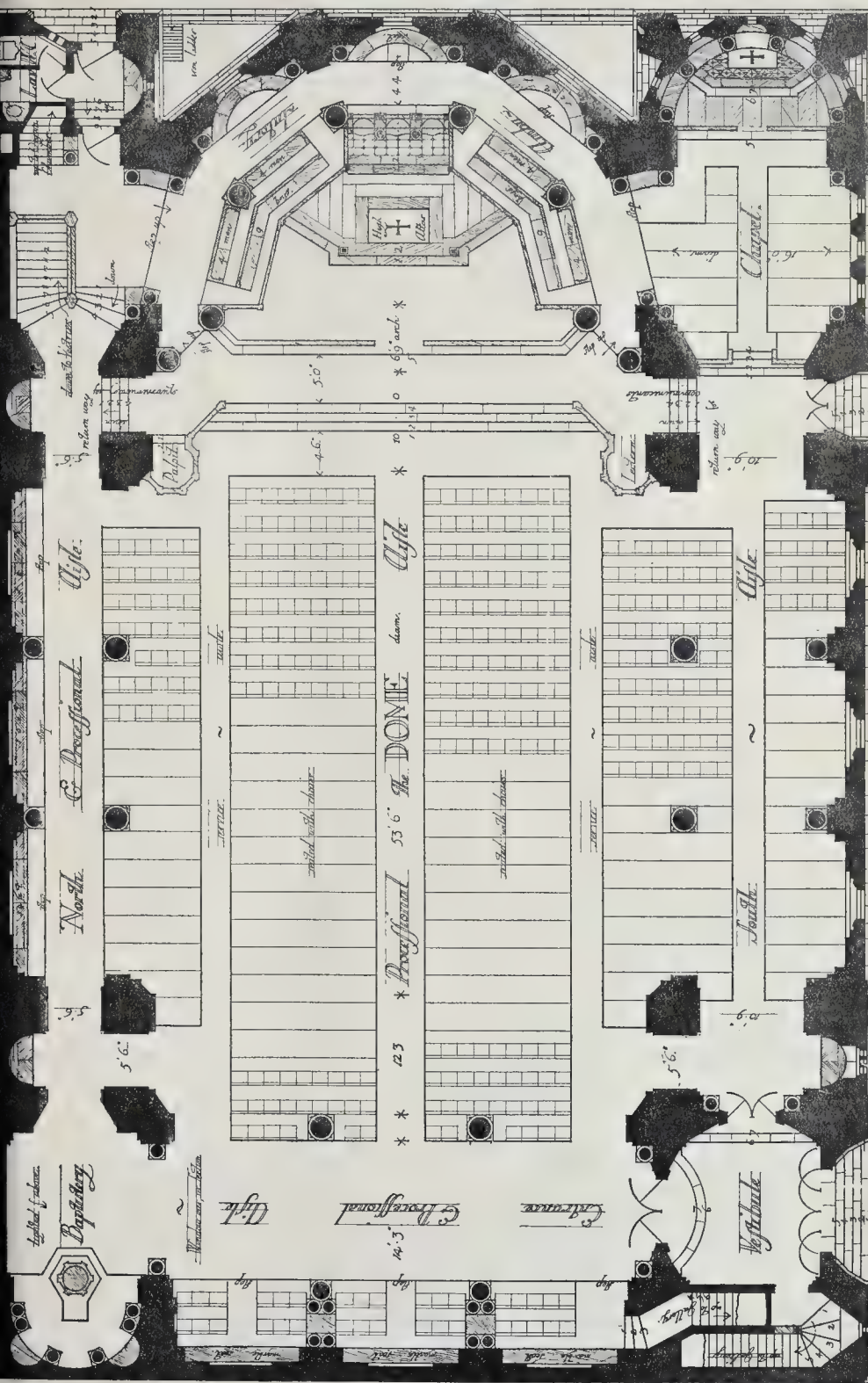
*Section & Elevation of CENTRAL BAY of Arcade under Dome.*











Design for a Town Church. Plan.



tion should be adopted, the site given in the conditions being too short to allow of a chance of mediæval depth; and its shape also seemed to suggest a plan based on the square rather than the longitudinal divisions of a gothic church.

The problem presented was thus primarily one of planning, and its difficulties were complicated by the condition that light could be obtained only on two sides of the site.

The plan of this design is grouped round a square central area, secured constructively by means of arches abutting on four compound piers at the external angles, and carrying a double dome. An apse containing the altar springs from the eastern piers, and a semi-circle of columns set within the main wall forms an ambulatory giving access to the choir-stalls and a concentration of emphasis round the altar. The vestries are placed beneath the east end, and the organ chambers over the flanks of the apse, in order to increase the area of available floor space in the church itself.

Three sides of the central square are filled in with arcades in two heights, above which semi-circular clearstory windows between the pendentives of the dome give light within the limits of the site. The western gallery, accessible by a double staircase from the west entrance, brings the capacity of the church to somewhat over 1,000 seats.

The exterior was allowed to develop naturally from the conditions of the design, and any architectural quality it may have arises rather from the grouping of masses than the elaboration of parts.

The design generally is based on Byzantine methods, modified—as in the cases of the very un-Byzantine depth of the external piers and arches, and of the increased window-area—to English conditions and climate."

#### THE SANITARY INSPECTORS' ASSOCIATION.

The twentieth annual dinner of the Sanitary Inspectors' Association was held on Saturday last week in the Venetian Salon, Holborn Restaurant, W.C. Sir James Crichton-Browne, M.D., F.R.S., President, presided, being supported, amongst others, by Sir William Broadbent, Bart., Sir William Collins, L.C.C., Sir Michael Foster, M.P., F.R.S., Sir William Richmond, R.A., Dr. T. Bulstrode, M.A., Dr. Hellier, Dr. Shirley F. Murphy, Dr. Groves, B.A., Dr. B. A. Whiteledge, Alderman J. Milsom Rhodes, M.D., Mr. J. H. Balfour-Browne, K.C., Mr. G. L. Gomme, L.C.C., Mr. E. Tidman (hon. Secretary), and several mayors and town clerks of Borough Councils.

The toast of "The King" having been honoured,

Dr. Hillier proposed "The Houses of Parliament." In the course of his remarks, he said that Dr. Koch recently told him that the time would come when we should get all pestilences under control, and there was no doubt that past progress in public health would be continued, and even increased. For the control of infectious diseases in the past legislation had been necessary, and no doubt legislation would be necessary in the future. He thought the time had come for the compulsory notification of phthisis.

Sir Michael Foster, in response, said, as to the great question of public health, our modern civilisation had transformed the balance of the old force of Nature, and we were making for ourselves a new world, in which while we had greater advantages we also had greater dangers. Our rapid locomotion, our collection of large numbers of children in big schools, our big assemblies, our scientific preparation of food—all these were opening up new opportunities for the spread of disease which had to be met. It was quite possible that in the future the bacterial processes for the disposal of sewage would produce fluids which, instead of making our streams dirty and filthy, would even make them brighter and clearer than before; but while they might be able to do that they were discharging at the same time a large number of germs, and it was a matter for the serious consideration of the future what this would result in. He thought one might speak of this as the early bacteria era, for we had found that there were bacteria everywhere.

Sir W. Collins, in proposing "Local Government," said that local governing bodies would probably get on better without too much inter-

ference from Whitehall, or without bureaucratic management. Local Government was, to a certain extent, under a ban, but if municipal housing of the people was to be denounced as municipal trading, he was prepared to take up the challenge so far as the London County Council were concerned, for their work in that respect could be justified anywhere.

Mr. Laurence Gomme, in reply, said that what a public official would consider, in one sentence, an ideal arrangement of local government, was—a committee of imaginative men setting practical officers to work, and that ideal was to be found in the London County Council. In his opinion there was a need in London for a sort of endowment of research in connexion with sanitary science.

Mr. C. Fleetwood Pritchard, M.A., Mayor of Hampstead, also responded, and referred to the great growth there had been in local government. Although we did not care for the individual visit of sanitary inspectors, yet we welcomed their work generally.

The Chairman then submitted the toast of the evening, "The Sanitary Inspectors' Association." As their President, he said he felt he was a sort of inspector of sanitary inspectors, and he felt that the Association deserved the hearty allegiance of its members, and the careful consideration of the public, to whom it was rendering valuable services. The individual units of the Association scattered throughout the country were unobtrusively but diligently engaged in safeguarding our homes from insidious dangers from which they were threatened in these overcrowded and adulterated days. While the Association helped to promote the efficiency of its members, it also afforded facilities for advancing their professional interests in a legitimate way; indeed, the Association seemed essential if sanitary inspectors were to have justice done them and be rendered secure in their tenure of office against social and vested interests. The sanitary inspector had many opportunities for educating the public in the great questions of health and well-being of the people. It was for the good of the public not less than the good of sanitary inspectors that inspectors should be adequately remunerated, so that the right men should be appointed; it was to the public interest that the inspector should have security of tenure, so that he should perform his duties without fear or favour, and it was to the public interest that the status of the calling of the sanitary inspector should be raised by permitting their participation in the examination of candidates who desire official certification of their qualifications for office. It was one of the most encouraging signs of the times that public interest was being more and more intelligently directed to health questions; that there was a growing appreciation of health as a national asset—as the one sure prop against national insolvency. He was convinced that the first and last line of defence was the health of the people. But in spite of our complacency, we had still a tremendous amount of preventable disease amongst us. In the words of Carlyle, did not health mean harmony? Was it not the net total of all the good that is in us? "The healthy man," he said, "is the most meritorious product of nature." When sanitation became properly appreciated in this country then we should have a Minister of Public Health, with a seat in the Cabinet and a department under him, taking over a large part of the functions of the Local Government Board and some of those of the Board of Trade and the Board of Agriculture. We were not quite ready for that, perhaps, but it would be a great and admirable step in the right direction. What we had to bear in mind was the economical value of sanitation—the truth that the sanitary inspector was an economy to the community, no matter how big his salary might be.

The Chairman then presented Mr. W. Wilkinson, late Chairman of Council, with an illuminated address, and Mr. Wilkinson briefly acknowledged the gift.

Mr. Isaac Young, Chairman of Council, in reply to the toast, referred to the necessity, from the inspector's point of view, of security of tenure of office. The Association was greatly disappointed—and they felt it was a great injustice—that they had received no representation on the Examination Board, and they had decided that unless proper representation was given them, they would have no alternative but to institute classes and examinations of their own, according to the powers

they had vested in them. By an alteration in the articles of association they hoped that by this time next year the Association would have doubled its membership. At present there were 700 members, but they hoped to enrol in the Association all the sanitary inspectors in the country.

Mr. J. H. Balfour-Browne, K.C., then proposed "Science and Art," coupled with the names of Sir William Broadbent and Sir William Richmond, both of whom replied.

Sir Wm. Richmond said there were three considerations which were in front of them:—(1) They had first of all to promote life; (2) art; and (3) they had to fight, as Hercules fought, against the great demons of selfishness, money grubbing, and ignorance. They had to defend great God-given Nature from the adulterations promoted in Nature by what was called the promotion of Science. In art they had to defend the beautiful, and even if their Borough Councils objected to their carrying out the law because of some self interest, it was their duty to report all smoke nuisances. It had fallen to his lot to be the first outsider in London to prosecute under the new Act as to smoke prevention, and although he won his case, it was a hard battle. But things had changed, or were changing. The little Society of which he was President—with only two inspectors and a small committee, and 2001.—had done more in this great metropolis to stop the selfishness and money-grubbing of manufacturers than all the County Councils and Borough Councils put together. Big committees were a great mistake. What was wanted was a band of earnest men who were determined at all cost to carry their point.

Other toasts were "The Chairman," proposed by Mr. C. MacMahon, Chairman of the Western Branch; "The Visitors," proposed by Mr. Aubrey Richardson, hon. Solicitor, and acknowledged by Dr. H. T. Bulstrode; and "The Press."

#### ARCHITECTURAL SOCIETIES.

INSTITUTE OF ARCHITECTS OF IRELAND.—A meeting of the Council of this Institute was held at the Institute rooms on the 2nd inst., the President, Mr. G. C. Ashlin, in the chair. A communication was read from the Ulster Society of Architects informing the Institute that they had appointed Mr. Gilliland and Mr. Fennell to act as representatives of the Ulster Society on the Council of the Institute for the present year. The Council received a report from the hon. secretary with reference to the establishment of a qualifying examination for membership. It was decided to have the usual annual exhibition of the prize drawings of the Royal Institute of British Architects. The Council had under consideration the rules of the Master Builders' Association with reference to tendering, and the hon. secretary was instructed to address a communication to that body on the subject.

EDINBURGH ARCHITECTURAL ASSOCIATION.—The second of the series of lectures on the "Building of a House," by Mr. A. Hunter Crawford, the President, was given on the 4th inst. to a meeting of the members of this Association, presided over by Mr. Charles A. Jockel. The paper described the method of building a house from the asphalt level, and was illustrated by blackboard sketches of the proper building and bonding of stone walls. Details were given of the fitting in of the plumber work, particular attention being directed to hot water circulation. The framing of the timbers for the roofs, and the covering with tiles, was also detailed. Sketches were given of the joiner work and plumber work of the roofs. At the close of the lecture Mr. Hunter Crawford was awarded a vote of thanks.

CARDIFF AND SOUTH WALES ARCHITECTS' SOCIETY.—On the 5th inst. Mr. C. H. Priestley, the Cardiff Waterworks Engineer, read a paper on the water-supply of the town, before the Cardiff and South Wales Architects' Society, at the Art Gallery, Queen-street. The President of the Society (Mr. David Morgan, F.R.I.B.A.) occupied the chair. Mr. Priestley said that in 1850 an inquiry into the water-supply of Cardiff was held by Mr. Thomas Webster Rammell, Superintendent-Inspector of the Local Government Board. In his Report Mr. Rammell stated that at that time water for ordinary domestic purposes was obtained from the Glamorgan Canal, the River Taff, or from a few pumps in different parts of the town, some of which were fed from the canal, and other



by means of wells sunk through the marl strata upon which the upper part of the town is situated. The supply was inefficient and uncertain, and the quality generally much deteriorated from filtrations taking place. It was in that year that the Cardiff Waterworks Co. was formed. Mr. Priestley then described what had taken place since, including the construction of two reservoirs in the Taff Vawr Valley. No. 3 Reservoir, which has yet to be constructed, would, he said, have a capacity of 670 million gallons, and was estimated to cost about 250,000l. The capability of the gathering ground in the valley for the collection and storage of water would be understood when he stated that during the two last months over 2,000 million gallons had passed over the waste weir at the Cantref Reservoir. On January 5 there was a depth of 15 in. passing over a sill which was 160 ft. wide, and if the population of the town and district served were doubled in years to come there would be an ample supply in the Taff Vawr Valley for all requirements. In addition to the Taff Vawr sources of supply the Corporation had power to abstract 3,000,000 gallons of water per day from the River Ely, as well as to take water from an area of 2,000 acres at Lisvane and Llanishen, all of which was suitable for trade and sanitary purposes, and might be made use of by means of duplicate mains. Mr. Priestley has just prepared a scheme for utilising the water from the River Ely for trade and sanitary purposes. It was proposed to pump the water from the river into the Penhill service reservoir, from which it would gravitate through the new mains to be laid throughout the town.

**ARCHITECTURAL ASSOCIATION OF IRELAND.**—On the 3rd inst. at a general meeting of the Architectural Association of Ireland, held at the Grosvenor Hotel, Mr. T. G. Hicks presiding, a lecture on "Heraldry and Heraldic Ornaments" was delivered by Mr. Crawfurth Smith. The lecturer, in the course of his address, which was profusely illustrated, said heraldry was the art of explaining by way of various forms, symbols, objects, and colours, achievements of persons and families both individually and collectively according to their various ranks of life. These originally appertained to their arms, trappings, liveries, and robes of State and office, and by expansion were employed pictorially and in sculpture or stone-work, parchment, &c. These signified, in days when reading and writing were unknown generally, the various ranks, stations, and histories of the people to whom they belonged. As to its origin, some forms of representation akin to heraldry were coeval with primitive man, but were not raised to a science until comparatively recent days. The lecturer then gave illustrations of various coats of arms, and said that the beginning of the twelfth century marked the most brilliant period of heraldic ornaments, and this continued until the decadence of the seventeenth century. With the last of the Tudors heraldry as a decorative art rapidly declined. With occasional exceptions they might dismiss the history of heraldic decoration until the building of the Houses of Parliament. The last century had witnessed the revival, the study, and execution of heraldic ornamentation.

#### ENGINEERING SOCIETIES.

**SOCIETY OF ENGINEERS.**—The first ordinary meeting of the Society of Engineers for the present year was held on Monday, the 2nd inst., at the United Service Institution, Whitehall. Mr. Percy Griffith, the President for 1902, first occupied the chair, and presented the premiums awarded for papers read during that year, viz.:—The President's Gold Medal to Mr. Thomas Andrews, F.R.S., for his paper on "The Effect of Segregation on the Strength of Steel Rails"; the Bessemer Premium of Books to Mr. Augustus R. Galbraith for his paper on "The Hennebique System of Ferro-Concrete Construction"; a Society's Premium of Books to Mr. Benjamin H. Thwaite for his paper on "British versus American Patent Law Practice and Engineering Invention," and a Society's Premium of Books to Mr. Brierley D. Healey for his paper on "Recent Blast Furnace Practice." Mr. Griffith then introduced the President for the present year, Mr. J. Patten Barber, to the meeting, and retired from the chair, receiving a hearty and unanimous vote of thanks for his services during the past year. The President, in his inaugural address, congratulated

them on the membership being 523, the highest number the Society had ever had. In dealing with some of the works which concerned an engineer holding a municipal appointment, he stated that they were so numerous that it would only be possible to refer to a few which were of general interest. In regard to roads, in which the public interest had been revived since cycling became common, the use of more suitable stone, broken to proper sizes, steam rolling, and the more judicious application of binding material, had largely contributed to the improved state of the main roads. It was impossible to fix the stones on a macadam road by the method advocated by critics of making them "unite by their own angles;" even in McAdam's time the fixing of the stones was accomplished by the small particles ground off the loose stones by the traffic. The addition of suitable binding material was necessary even when a steam roller was used for consolidating the new coat of stone with which a macadam road was repaired. Tar macadam formed a cleaner and smoother surface than ordinary macadam, but was more slippery and not suitable for very heavy traffic; it made an ideal road for cyclists and motorists, but its great cost made the formation of a track along the roads improbable. The use of the scarifier for breaking up the surface of macadam roads prior to repairing them enabled the work to be done more effectually, and at about one-third of the cost of hand picking. For paving town roads of very heavy traffic, granite setts, asphalt, and wood were used, but the former were frequently objected to on account of being noisy, and the second because of its slipperiness, wood being the material most favoured by the public. Jarrah wood, from Australia, was chiefly used for wood paving, although there were other hard woods equally suitable, but they were not obtainable in quantities. The supply of other woods was a subject deserving the attention of the Colonial Governments, but, at the same time, the planting of trees should be carried on in order to make the timber industry an enduring trade. For the cleansing of roads, the horse scraper and the machine broom were of great service, and a machine was needed which would sweep mud or dust from a road and transfer it to a vehicle for removal, so as to save the labour and time occupied in forming it into heaps and loading into vans by manual work. The prevention of dust from the roads in the busy streets of a populous town was absolutely essential, the fine particles of refuse and debris from the pavements being very offensive and injurious. Specially constructed vans, which would spread water, to which a disinfectant had been added, in a very fine spray on the road surface, might be tried; and perhaps a machine which would take up the dust from the road by exhaustion, and discharge it into a receptacle containing water might at some time be invented. Pavements which add little to the noise produced by traffic were necessary in the principal streets where business was carried on, and although the noiseless shoe for horses did not seem to be practicable, improvements should be made in the construction of vehicles so as to diminish the clatter made by them. Referring to the disposal of house refuse by means of destructors, the President remarked that great improvements had been made which had resulted in more perfect combustion both of the refuse and the gases from the cells, and that no nuisance was caused in the neighbourhood of properly designed installations. From the clinker, paving bricks, and other articles were made by hand or hydraulic machinery. It was desirable that the dust which filled the air in the destructor building during the clinking of the cells should be prevented. From the burning of house refuse steam was raised and used for pumping and other useful purposes. Speaking of sewerage, the President observed that increased knowledge of hydraulics and the manufacture of more suitable materials had enabled engineers to construct better sewers than those of fifty years ago. The carrying away of storm-water was a serious problem in rapidly extending towns, and sufficient provision had not been made for dealing with rainfall in earlier schemes of sewerage. The results of many experiments and the actual working of various systems for dealing with sewage had shown the efficacy of bacterial processes for purifying crude sewage.

**THE JUNIOR INSTITUTION OF ENGINEERS.**—A meeting of this Institution was held at the

Westminster Palace Hotel on the 6th inst., when a paper on "The Calorimetry of Gaseous and Liquid Fuels" was read by Mr. W. Garnet Wernham. After emphasising the importance of means for conducting a rapid and simple test of the heating value of fuels, the methods employed were described in detail. The first, the analytical method, was stated to be more suitable to the laboratory, but where carefully carried out was extremely valuable for checking the result obtained by the direct calorimetric test. This latter method was next investigated, the calorimeters of Rumford, Fabre & Silbermann, and Berthelot being first illustrated, as they were distinct from instruments of the Hartley, or flowing-water type. Several of these latter instruments—Abdy, Junker, and Simmance—were explained in detail and a description of a test with the last-named instrument was given. The calorimetry of liquid fuels was next considered, and the methods of burning the oil were described, the analytical test being unreliable for this class of fuel. The question of the standardisation of calorimeters was entered into, the author suggesting that an efficiency test should be made with gas of a known heating value, such as hydrogen or pentane air-gas, and a constant given for each instrument. In conclusion, a plea was made for uniformity in methods of expressing calorific values, the English and French units being at present used together in a manner calculated to cause great confusion.

#### COMPETITIONS.

**WORKMEN'S DWELLINGS, ECCLES.**—The competition for the erection of dwellings for the working class at Eccles has just been decided:—The 1st premiated design is by Mr. George Meek, Leinster Chambers, 4, St. Anne's-square, Manchester; the 2nd is by Mr. George Wescott, 11, King-street, West Manchester; and the 3rd by Messrs Mee & Hooley, 32, Victoria-street, Manchester.

#### THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, Sir J. McDougall, Chairman, presiding.

**Loans.**—On the recommendation of the Finance Committee it was agreed to lend Hackney Borough Council 20,570l. for electric lighting and other purposes; Wandsworth Borough Council 2,000l. for street improvement; and Hammersmith Borough Council 5,000l. for street improvements. It was also agreed to sanction the loan of 770l. to Islington Borough Council for electric light installation.

**Holborn to Strand Improvement: Naming the New Streets.**—The General Purposes Committee recommended, and it was agreed with general commendation, that the crescent-shaped street now being laid out on the site of Wych-street be named "Aldwych," and that the new main street to be constructed from Holborn to the Strand be named "Kingsway."

**Theatres, &c.**—The Theatres and Music Halls Committee recommended, and it was agreed, to sanction (1) proposed seating arrangements in the stalls and pit and dress circle at the Criterion Theatre (Mr. F. T. Verity for Sir Charles Wyndham); (2) alterations to the lavatories and bars at the South London Music Hall, London-road, Southwark (Messrs. Wyson & Long).

**The Horniman Museum and Gardens.**—The Historical Records and Buildings Committee presented a report, in which they recommended that a house next to the Horniman Museum should be demolished.

Colonel Rotton protested against the proposed demolition, on the ground that the house was one of six which Mr. Horniman had presented to the Council for the purpose of helping to provide for the upkeep of the Museum. He moved to refer the recommendation back.

Lord Welby seconded the amendment. Mr. Dolman said it was the intention of the donor of the museum that these houses should be demolished as soon as the leasehold interest in them fell in.

The amendment to refer the matter back was carried.

**London Locomotion.**—The Council voted 500l.



to enable their officers to report more fully upon the question of locomotion in London.

*Increase of Artisan Students in Polytechnics.*  
—The Technical Education Board reported as follows:—

"The results recently published of the examinations conducted by the City and Guilds of London Institute afford striking evidence of the rapid growth of technological classes in London institutions. The subjects in which examinations were held included plumbing, brickwork, masonry, plasterers' work, painters' and decorators' work, carpentry and joinery, engineering, gas manufacture, goldsmiths' work, watch and clock making, carriage building, bookbinding, wheelwrights' work, builders' quantities, telegraphy and telephony, metal plate work, &c. The number of workmen attending these classes for 1902 was 6,731, as against 5,193 for 1901, an increase of 30 per cent. in one year. The numbers attending the more important classes were as follows:—electric lighting, 1,059; plumbing, 539; carpentry and joinery, 522; mechanical engineering, 515; telegraphy and telephony, 501; builders' quantities, 407; brickwork and masonry, 271; metal plate work, 105; painters', decorators', and plasterers' work, 151; goldsmiths' work, 62. The above figures do not include the students working in technical institutes not presenting candidates for the examinations. The number of student-hours worked by the 6,731 students in the classes examined by the City and Guilds of London Institute was considerably over 400,000 during the session. In technological subjects fewer of the students enter for the examinations than for the science subjects of the Board of Education, as certificates are not used to the same extent for special purposes; it is therefore very satisfactory to notice that 2,200, that is, about 33 per cent., presented themselves for examination, and of these, 1,314 obtained certificates, and forty-nine obtained prizes or medals.

The action of the Board in instituting evening exhibitions of 51, a year for two years in science and technology has done much to stimulate artisan students to good work and enable them to remain at the polytechnics for advanced instruction for a much longer period than is usually the case. The following list gives the number of exhibitions won by a few typical classes of artisan students during the past five years:—Carpenters, joiners, and cabinet makers, 90; plumbers and plumbers' mates, 47; bricklayers and masons, 46; engineers' assistants, fitters, and pattern makers, 70; painters, decorators, and plasterers, 26; draughtsmen, 36.

About 20 per cent. of these exhibitions have been extended for a further period of one year on the result of the excellent work of the students and the strong recommendation of the teachers. The competition for the exhibitions increases year by year. In the adult section there were over 500 entries for the competition in June, 1902, and 130 exhibitions were awarded. The work sent in was far in advance of that of previous years. Many of the students who win these exhibitions are in attendance at polytechnic trade classes for periods varying from four to seven years."

*Clapham and Hammersmith Schools of Art.*—The following recommendations were agreed to:—

(a) That under the provisions of the Schools for Science and Art Act, 1801, the Clapham School of Art and the Hammersmith School of Art be acquired by the Council, and that the work of these schools be conducted directly by the Technical Education Board on behalf of the Council.

(b) That out of moneys in the hands of the Board the building lease of the Clapham School of Art premises be purchased by the Council, subject to a ground-rent of 36l. 7s. 6d. per annum, for the sum of 2,250l., from the Clapham School of Art Company."

*Tramways.*—The following recommendations of the Highways Committee were agreed to:—

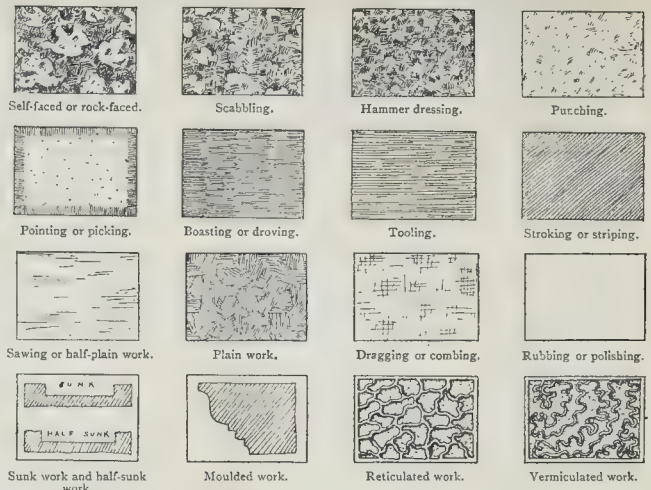
"That the expenditure on capital account be authorised of a sum not exceeding 1,350l. in connexion with the laying of tramway tracks and the provision of electrical equipment therefor and for certain other works at the temporary car-shed in course of erection at the Balham tramways depot.

That the expenditure be authorised of a sum not exceeding 1,200l. in connexion with the laying and the electrical equipment of the tramway tracks, the excavation of car-pits, &c., in the temporary car-shed to be erected at the tramways depot, Rye-lane.

(a) That the site belonging to the Council at Hughes-fields, Deptford, between Blake-street and Barnes-alley, be appropriated for the provision of rehousing accommodation for 214 persons to be displaced in connection with the erection of the Greenwich electricity generating station."

*Working-Class Dwellings.*—The Housing Committee recommended that an estimate of 9,931 be passed for the erection of Darcy-buildings, London Fields, for the accommodation of persons of the working classes.

Mr. Beauchcroft said the recommendation



Illustrations to Student's Column: Sketches of various forms of finish to masonry.

afforded food for reflection. They found that the land had to be written down to nil, and now, after proposing to spend 9,900l. on buildings, the estimated surplus was only 13l. a year.

Sir W. Collins, in reply, pointed out that the writing down of the value of the land had already been agreed to, on the recommendation of the Improvements Committee. The recommendation was agreed to.

*The Treatment of London's Sewage.*—The Main Drainage Committee recommended the expenditure of a sum not exceeding 500l. for printing and binding 2,000 copies of a book prepared by Dr. Clowes and Dr. Houston, on the experimental bacterial treatment of London sewage at Barking and Crossness.

Mr. Campbell objected to the expenditure as being a wicked waste of public money.

Sir Henry Bliss remarked that it was very important that the Council should possess every possible information with respect to the treatment of sewage, and he might say that before long the Main Drainage Committee would submit important developments with regard to the disposal of the effluent, which, he believed, would attract a large amount of public attention.

Sir W. Collins observed that, when Sir Arthur Arnold was the Chairman of the Council, he said that their method of treating sewage was the best in Europe. Now, however, he understood there was to be a development in the treatment. Reports would appear to show that the effluent was far from a harmless one, even after a thorough treatment in the septic tank and passing through coke breeze—indeed, he gathered from some experiments with animals that fatal results had ensued from the effluent. He sincerely hoped the Main Drainage Committee would not feel that the last word had been said with regard to the bacteriological treatment of sewage, or would assume that it was necessarily in advance of any other method of treatment.

Mr. Burns, M.P., said that, as a member of the Main Drainage Committee for fourteen years, he would want a lot of argument before he voted in favour of the immediate abandonment of the present system of treating sewage at Crossness and Barking. The bacteriological treatment of sewage was not the modern question that some modern experts thought it was.

The recommendation was agreed to. *Advertisements on Tram-cars.*—Considerable discussion took place over the proposal of the Highways Committee to allow advertisements on the top boards and the inside of the ventilators of the new electric cars.

Mr. Baker strongly urged that no advertisements should be allowed, and moved an amendment to refer the proposal back, and this was seconded by Dr. Longstaff.

Lord Welby pointed out that for the year 1903-4 there would be few receipts from the

tramways, and now was hardly the time for dropping their advertisements.

The debate was adjourned, and the Council rose at 7 o'clock.

## The Student's Column.

BUILDERS' TOOLS AND THEIR USES.

CHAPTER 3 (continued).

Labours to Stonework.

THE successive stages through which freestone passes from the rough to the fine state, are indicated in the above diagrams.

The tools differ with the quality of the stone, but those generally used, in consecutive order, are:—

The *Scabbling Hammer*, or mason's pick and hammer, is employed for scabbling or scappling, that is, roughly reducing the stones after they have been got out of the quarry somewhat to an outline of the desired shape. It weighs from 15 lbs. to 22 lbs., the flat or spalling face being  $\frac{1}{2}$  in. by  $\frac{1}{4}$  in., for knocking off protuberances, and the pick end to reduce the irregularities of the surface. Scabbled work is said to be "quarry-pitched," which implies that the projections are "pitched" off at the quarry.

The cavi and jeddling-axe, used for like purposes, are nearly identical in form and size to the scabbling hammer.

The *Spalling Hammer*, or quarryman's hammer, is double faced, and in demand for the same purpose as the three last-mentioned tools, but only for the roughest work. It weighs from 20 lbs. to 30 lbs. (fig. 69).

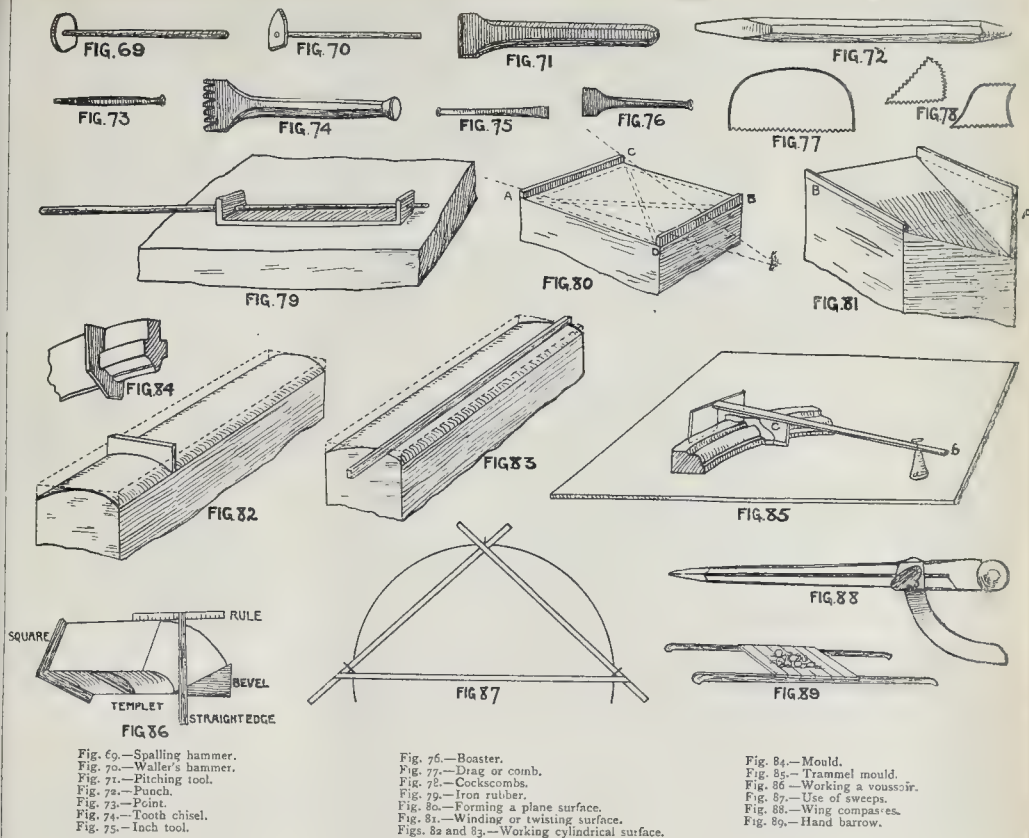
The *Waller's Hammer*, or face hammer, has one blunt and one cutting end, the head being 10 in. long by 3 in. wide. It is not so heavy as the scabbling hammer, and the axe-shaped end is required for hammer dressing, which is the next description of work after scabbling, being of the same nature but not so rough in execution. It is also employed for roughly squaring stones in rubble work (fig. 70).

The mash hammer has already been described under "Bricklayer." It is used upon the hammer-headed chisels.

The hammers having produced a rough approximation to a plane surface, pitching tools, punches, chisels, &c., are next called into use. In the neighbourhood of London and other localities the term "chisel" is applied only to cutting tools from a  $\frac{1}{4}$  in. to 2 in. broad, those above 2 in. being classed as boosters or tools. These cutting instruments are of iron, with steel edges, and are arranged as follows:—

The *Pitching Tool* has a bevelled instead of a cutting edge, about  $\frac{1}{2}$  in. wide, and is employed with the mash hammer for knocking or





Illustrations to Student's Column.

"pitching" off the smaller projections along the edge of a stone (fig. 71). It does not, however, lend its name to any particular mode of stone dressing.

The *Punch* has a blunt edge  $\frac{1}{2}$  in. long, and is required for punching the surface, which is thus coarser than pointed work. It is used with the hammer (fig. 72).

The *Point* is a preparatory tool, with a steel end about  $\frac{1}{2}$  in. broad (fig. 73), its use leaving the stone in narrow furrows, with rough ridges between, which are cut away by the inch tool and made smooth by the booster. The point is used with the mallet, and is employed for pointing or picking the face to a regular surface, which becomes pock-marked in appearance. It is capable of being worked to an unusual degree of fineness, which may be the final finish, and a "pointed" stone is usually chisel-drafted about 1 in. wide round the margins, which are then styled "drafted margins." These borders are here necessary to insure proper arrises for the accurate fitting of the joints of each block, which would otherwise present an undulating surface over its whole face; they are cut with a tooth-chisel, having nicks or teeth in its cutting edge, as shown in fig. 74. The tooth-chisel is only adapted to marbles and sandstones, though all the edges of cut stones (at least of quoins) are usually drafted.

The *Inch Tool* levels the ridges left by the punch and point, producing still greater smoothness. The size is  $8\frac{1}{2}$  in. by 1 in., and it is illustrated in fig. 75.

The *Booster*, or boister, is 8 in. long and from 2 in. to 3 in. wide, and is used for the operation of boasting, called *drawing* in Scotland, which smooths away the roughness left by the inch tool, and prepares the surface for a finer finished face (fig. 76). Boasted work is nearly always done with the tool at an angle, and varies with the texture of the stone as to the number of blows or lines to the inch, producing

a corduroy appearance. It is really a levelling of the surface, and the booster often takes  $\frac{1}{4}$  in. or so from the top of the stone, thus in a manner dressing it. It is, in fact, "a more regular description of chiselling, in which the marks of the tool run in parallel lines, each successive stroke being made beneath the last, down the whole length of the stone. The same operation is repeated till the marks extend over its whole breadth. The lines are not continuous across the whole width of the stone, but resemble columns. Boasting may be described as roughly preparing for a finer finished face. Limestones and grits are the stones which are usually boasted.

The *Broad Tool*, or tooler, is similar to the booster, but about 4 in. wide at the cutting edge, and is employed for the process of tooling, which is similar to boasting, except that the strokes form a continuous series of parallel lines, each line extending across the whole of the stone, as indicated in illustration. It is, in fact, superior boasting. Tooling is generally executed after the work is boasted, and is simply of an ornamental character, the operation requiring to be finely done, and the idea being to make each stone in a building look as if finished by one machine. Each line or hollow is completed before commencing the following one, and these are always at right angles to the bed of the stone. The process of tooling is now uncommon in this country.

Striking, or striped work, differs only from tooling in the direction of the lines, which run diagonally at an angle of about 45 deg., instead of parallel to the edges of the stone.

Sawing, or half-plain work, is the surface produced after sawing.

Plain work is the resulting surface after the inequalities left by the saw, punch, or point have been dressed down by chisels and tools, as the former leave their traces in irregular marks over the stone, and the broader the chisel the smoother the surface.

Half-plain work and plain work are the labours usually left upon the bed and side joints of cut stones in walling.

The *Drag*, or comb, is needed for dragging or combing very soft stones, such as Bath stone, to an extremely even surface, for the sake of appearance and to prevent the destroying action of the weather which would otherwise take place on a rough texture. It is a thin plate of steel with teeth like a saw, or it may be a piece of an old saw itself, with teeth according to the degree of fineness required (fig. 77).

Cockscombs are specially shaped drags for moulded work in soft stones (fig. 78). Drags are of three grades—coarse, medium, and fine.

An *Iron Rubber* is the requisite implement for hand rubbing or polishing, which is plain work rubbed down with sand and water to a perfectly smooth surface, the face of the stone having been previously dressed as evenly as possible. A stick is inserted through the two holes of the iron for grasping and manipulating the rubber to and from (fig. 79). Rubbed stones have no margins. Rubbing is also done by rubbing one stone with another, and using water and sand.

When the word "finished" is used, it means that the work has been gone over to put a particular and final surface upon it after it has been really completed.

Sunk work is the labour of making any surface below that originally formed, such as in panels, sloping surfaces of sills, &c. If the original surface was smooth it is properly called sunk work; if rough, half-sunk.

Moulded work is as its name implies, and is strictly speaking, the term given to profiles with a change of curvature, and should not be applied to cylindrical sections, such as columns, which is circular work. For fuller description see *Templets* and *Moulds*. The edges of the tool used for working mouldings



are necessarily narrower than those employed for ordinary face work.

Reticulated work means resembling the motion of a worm. These labours are chiefly placed on quoin stones to give effect, and are enclosed by margins about  $\frac{3}{4}$  in. wide. The irregularly-shaped sinkings between are punched with a pointed tool to give them a rough pock-marked appearance.

The *Square* used by the mason has already been described under Bricklayer. The method of its application will be better understood further on. A set square is also employed, and is made of iron.

The *Straight-edges* of the mason are similar to those employed in the bricklayers' and other trades, but usually with the addition of a bevelled edge. They are required to enable plane surfaces to be formed on a rough block of stone, or, as it is termed, to take a face "out of winding," i.e. out of its irregularities, an unequal surface, not in one perfect plane, being said to "wind." Hence they are frequently referred to as *winding sticks*.

The following description of "How to Form a Plane Surface" has been extracted from Dobson's "Masonry and Stonecutting" as the method of operation will be interesting to the student: "First, when the surface is of considerable size (fig. 80). Two diagonal chisel drafts, as AB, CD, are run across the surface and connected by cross drafts, as AD, CB, and DB, AC. The superfluous stone is then knocked off between the drafts, until the surface coincides in every part with a straight edge.

"Second, when the surface is small. In this case a chisel draft is sunk along one edge of the stone, and a rule or straight-edge placed upon it. The workman then takes a second similar rule and sinks it in a draft on the opposite edge, until the upper edges of the rules are out of winding, that is, in a level surface (tested by sighting them across), when the two drafts will be in the same plane, and the face may be dressed between the drafts." A stone is taken out of winding principally with points, and finished with the inch tool.

*Winding Strips and Twisting Rules* also come under the category of straight edges. They are indispensable for forming a "winding" or "twisting" surface on stone. Fig. 81 illustrates what is meant, A being the winding-strip and B the twisting-rule, the wind, twist, warp, or slope falling from corner B to corner A. Drafts are cut in the ends of the stone until the tops of the winding-strip and twisting-rule are in a plane. The remainder of the projecting face is then removed until a straight edge, when applied parallel to the edge of the stone, will just touch the end drafts and the intermediate surface. A surface may be twisted at one or both ends.

*Templets and Moulds* act as guides in reducing the stone to the required profile, and they are made of thin wood or sheet zinc. A templet, for instance, is necessary when working cylindrical surfaces, which are produced in either of two ways. First, by cutting a draft along the line of intersection of the plane and cylindrical surface, and applying a curved templet to the required surface (fig. 82), or, second, by cutting a circular draft on the two ends and applying a straight-edge along the rectilinear parts (fig. 83). A mould, having one of its sides cut to the intended profile, is shown in use in fig. 84, while fig. 85 illustrates the working of a portion of an arch by means of a trammel mould, *a* being the centre of the circle of which the required moulding is an arc. This centre *a* is built up, cone-shaped, with a dovetailed wooden block taking a gimlet or nail penetrating the radius rod *b*, at the opposite end of which is fixed the running mould *c*, showing a section of the Norman edge-roll or bowtell.

Fig. 86 gives an idea of the various uses of squares, rules, bevels, templets, and straight-edges in working the voussoir of a hemispherical dome.

*Sweeps.*—The employment of sweeps is so clearly stated by Dobson, in his book before-mentioned, that one cannot do better than give his description here, which is as follows:—"When the radius of a curve exceeds 5 ft. it generally becomes necessary to describe it without making use of the centre, and for this purpose *sweeps*, or curved rulers, are used, by means of which the curves are drawn in between points previously ascertained by calculation. These sweeps are made of thin wood, on which the curve is first struck with

the trammel as follows:—Find by calculation, or otherwise, three points in the curve, the middle point being in the centre between the extreme ones, or nearly so. Fix a pointer at each of the extreme points, and lay against them two straight-edges, so that their intersection shall coincide with the central point. Secure the straight-edges in this position with a cross piece, as shown in fig. 87, and the curve may then be drawn with a fine-pointed pencil placed at the intersection of the rules, the trammel being pressed steadily against the pointers whilst the curve is drawn. Take off the superfluous wood with a plane, and the sweep is ready for use.

An instrument called a cyclograph, constructed on this principle, is sometimes used for drawing arcs of circles, but it is expensive, and the use of sweeps is preferable, if the length of the curve is such that the work cannot be done without shifting the instrument, as it is very difficult to make a neat junction between the different portions of the curve."

Before dressing his stone the mason lays out on a large wooden floor, or platform, full-size plans, sections, and details of his work, carefully marking all joints and dimensions, exactly as they will appear when put up in the building. These full-size figurings are obtained from the architect's working drawings, and from them the templets, moulds, bevels, &c., are made. The full-size drawing or tracing is placed over a sheet of thin zinc (No. 9 is a useful gauge), and the profile pricked through with a fine-pointed steel scriber. The zinc templet is then cut into shape with a pair of tinman's shears, or cut with a hammer and chisel on an iron plate, as near to the line as possible, and afterwards carefully filed to the required form to give it a true edge.

It is customary to mark and number each cut stone from the time it leaves the quarry or mason's yard to its final resting-place on the building, and each block should be numbered as nearly as possible in the order in which it will be set to avoid confusion and waste of time on the job. Cut stone mouldings, carvings, bases, &c., should be protected during the erection of the edifice by thin pieces of wood temporarily nailed to the joints of the masonry and removed as the scaffolding is taken down.

All tracery work is sawn from the rough block in the position known as face-bedded. It would be impossible to produce tracery on blocks sawn on their natural bed, the stone being in that case highly liable to flake off. Sills and jambs, on the other hand, are, of course, sawn on their natural or quarry bed.

*Rule.*—A mason's rule is as often a 2-ft. two-fold steel one, as one made of boxwood.

*Spirit Level.*—This is like the bricklayer's, and should be at least 18 in. long.

*Compasses*, common or ordinary, and wing, are identified with the setting out of work, describing curves, taking minute measurements, &c. The former are of steel, about 7 in. long, while the latter, 6 in. to 24 in. in length, are provided with an arc or wing along which the legs may be graduated by means of a trumb or pinch screw. Fig. 88 indicates a pair of wing compasses.

The *Hand Barrow*, in contradistinction to wheelbarrow, is indispensable for carrying (not wheeling) heavy stones to and fro. Its use will be understood by a reference to fig. 89.

## APPLICATIONS UNDER THE LONDON BUILDING ACT, 1894.

The London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses:—

### Lines of Frontage and Projections.

*Paddington, South.*—Three buildings, with one-story shops in front upon the site of Nos. 60 and 62, Westbourne-grove, Paddington (Mr. A. Young for Mr. J. Rosedale).—Consent.

### Line of Frontage and Construction.

*Wandsworth.*—An iron and glass verandah in front of No. 25, Mitcham-lane, Streatham (Messrs. J. H. Jenkin & Co. for Mr. R. Shakeshaft).—Refused.

### Width of Way.

*Hackney, South.*—Buildings on the west side of Homerton-terrace, Hackney, to abut also upon Park-place and Morning-lane (Messrs. Hodson & Whitehead for Messrs. Smith & Howe).—Consent.

*St. Pancras, East.*—A two-story workshop at the rear of No. 282, Camden-road, St. Pancras, with the external walls of such workshop at less than the prescribed distance from the centre of the roadway of Camden-mews (Mr. T. B. Westcott for Messrs. J. & H. Bange).—Consent.

*Woolwich.*—Two houses on the north-west side of Red Lion-lane, Shooter's Hill, Woolwich (Mr. A. E. Parnell for Mr. J. Sandford).—No order.

### Space at Rear.

*St. George, Hanover-square.*—To raise a portion of a building on the north and east sides of Dover-yard, Piccadilly (Colonel R. W. Edis for Lord Wolverton).—No order.

### Width of Way and Space at Rear.

*Greenwich.*—Working-class dwellings on a site on the west side of Hughes-fields, Deptford, and south side of Benbow-street (Mr. R. Robertson for the Housing Committee of the Council).—Consent.

### Adaptation of Street for Carriage Traffic.

*Strand.*—Adaptation for carriage traffic of a portion of Martlett's-court, Drury-lane, Strand (Mr. H. O. Ellis for Mr. L. U. Gill).—Refused.

### Dwelling-houses on Low-lying Land.

*Lambeth, North.*—Two buildings on low-lying land situated at Nos. 9 and 10, New-cut, Lambeth (Messrs. Flood & King for Messrs. Grogan & Ruscoe).—Consent.

\* \* \* The recommendations marked † are contrary to the views of the Local Authorities.

## BOOKS RECEIVED.

SHAKESPEARE'S CHURCH, STRATFORD-ON-AVON. By J. Harvey Bloom, M.A. (T. Fisher Unwin. 7s. 6d.)

THE YEAR'S ART. 1903. Compiled by A. C. R. Carter, (Hutchinson & Co.)

MODEL GENERAL CONDITIONS FOR USE IN CONNECTION WITH ELECTRICITY WORKS. Issued by the Institution of Electrical Engineers. (E. & F. N. Spon.)

THE RATING OF ELECTRIC LIGHTING UNDERTAKINGS. By W. G. Bond. (Electrician Publishing Co.)

## GENERAL BUILDING NEWS.

SCHOOLS, LYNN MEMORIAL CHURCH, BELFAST.

—The new national schools erected in Baden-Powell-street, Clontarf-road, in connexion with this church were opened on the 9th ult. The buildings have a frontage on Baden-Powell-street, and there are, at the rear, playgrounds extending to Buller-street. The ground floor is occupied by an infants' schoolroom; a classroom, with infants' gallery, opens off the large room on the ground floor, and an entrance hall gives access to the girls' and infants' cloakrooms and to the detached sanitary wing. The principal schoolroom, on the first floor, is reached by a staircase from the entrance-hall. A boys' cloakroom opens off the landing. A teachers' room for advanced classes is also approached from the landing, and is connected with the upper schoolroom. The facade to Baden-Powell-street harmonises with the style of the church. The schools are heated throughout by Messrs. Musgraves' system, the furnace for which is in the heating chamber in the basement. The ventilation has been arranged on the natural system, with Sherringham inlets and extract ventilators, on the first floor upcast shafts being connected to the ventilator on the ridge. Mr. James Trotter was responsible for the building operations, which have been carried out from the plans and under the superintendence of Mr. James S. J. Phillips, architect, Belfast.

SCHOOLS, DOVER.—The foundation stone of the new school which is being built by the Dover School Company, at Elms Vale, was laid recently. This school, which has accommodation for 670 scholars, is for girls, boys, and infants. The architects are Messrs. Worsfold & Hayward.

RESTORATION OF BLABY CHURCH, NEAR LEICESTER.—The parish church of Blaby was reopened, recently, after complete restoration. The building dates from the early part of the thirteenth century, and the present work was rendered necessary by the spreading of dry rot in the floor and seats. Under the direction of Mr. H. L. Goddard, architect, of Leicester, the seats have been removed and their arrangement altered; wooden block floor resting upon concrete has been introduced, and new pews and choir stalls, all of oak, have been put in. One feature of the restoration is that a carved oak pulpit has been presented to the church by two workmen of the parish; one of them gave the wood, and the other made it in his spare time. In the course of the restoration three sedilia and a piscina were discovered in the south wall of the chancel; they had been bricked up and plastered over, leaving no sign of their existence.

TOWN HALL, EAST HAM.—On the 5th inst. new Town Hall and Municipal Buildings for East Ham were opened. The building has been constructed of red brick, with terra-cotta dressings of



biscuit colour and Westmoreland green slate roofs, the whole dominated by a clock tower, 22 ft. square, rising to a height of about 150 ft., with open belfry stage, and breaking up into pinnacles. The general arrangement of the buildings is in the form of the letter L, the official department, including clerk's, engineer, and surveyor's, and accountant's offices, being in the vertical or left arm of the letter, parallel with Barking-road, with the large assembly hall over, the several committee-rooms, mayor's parlour, &c., being in the horizontal or foot portion, and the council-chamber, with police-court over, in the shorter vertical arm on the right. The assembly hall has its own distinct approach, entirely independent of the entrances to the offices, though the latter are so arranged that they can be used in conjunction if occasion requires, and as extra means of exit for rapid dispersal in the event of a panic. This approach is through a doorway and a wide stone staircase and vestibule to an entrance hall, having ladies' and gentlemen's cloak and retiring rooms to right and left of it, and a corridor leading to the Council Chamber and Mayor's room, with a grand staircase on the right, and a separate staircase on the left to the gallery immediately over the hall, the gallery providing accommodation for 150 seats. In the centre of the hall, facing those entering, is the ticket office, with large doors right and left giving admission to the assembly-room, 100 ft. long and 50 ft. wide, providing seating for 1,200 people independent of the platform and organ recess at the end. Retiring-rooms are provided for the performers, with entrances and approaches, and a chamber under the platform for storing chairs, tables, &c. Special exit doors in addition to the foregoing are provided for rapid clearance of the hall, and a service-room with a lift to the kitchen on the top floor is provided. The assembly-room is lighted by large windows on both sides. The Mayor's hall, with anteroom and waiting-room, are all *en suite*, with two large committee-rooms, and the latter are capable of being thrown into one by a disappearing screen when required. The council chamber opens out of a corridor on the right. A public gallery for 100 burgesses will be at one end, with separate staircase approach. All the halls, corridors, &c., of this floor are paved with polished marble mosaic of special design, and the whole is of fireproof construction. There is a residence for the caretaker, together with kitchen, &c. This is the first block of a scheme of municipal buildings, comprising technical school, public baths, coroner's court, &c. The general contractor is Mr. D. W. Barker, of Croydon. The heating has been carried out by Mr. Jeffrey, of Westminster: the electric lighting, telephones, &c., by Messrs. Fryer & Co. of Sloane-square, Messrs. Doull & Co. supplied the terra-cotta, and Messrs. Congdon & Powell the railing round the buildings. The architects are Messrs. Cheers & Smith, of Twickenham and Blackburn, whose design was selected in open competition.

**SCHOOL, LYNN, NORFOLK.**—A new high school for girls has been erected at Lynn in Ferry-lane. The buildings have been constructed of red brick, with roofs covered with French tiles. The architect was Mr. H. J. Green, of Norwich, and his Lynn representative was Mr. C. J. Carnell. Mr. J. Cracknell, of Peterborough, was the builder.

**HOSPITAL, LODGE MOOR, SHEFFIELD.**—New hospital buildings have been erected at Lodge Moor, at a cost of £8,874. The enlarged hospital gives almost immediate accommodation for patients suffering from infectious diseases. The city's facilities in this direction have been increased by upwards of 200 beds, and the number of patients for whom accommodation can be found at Lodge Moor, now that the extensions are carried out, closely approaches 400. The hospital occupies a site on the Redmires-road, about 4½ miles from the centre of the city. The site is 4½ acres in extent, and the buildings and recreation grounds occupy about 2½ acres, the remainder being utilised as agricultural land. The administrative block, which forms the front of the building, faces due west. A water-tower has been erected 84 ft. high, and at the top is a tank containing 12,000 gallons of water. The water supply to the hospital is taken from the Corporation mains, and this tank is kept as a reserve. The lower stories of the tower are used as living and bedrooms for the porters. The administrative block is of four stories, of stone, lined with brick. In the centre are the entrance hall and office of the medical superintendent, with sitting and bedrooms for that officer and his assistants, and similar accommodation for a matron. To the right is the nurses' home. On the ground floor are sitting-rooms and a reading and writing-room. The three upper stories are composed of bedrooms, with three bathrooms on each floor. Box-room, linen-room, and other conveniences are also provided. There is accommodation for sixty-six nurses, each having a separate bedroom. The night nurses' quarters are quite apart from those given up to the day nurses. The maids' home, on the other side of the central buildings, is very similar. Here again are sitting-rooms and three ranges of sleeping-rooms. These are of the cubicle order; sixty beds are provided. There are again three bathrooms on each of the three sleeping floors. In this part of the premises are the sitting-room and bedroom for the assistant matron. The corridor, running parallel to the

administrative buildings, is over 800 ft. long. To reach it from the main entrance one passes down the shorter administrative corridor, where are the dining-rooms for staff, nurses, maids, the stores, the kitchens, goods entrance, dairy entrance, matron's office and telephone exchange. From the long corridor the wards are reached. These are eighteen in number, and are arranged in sets of six, the north, central, and south. The two first-named are the old wooden wards, which were erected in great haste during the small-pox epidemic of 1887. Some of these have hitherto had to be used for administrative purposes, but now all will be put to their proper employment as wards. Each was designed to hold ten patients, but more are accommodated in them. In the north range of wards is the sitting-room of the night superintendent nurse. The receiving-room is at the entrance to the main corridor, and a bathroom is attached to it. The new wards are on the south side of the hospital. Each of the six is 120 ft. long by 26 ft. wide. There are in each ward twenty beds, and three or four children's cots. Each ward is equipped with two complete sanitary blocks, one at either end, and these are shut off from the wards by short passages, and double doors, between which are windows. There are separate bathrooms for adults and children, and each ward has its large airing court, which is shut off from all other parts of the hospital. A covered play-shed for the use of the children in wet weather has also been erected. Attached to each of these six new wards are two separation wards, one containing two beds and the other one bed, and there is a kitchen to every ward. The provision for isolating cases consists of eight wards, to be used for two to four beds each, and in every case there are kitchen, sanitary, and recreation facilities. The heating of the hospital is by low-pressure hot water, supplied by a calorifier to each building. The hot-water supply is also by a calorifier to each pavilion, heated by steam. The boiler-house to supply all this heat contains two steam boilers, each 30 ft. long by 7 ft. in diameter. The hot-water pipes are laid in passages running underneath every part of the buildings. A porter's lodge and a waiting-shed for visitors to patients are among the new buildings. The dispensary and laboratory are conveniently situated. There are a mortuary, a laundry, a store for patients' hospital clothing, a sewing-room, stabling for five horses, and an ambulance shed, with coachman's house. The architects for the extensions are Messrs. Gibbs & Flockton, and the general contractors, Messrs. T. Roper & Son. The other contractors have been: Plumbers work, Messrs. Mellows & Co.; slating and plastering, Messrs. C. Chadwick & Son; painting, Mr. A. Machin; ironfounders' work, Messrs. G. Oxley & Son; heating apparatus, Messrs. Dargue, Griffiths, & Co. (Liverpool); mosaic floors, Messrs. Hodkin & Jones, Ltd. Mr. J. G. D. Armstrong has acted as clerk of works.

**TRAMWAY CAR SHEDS, ABERDEEN.**—New car sheds have been erected at Queen's Cross from plans prepared by Mr. W. Dyack,burgh Surveyor. The contractors were: For mason work, Mr. Alex. Cheyne; joiner, Mr. John Kirkton; slater, Mr. Geo. Farquhar; plumbers, Messrs. Blaikie & Sons; painters, Messrs. Donald & Sons; plaster and cement, Messrs. Stephen & Sons. The cost of the buildings will be about 2,000l.

#### MISCELLANEOUS.

**PROFESSIONAL AND BUSINESS ANNOUNCEMENT.**—Mr. R. Stevenson having resigned his position as the representative of the London Brick Co., has entered into partnership with Mr. Walter Browne, under the firm of Browne & Stevenson, 27, Leadenhall-street, E.C., as joint agents for the New Peterborough Brick Co., Ltd.

**HIGH SCHOOL FOR GIRLS, WIESBADEN.**—In connexion with the illustration and description of this building in our issue of January 10 (page 38), we find that we were misled in giving the name of Herr Conradt as the architect; he was the contractor. The architect is Herr Genzmer, the City Architect, and a distinguished man, who has carried out other important buildings for the municipality of Wiesbaden. We can hardly be blamed for the mistake, as the description and illustration were furnished by an English traveller who particularly inquired from an official at the school the name of the architect, and was given the name of the contractor instead—evidently from a misapprehension of the question.

**PETERHEAD MASTER BUILDERS' ASSOCIATION.**—The annual dinner of the Peterhead Master Builders' Association was held on the 30th ult. in the Royal Hotel. Mr. J. B. Dickie, the President of the Association, was Chairman over a company of about forty gentlemen, while Mr. William Hadden, builder, was coupler. After the loyal toast, the Chairman reminded the members that this was their sixteenth anniversary dinner. "Mutual co-operation" had been fully maintained. He regretted in the meantime that there was such a lull in the building trade, but he hoped that it would be of short duration. There had been nothing of an outstanding nature to deal with in the Association during the past year. They had severed their connexion with the Federation, but as the majority

considered it right, comment on his part was needless. The year's deliberations had been carried on very harmoniously, and he trusted that in the future the same good feeling between the members would prevail.

**THE HOUSING QUESTION, LIVERPOOL.**—Councillor J. B. Colton, Deputy Chairman of the Liverpool Corporation Housing Committee, has been giving some particulars of the method about to be adopted in Liverpool for building cheap houses to accommodate the dispossessed slum population. The details, he states, are not yet perfected, but "the scheme was a reality, the plans were simply magnificent, and they would create a revolution in house building." Briefly, he said, the plan took the form of a concrete building made from refuse-dust or clinker. The engineer in Liverpool had perfected a method by which, instead of making small bits of brick, he could make the whole side of the house in one piece. The fronts, sides, floors, and roofs were all to be made in single individual parts, hoisted into position, and then bolted together. The mouldings, the skirtings, fireplaces, &c., were also formed in the mould and stamped out under one pressure, and would be hoisted into position just as were the outer walls. The houses would be of the tenement type, three stories high, and contain living room, two bedrooms, and scullery, each having its own water-closet. The cost of construction would be just about one-half of those they were building now in brick, and they could be erected at the rate of one house per day. He anticipated, if the experiment proved satisfactory, that the goal for which they had been striving—namely, rents at one shilling per room per week, would be achieved, and that they would be able not only to pay interest and sinking fund, but make a handsome profit. The cheapness of the material used, together with the short space of time it would take to construct, would effect an enormous saving in the amount of labour. Mr. Colton further stated that within six months these houses will be up, and ready for the inspection of other municipalities, who would then be able to see practical proof of what now appeared a "fairy tale."

**THE EAST-END DWELLINGS CO.**—The twentieth annual Report of this Company, submitted to the meeting held on the 9th inst., states that the Company has entered into possession of the site in Bethnal Green, with frontages to Globe-road, Cyprus-street, and Gauber-street. As stated in the last Report, the directors propose to keep the existing houses on this site standing for a time. They are well occupied, and seem for the present more popular than the new buildings of the Company in the same neighbourhood. Four blocks of dwellings, also in Bethnal Green, on the site of the old Militia barracks, which have been named "Merceron Houses" and "Montfort House," were finished during the summer, but the letting of these, and of "Gretton Houses," which were completed in 1901, has been disappointing, as 115 out of 250 tenements were unlet at the close of the year. Mendip and Shepton Houses in the same neighbourhood, have also failed to let well, and twenty-four out of 126 tenements were empty at the end of the year. The Reports proceeds—"In view of the alleged scarcity of accommodation for the working classes this result is at once surprising and disappointing, as the houses are of a type which experience has shown to be popular, and are situated in a district almost exclusively inhabited by artisans and labourers. On the other hand, 'Thornhill Houses' in Barnsbury, which were opened early in the summer, rapidly filled up, and only 4 of the eighty-three tenements were unoccupied when the year closed. On all the other properties the letting was, as usual, most satisfactory, and on December 31 every tenement and shop was let, except two rooms at Katharine-buildings."

**MARLBOROUGH HOTEL, ST. JAMES'S.**—This block of buildings having been acquired for the purpose of public offices, all the effects, furniture, and appointments of the hotel, by Messrs. Maple & Co., Benham & Co., Elkington & Co., and other well-known firms, have just been dispersed by sale by auction. The hotel was erected by Messrs. John Benham & Co., contractors, of stone and brick in 1807-8, after plans and designs by Mr. G. D. Martin. The site had been that of "Ramsay's" Hotel and No. 12, in Bury-street, and Nos. 12 and 14, in Ryder-street, St. James's.

**THE ST. BARTHOLOMEW'S HOSPITAL COMMITTEE OF INQUIRY.**—Sir William Emerson, past-President Royal Institute of British Architects, is one of the nine members nominated by the Lord Mayor to serve upon the Mansion House Committee of Inquiry in relation to the proposed extension, on the Christ Hospital site, of the hospital buildings and to other matters connected therewith. Six other members of the Committee, nominated by Sir Trevor Lawrence, the treasurer, are Governors of St. Bartholomew's. The Committee will consider and report whether it is desirable in the public interest and upon financial grounds to retain the hospital on its present site, and whether, if it is so retained, any better scheme of rebuilding than that now suggested by the Governors can be devised.

**PROPOSED NEW DESTROYER AT PRESTON.**—On the 5th inst., Mr. H. Percy Boulnois, C.E., conducted a Local Government Board in



quiry, in the Preston Town Hall, into the application of the Corporation for permission to borrow 25,000l. for the erection of a new refuse destructor, &c., off St. Paul's-road. The Town Clerk (Mr. Hauer) stated that in 1885 the Corporation obtained a loan of 12,000l. for a destructor, store-yard, stables, &c., to be erected off St. Paul's-road, and the total amount borrowed was 10,130l. of which amount 4,861l. had been repaid. That destructor was now practically worn out, and the other premises were too small for present needs. The Corporation, therefore, sought to replace that destructor with a larger and more up-to-date building. The estimated collection of refuse yearly was 44,457 tons, and of this amount 717 tons were sold to farmers; about 10,000 tons were placed in tips; the present destructor off St. Paul's-road took 13,607 tons, and the destructor on the Marsh 20,000 tons. The new destructor would deal with 160 tons per day, the present collection being about 120 tons per day.

**MUNICIPAL BUILDINGS SCHEME, ALDERSHOT.**—Major J. Stewart, Local Government Board Inspector, recently held an inquiry into the application of the Aldershot Urban District Council for sanction to borrow 9,000l. for the erection of public offices and a fire-station upon a site in Grosvenor-road, on the Parish Clerk's Land. The designs by Mr. C. E. Hutchinson have been accepted for the new buildings.

**SCREEN, MIDDLETON TYAS CHURCH, YORKSHIRE.**—A screen is to be erected by Sir J. E. Backhouse at Middleton Tyas Church, in memory of the late Lady Backhouse. It has been designed by Messrs. J. P. Pritchett & Son, architects, and entrusted to Mr. M. Hobson, Darlington, to carry out. It is Gothic in design and is to be worked out of Austrian oak.

**PUBLIC IMPROVEMENTS, LANCASTER.**—At Lancaster, on the 3rd inst., Mr. Boulois, of the Local Government Board, held an inquiry into the application of the Corporation to borrow 25,000l. for electric lighting purposes, an additional 10,000l. being authorised under the local Tramways Act. The total cost of the works, which were inaugurated in 1894, has been about 70,000l., and the current will be generated for lighting and tramway purposes, being sold to the Tramways Committee at 2d. per unit.

**PUBLIC IMPROVEMENTS, ECCLES.**—At the meeting of the Eccles Town Council on the 4th inst., it was reported that the Local Government Board had sanctioned the Council's borrowing 21,075l. for the purchase of land for housing purposes. In the competition of plans for laying out the insanitary area of Eccles, the chief awards have been made to Mr. George Meek, Mr. George Westcott, and Messrs. Meek & Hooley, architects, all of Manchester. Permission to borrow 21,075l. for extending the electrical undertaking has also been given.

**BARNSELY FEDERATION OF BUILDING TRADES EMPLOYERS.**—On the 30th ult. members of the Barnsley Federation of Building Trades Employers dined at the Royal Hotel, the occasion being the seventh annual dinner of the Federation. The proceedings were presided over by Mr. D. R. Snowden, President. Following the toast of "The King," Mr. J. Smith submitted that of the "National and County Federations." He had always felt that the best thing they ever did after forming themselves into a Federation was to join the Yorkshire and National Federations. During his experience as their delegate he had become more and more impressed by the fact of the necessity of their being federated into one large body. Isolation might be all very well for some, but not for those engaged in the building trade. Being united into one body enabled them to conduct their business as it ought to be conducted. Whilst they had no desire to take advantage of those who worked for them, they (the employers) still thought they had rights they ought to maintain. He knew well that the National and Yorkshire Federations had the best intentions, and did not wish to take undue advantage of the architects or the men they worked for, but desired what was right as between all parties. Mr. Smith referred to the good sound advice they had been able to get by being affiliated with the greater Federations, and spoke of the ungrudging way in which many gentlemen gave their time and money to help on the good work of the Federation. It was to be regretted, though, that there were some people who still held aloof from them, because they were pretty obvious that if these would join them they would not only strengthen the Federation, but would by so doing derive material benefit themselves. Mr. Fouldike, in responding to the toast, congratulated Mr. Snowden on his election for the second time to the Presidency of the Barnsley Federation. Councillor Judge also replied, in the absence of Councillor Good, of Hull. He urged that contractors should adopt the principle of giving sub-contracts to none but members of their own Federation. Mr. J. Biggin proposed "Success to the Barnsley Federation of Building Trades Employers." One matter now being discussed, he said, was that of the wages of the employees. Many thought it was time the wages were lowered. The majority of employers would rather the wages remained as they were at present, but as trade got slower prices got lower. If they could only adopt the style of years ago, and do better work, and more of it, the wages could no doubt be kept up,

but under present circumstances a lowering of wages all round appeared to be necessary. There was, however, no good done by first raising and then lowering the wages.—Mr. W. Dunk, who was the first of three to reply, said, in alluding to the advantages of the Federation, that before they were so united one could not distinguish what another man was in the building trade, unless he met him absolutely occupied in his own business. Being bound together enabled them to rub off rough places, so to speak, and to get rid of a lot of animosity which previously existed between employers and employees. They always knew they had the men's Union to meet when any grievance arose, and in times past their chance of upholding the dignity of the building trade was very remote, because they had no opportunity to assert their position. But now that they were a Federation, backed up by the Yorkshire and National Federations, the men knew that they had a power to meet, and did not resort to imaginary grievances, as they used to do. He was only sorry that their being federated had not helped to increase the prices as much as it had helped to elevate the standing of the building trade. Mr. Porter, in responding, said he had noticed that in various parts of the country not only the wages had been altered, but also the working hours. In some places they were working half an hour less per day than in Barnsley, yet the Barnsley people seemed quite satisfied with their arrangements. The Chairman also replied to the toast. He would never favour the lowering of wages. National encouragement they could give their employees was to try to show them that the masters' interests were their interests. Mr. H. Ashworth gave the toast of "The Mayor and Corporation," and Councillor England replied. Mr. T. Lindley proposed "The Health of the Architects and Surveyors," and said that those gentlemen met them as fairly as they could expect them to. Referring to the contract agreement, he said all of them knew that they had to sign some very peculiar documents, before doing which they had not always the opportunity of reading them. In the very near future the architects and surveyors would be asked to adopt a good uniform document, so that when the contractor went to the office he would know what he had to sign. Mr. Dixon, in responding, said it seemed to him that the interests of the architects and the contractors were identical, especially provided that the latter gave them good work, along with something like despatch. With that, he did not see why the architects should begrudge the contractors a reasonable profit, without which it was impossible for any operation to proceed. He only wished the architects were united in a similar way to that Federation. It would certainly be a distinct advantage to them. It no doubt tended to create better mutual relations with workmen, and also to the better progress of anything they had in hand. Mr. Dyson also responded. Mr. George Mellor (President of the Builders' Association) proposed "The Health of the Chairman," which was drunk with musical honours, and duly acknowledged.

**THE BUILDING ACT AND FIRE PREVENTION IN THE CITY.**—A meeting of the inhabitants of the Broad-street Ward was held at Cordwainers' Hall on Friday last week to discuss the County Council Building Act Amendment Bill. Alderman F. P. Alliston was voted to the chair. Mr. E. Clark moved a resolution to the effect that while willing to make proper provision for safety of life from fire, the meeting regarded the requirements of the Bill as arbitrary, unnecessary, and impracticable. Mr. Lindsay seconded the motion. Some discussion followed the contention of Mr. Hardy, a member of the Building Act Committee of the County Council, that the Bill was not half so drastic as had been made out. The resolution was carried, as was a second motion which expressed the opinion that the passing of the Bill would entail heavy costs, disputes, great inconvenience, and loss of business, and by reducing warehouse space would adversely affect the value of premises and lower the City's assessment. Mr. W. C. Boyd proposed a resolution to the effect that the Corporation of the City of London, as the local body, should deal with the question, and that the Lord Mayor should call an early meeting of the citizens of London, in the Guildhall, to oppose the Bill. He urged that the whole question was caused by the inefficiency of the appliances used by the County Council. The resolution was carried. Similar meetings have also been held in Candlewick, Coleman-street, Cornhill, and Farringdon Within Wards, and the members of the City of London Tradesmen's Club have also had a meeting to consider the matter.

**BUILDING BY LAWS REFORM ASSOCIATION.**—The first general meeting of this Association was held at 45, Parliament-street, on the 24th inst. Lord Robert Cecil, K.C., in the chair. The chairman announced letters of regret from members unable to be present, including Lord Hyton, the Earl of Lytton, Lord Osmaston, the Countess of Warwick, Sir Godfrey Lushington, G.C.M.G., Sir Edmund Verney, the Right Hon. Gerald Balfour, M.P., the Hon. E. P. Merozy, the Hon. J. C. Cross, Mr. G. F. Watts, R.A., Mr. Douglas Freshfield, Mr. W. More-Molyneux, Rev. Canon Bury, Mr. C. S. Loch, Mr. J. H. Martineau, Mr. George Darwin, F.R.S. Sir

William Chance, Bart., submitted a report from the provisional council recommending articles of association for adoption. Considerable discussion followed, in which Mr. A. H. Clough, of Ringwood, Mr. Mark H. Judge, Mr. Arthur Newbold, of Brighton, Mr. E. D. Till, of Darford, Mr. Thackeray Turner, Mr. H. G. Willink, of Reading, Mr. Stephen Rowland of Cranleigh, Mr. F. F. Kirby, of Winchester, and Mr. R. A. Read, Hon. Sec., took part. Ultimately the articles of association were adopted unanimously, the first of which provides that the objects of the Association shall be:—(a) Where building by-laws or regulations are in force—to promote amendments so that official control of private buildings shall not extend beyond the demands of public health and safety, and thus to prevent encroachments on individual liberty. (b) Where it is intended to adopt such by-laws or regulations—to secure that those adopted shall satisfy the above conditions. (c) To assist as far as possible in suitable cases those who may be unduly interfered with by building by-laws or regulations. The following gentlemen were then elected as the first Council of the Association:—Mr. W. M. Acworth, Lord Robert Cecil, K.C., Sir William Chance, Bart., Mr. A. H. Clough, Mr. G. H. Gahan, Mr. H. Hemman (Birmingham), Mr. Mark H. Judge, Mr. E. Lutvans, Mr. Arthur Newbold, Dr. G. V. Pore, Mr. H. A. Powell, Mr. L. W. Ridge, Mr. R. W. Schultz, Mr. T. M. Shallercross (Liverpool), Mr. St. Loe Strachey, Mr. E. D. Till, Mr. Thackeray Turner, Mr. C. Turner, Mr. H. J. Hall, and Mr. S. W. Widdow. A vote of thanks to Lord Robert Cecil for presiding brought the proceedings to a close.

**FAIR CONTRACTS.**—A meeting of the Bradford and District Trades and Labour Council, called for the purpose of discussing the question of fair contracts, took place on the 10th inst. in the Trades Union Hall, Bradford. The Secretary said that one of the difficulties which they had to deal with was why three parties, who were desirous, could not make such an understanding which would be binding on all parties. That was the crux of the whole situation. They possessed on the books of the Municipal Authority a Fair Contract clause. That clause would satisfy the whole of the trade-unionists, provided that those who had the administration would carry it into effect. The clause was as drastic as it should be. The Executive felt that it was unfair that such a question should be made a party question, and that the sale of the human commodity should be kept above party jealousies. They felt that the trade unionists of Bradford had for too long been the football for the political teams, and asked that that meeting decide what course to adopt. If they could not enforce a fair contract clause with a penalty, they should know it, and take steps to remedy it. Councillor E. W. Jowett thought that having now secured the opinion of three such eminent counsel, they should consider it very carefully before they set it aside. Considering that the power to determine a contract was placed with the Corporation, and a penalty clause disqualifying a contractor for five years if he broke his contract, he thought they should endeavour to try and see if it could not be worked. Mr. Shaw proposed a resolution to the effect that a committee be appointed to discuss the clause with the City Council, and endeavour to secure a clause which would be acceptable to the organised workers.—With reference to the remarks which have been made as to the publishing of a "black list," the Chairman pointed out that they had been informed that it was actionable to publish a "black list," but it was within the rights of trade unionists to publish a "white" list, and in that way get out of the legal difficulty.—Mr. Theo. Warner advocated the establishment of a Works Department in Bradford, and the doing away with the employers.—A delegate, representing the Ironfounders' Society proposed an amendment that no clause would be satisfactory that did not breach over the period of dispute and secure a standard rate of wages, and the penalising of a contractor for a breach of contract.—The amendment was withdrawn on the understanding that the matter be brought up again before the Council. The resolution was then adopted, and a committee appointed to carry it into effect.

**HARTLEPOOL MASTER BUILDERS' ASSOCIATION.**—At the annual meeting of the Hartlepool Master Builders' Association, held at the Hartlepool Hotel, it was stated that during 1902 the relations of the associated firms with their employees had been singularly free from friction, there being only one exception, in which case the Teesdale Association was called upon to settle matters. The most important matter taken up during the year was the addition of the Federation rule, whereby each town would be called upon to take active part in all trade disputes in any town connected with the Federation, thus preventing the localising of disputes. Arrangements had been made with the local branch of the Operative Bricklayers' Society with a view to dispensing with the year by year addition to the Federation rule, the evil of speculative building by other than bona-fide tradesmen would be gradually stopped. It was a matter of regret that during 1902 the prosperity of the last few years had not been maintained, and at present, it was stated, there appeared little prospect of any im-



provement. Serious consideration would be given to the question of the re-adjustment of wages and working rules, with a view to lowering the cost of production, in order to encourage capitalists to invest. Mr. B. Dickinson was re-elected President; Messrs. J. Howe and J. W. Watt, Vice-Presidents; Mr. E. Moody, Secretary and Treasurer; and Messrs. Dickinson, Howe, Watt, Proud, Pearson, Beetham, and Stephenson, representatives to the Northern Federation.

**NEW BUILDINGS FOR TECHNICAL EDUCATION.**—The Technical Education Board of the London County Council report that steady progress is being made with the new buildings undertaken by the Council. The work for the L.C.C. Poplar Technical Institute, which is being erected by the Works Department, and that for the L.C.C. Brixton Technical Institute in Ferndale-road, the contract for which was entrusted to Mr. B. E. Nightingale in July last, is well advanced. Tenders are being invited for the extension of the Norwood Technical Institute, the work having been declined by the Works Committee, while the plans for the extension and repair of the L.C.C. Sydenham Technical Institute are in the hands of the architect. Mainly by the aid of the City Parochial Foundation, extensive new buildings are also being erected or about to be begun at the Northern Polytechnic, the Borough Polytechnic, the Battersea Polytechnic, and the South-Western Polytechnic in Manresa-road, Chelsea, while the City of London College is acquiring the lease of the adjoining premises, which will enable it almost to triple the amount of its work. The new buildings for the Hackney Technical Institute will, it is hoped, be practically completed by October next. These additions will enable the Board to meet next session the rapidly growing demand for trade and science classes, especially those connected with the engineering and building trades and the various chemical and electrical industries.

**PIER, SUNDERLAND.**—The new Roker pier—the first part of the scheme undertaken by the River Wear Commissioners for the further improvement of the harbour at Sunderland—is nearly completed. The engineer is Mr. H. H. Wake.

**MEMORIAL SCREEN, KNOTT'S ASH CHURCH.**—A memorial screen has just been erected in Knott's Ash Church, Lancashire. It was designed by Mr. Charles E. Deacon, architect, of Liverpool, and is fifteenth century in style. It is constructed entirely of English oak. The work has been executed by Messrs. Harry Hems & Sons, of Exeter. The four parable screens, the reredos, pulpit, and organ-case are also the handiwork of Messrs. Hems & Sons, carried out from Mr. Deacon's designs.

#### LEGAL.

##### EXPENSES UNDER THE PRIVATE STREET WORKS ACT, 1892.

The case of *Sourtes v. Woodhouse* came before the Court of Appeal, composed of Lords Justices Vaughan Williams, Stirling, and Mathew, on the 7th inst. for judgment on the appeal of the defendant from a judgment of Mr. Justice Walton in the Kings Bench Division.

In this case the plaintiff, a widow, the lessee of a house known as Somersley, Ray Park, Maidenhead, sought to recover from the defendant, her sub-lessee, the sum of £101, the cost apportioned to the premises in respect of certain private street improvement works carried out by the Corporation of Maidenhead. The plaintiff had paid these expenses to her superior landlord on the ground that they came within the term "outgoings" in a covenant in the superior lease by which the lessee (the plaintiff and her husband) jointly and severally covenanted that they would during the term pay the rent reserved, and would pay and bear all present and future rates, taxes, duties, assessments, and outgoings charged upon the premises or the owner or occupier in respect thereof. The whole question raised by the case was whether the defendant, under the terms of the sub-demise to him, was liable to indemnify the plaintiff in respect of such payment. The sub-lease of the premises to the defendant was dated November 30, 1890, and therein defendant covenanted that he would pay the rent and observe and perform all the covenants and conditions contained in the indentures of lease on the lessees part to be observed and performed, and would keep the premises in repair and against the covenants and conditions and all claims and demands in respect thereof. The Corporation of Maidenhead commenced the works in question in September, 1890, and completed them on October 7, the final apportionment being made on December 11, 1890. Mr. Justice Walton held that though the effect of the Private Street Works Act, 1892, was to make the amount of the apportioned expenses a charge on the premises as from the date of the completion of the works, and not merely as from the date of the final apportionment, still the expenses became due and payable after November 30, 1890. He was of opinion, on the true construction of the covenant, defendant covenanted to pay all liabilities which became due after the commencement of the term, even though the outgoings arose in respect of an obligation which came into existence in October, 1890. He accordingly gave judgment for the plaintiff for the

amount claimed—hence the present appeal of the defendant.

In the result their Lordships allowed the appeal, holding that the defendant was not by the covenant under any obligation to pay charges to which the property had been assessed for private street works, but which had not become payable.

Judgment was accordingly entered for the defendant.

Mr. Danckwerts, K.C., Mr. Scarlett, and Mr. Sinclair Cox appeared for the appellant; and Mr. J. Eldon Banks, K.C., Mr. E. Morton, and Mr. H. Sturgess for the respondent.

##### DAMAGE TO BUILDINGS THROUGH RAILWAY TUNNELLING.

In the King's Bench Division on the 5th inst. the hearing was resumed of the case of *Dawson v. The Great Northern and City Railway Company*. This was an action by the plaintiff, Mrs. Dawson, a widow, carrying on business as a draper in the City-road, London, to recover from the defendants damages for injury to her premises and consequent loss in her business caused by the tunnelling work carried on by the defendant Company for the purpose of constructing their tube railway. The defendants by their pleadings denied that the damage was due to their tunnelling operations, but in the course of the plaintiff's case admitted liability. The case therefore resolved itself into an action for damages (the case was fully reported in last week's issue of the *Builder*).

Sir Edward Clarke, K.C., Mr. Harry Dobb, and Mr. R. J. White appeared for the plaintiff; and Mr. McCall, K.C., Mr. Geo. Cave, Mr. Hutchinson, and Mr. W. P. Horton for the defendant Railway Company.

The plaintiff's case having concluded, Mr. McCall, on behalf of the defendants, said that he would not address the Court at that stage, but would at once proceed to call his witnesses. Accordingly

Mr. Douglas Young, of the firm of Douglas Young & Co., valuers and surveyors, and himself a valuer to the Board of Trade, examined, said he had had fourteen years' experience in the construction of tube railways, and was surveyor to the City and South London Railway. He had frequently examined the plaintiff's premises. He estimated that the outside walls were about sixty years old. Since they had been built the basement had been lowered 3 ft. or 4 ft. down to the bottom course of the footing. The cracks in the premises were not of a serious character, and could be dealt with by cutting out and rebonding. The cracks were not inconsistent with the age of the building, the general character of which was slight. There was evidence of movement from time to time, and evidence of old movement was apparent all over the building. He had carefully watched the building, and he thought that now all movement had ceased. As a practical man, having regard to the stability of the walls he should only remove a certain amount of brickwork and build it up again. He was of opinion that the different levels of the building were not due to recent movement, but indicated an old movement of the house—a movement such as was generally to be found in that locality. There was evidence that the hanging over and twisting of the walls was caused by the gutting of the premises in 1872 for the purpose of enlarging the amount of space available. There was no indication of any disturbance of cornices and fittings inside which would indicate that the twist had not occurred within the last few years. Underpinning was not necessary, nor was it necessary to pull down the walls. In regard to the whole of the tube railways in London he knew of no case in which underpinning was necessary. He estimated that 500*l.* would amply cover the cost of the reinstatement of the premises. He thought that was a liberal figure. If the work were carried out in the way he suggested there would be no large interference with the plaintiff's business. The work would be quite sectional, and so would the interference be. The necessity of sleeping or mealing out the staff would therefore be a comparatively small matter. Two or three months would be a sufficient time to carry out the work. If the stock was properly cared for it would not be damaged. Another 500*l.* would be quite adequate for the purposes of providing for any damage to stock and disturbance of the business. There was no need to take down any of the walls of the premises.

Cross-examined by Sir Edward Clarke: The fact that a house with overhanging walls was situated above a railway tunnel was a coincidence. There was scarcely a house in the district which was not out of plumb.

Mr. Leslie R. Vigers, an architect and surveyor, and a member of the firm acting for the Central London Railway, examined, said he considered that the best way to deal with the damage in the plaintiff's house was by cutting out the cracks and rebonding. Taking down the walls was not necessary.

Mr. Edward A. Grüning also gave evidence in support of the defendants' case. He said it was absolutely unnecessary to pull down and rebuild the walls. Moreover, it was a very dangerous thing to do, because it would disturb the stability of the 'a' or walls and was unnecessary from the point of view of expense. It was obviously more dan-

gerous than cutting out and rebonding and would involve more serious interference with business, as it would take longer to do. In such a case cutting out and rebonding was an efficient remedy.

On the 6th inst. further evidence was called with a view to show that the damage to the plaintiff's premises by the tunnelling operations of the defendants was not of a substantial nature, and could be repaired for a much smaller sum than the plaintiff claimed. Evidence was also called to show that the estimates of plaintiff's advisers as to the loss of profits during the execution of the repairs were excessive.

Mr. McCall then addressed the jury on behalf of the defendants. He described the plaintiff's claim as an inflated and preposterous one. The necessary work to repair the plaintiff's premises could be carried out for about 500*l.*, and 1,500*l.* would cover all damage for loss of business.

Sir Edward Clarke, in replying upon the whole case, contended that the figures put forward by the plaintiff were moderate, and indicated the damages she was entitled to.

His Lordship having summed up, the jury assessed the damages under the following heads:—(1) Amount for taking the subsoil occupied by the tunnel, 50*l.*; (2) structural damage, 2,500*l.*; and (3) damage to trade and stock, 2,100*l.*; total, 4,150*l.*

Mr. Dobb asked the learned judge to enter judgment.

Mr. McCall said the learned judge had no power to enter a judgment of the High Court because the proceedings were in the form of an interpleader issue.

Mr. Dobb agreed that the verdict must be enforced by an action, but said that the learned judge had power to enter judgment in the same way as the under-sheriff did in compensation cases.

His Lordship said he would give judgment in the sense in which the word was used in the *Lands Clauses Act*.

Judgment was entered accordingly.

##### BUILDERS, ARCHITECTS, AND COMMISSION.

At Lambeth County Court, on the 5th inst. Mr. H. J. Boulter, builder and house decorator, late of Sincroft-street, Kennington-cross, but now carrying on business at Merton, sued Mr. Albert C. Symes, a Brixton surveyor and architect, for 8*l.* commission. Plaintiff said in 1901 he was engaged by a Mr. Reed to build two houses in Shore-ditch. Before the contract was signed he introduced defendant to Mr. Reed, and the latter engaged Symes as architect. Defendant promised to pay 8*l.* or 10*l.* to witness for his services. In reply to Judge Emden, plaintiff said he failed to see anything wrong in the transaction. It was quite usual in the trade. Business men lived by introducing business in this way to each other. Judge Emden: I am not here to preach, or to teach you morality, but I am astonished to hear what you say. I see you actually sent a formal invoice for this commission. According to you an outrageous state of affairs exists. Defendant denied the alleged agreement to pay commission, and swore no such custom existed in the trade. He heard nothing of the claim until he enforced a penalty of 50*l.* against plaintiff. Judgment was entered for defendant, with costs. Judge Emden said there appeared to be a good deal behind the case.—*Daily News*.

#### PATENTS OF THE WEEK.

##### APPLICATIONS PUBLISHED.\*

741 of 1902.—T. R. BARHAM and J. H. WILLIAMS: Means for Holding Glass Sheets and the Like for Structural Purposes.

A sash-bar adapted to be formed by rolling, to be used with fixing bolts, of sufficient strength without further support for use on a glazed or similar structure and constructed with a dovetailed or partially closed recess which will secure the heads of the fixing bolts without the necessity for forming holes in the bar.

876 of 1902.—C. BROWN: Automatic Sewer or Draining Apparatus.

In connexion with apparatus for flushing sewers or for automatically discharging liquids through several outlets in regular rotation, the use of a revolving disc, having an aperture, which is automatically brought in rotation over one or other of several openings leading to, or connected with several sewers desired to be flushed rotatively, the solid part of which disc covers or seals the remaining openings to such sewers.

1,035 of 1902.—W. P. THOMPSON (H. Salzbach & Co.): Manufacture of Metal Wall Covering Tablets or Tiles having Coloured Enamelled Surfaces.

A method of enamelling metal plates consisting in coating the plates with a mixture of zinc white or oil varnish, then drying them, coating the plates

\* All these applications are in the stage in which opposit on to the grant of a Patent upon them can be made.







## PRICES CURRENT (Continued).

BRICKS, &c.				
	£	s	d	
Best Stourbridge				
Fire Bricks	4	8	0	per 1,000 at railway depot.
GLAZED BRICKS.				
Best White and				
Ivory Glazed				
Stretchers	13	0	0	11 11
Headers	12	0	0	10 11
Quoins, Ballnose,				
and Flats	17	0	0	17 11
Double Stretchers	19	0	0	18 11
Double Headers	16	0	0	16 11
One Side and two				
Ends	19	0	0	19 11
Two Sides and				
one End	20	0	0	19 11
Spays, Chamfered,				
Squints	20	0	0	19 11
Best Dipped Salt				
Glazed Stretchers	12	0	0	11 11
and Headers				
Quoins, Ballnose,				
and Flats	14	0	0	13 11
Double Stretchers	15	0	0	14 11
Double Headers	14	0	0	13 11
One Side and two				
Ends	15	0	0	14 11
Two Sides and				
one End	15	0	0	14 11
Spays Chamfered,				
Squints	14	0	0	13 11
Second Quality				
Whitened Dipped				
Salt Glazed	2	0	11	less than best,
Thames and Pit Sand	7	0	per yard, delivered.	
Thames Ballast	5	0	11	
Best Portland Cement	30	0	per ton, delivered.	
London and Leam.	25	0		
NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.				

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

## STONE.

	s. d.	
Ancestor in blocks	1 1	per ft. cube, deld. rly. depôt.
Bath	1 7	" "
Farleigh Down Bath	1 8	" "
Beer in blocks	1 6	" "
Grinshill	1 10	" "
Brown Portland in blocks	2	" "
Clayton Dale in blocks	2 4	" "
Red Gorehill	2 5	" "
Darby Road Free Stone	2 0	" "
Deld Mansfield	2 4	" "
<b>YORK STONE—Robin Hood Quality.</b>		
	s. d.	
Scrapped random blocks	2 10	per ft. cube, deld. rly. depôt.
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 3	per foot super. "
6 in. Rubbed two sides Ditto	2 6	" "
3 in. Sawn two sides slabs (random sizes) a 12	1 12	" "
2 in. to 2 1/2 in. Sawn one side slabs (random sizes)	0 7 1/2	" "
2 1/2 in. to 2 in. ditto, ditto	6 11	" "
<b>BEST HARL YORK—</b>		
Scrapped random blocks	3 0	per ft. cube. "
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 8	per ft. super. "
6 in. Rubbed two sides Ditto	—	" "
3 in. sawn two sides slabs (random sizes) a 12	1 12	" "
2 in. self-rand random flags.	0 5	" "
Hopton Wood (Hard Bed) in blocks	2 3	per ft. cube, deld. rly. depôt.
6 in. sawn both sides landings	2 7	per ft. sur. deld. rly. depôt.
" " 3 in. do.	1 2 1/2	" "

## SLATES.

in.	in.	£	s.	d.		
20	x10	best blue Bangor...	3	2	per 1000 of 1200 at ry.dep.	
20	x12	11 31	13	17	6	11 11
20	x10	best seconds	11	12	15	0 11
20	x12	11 11	13	10	0	11 11
x16	x8	best	11	7	0	0 11
20	x10	best blue Portma-				
		doc	11	10	0	11 11
x16	x8	best blue Portmadoc	6	0	0	11 11
20	x10	best Eureka un-				
		fading green...	11	7	0	0 11
20	x12	11 31	10	10	0	11 11
18	x10	11 31	11	10	0	11 11
x16	x8	11 31	8	7	0	11 11
20	x10	permanent green	10	0	0	11 11
18	x10	11 31	0	0	0	11 11
x16	x8	11 11	6	5	0	11 11

TILES.

		s. d.		
Best plain red roofing tiles	42	0	per 1,000, at rty. depôt.	
Hip and valley tiles	3	0	per doz.	" "
Best Broseley tiles	3	0	per 1,000	" "
Do. Ornamental Tiles	3	6	per doz.	" "
Hip and valley tiles	4	0	per doz.	" "
Do. Rosemary brand	4	0	per doz.	" "
Best brindle Do. (Edwards)	6	6	per 1,000	" "
Do. ornamental Do.	6	0	" "	" "
Hip tiles	4	0	per doz.	" "
Valley tiles	4	0	" "	" "
Best Red or Mottled	3	0	per 1,000	" "
fordshue Do. (Peakes)	3	0	per 1,000	" "
Do. Ornamental Do.	3	6	" "	" "
Hip tiles	4	0	per doz.	" "
Valley tiles	4	0	" "	" "
Best "Rosemary" brand	4	0	per doz.	" "
plain tiles	4	8	per 1,000	" "
Do. Ornamental Do.	5	0	" "	" "
Hip tiles	4	0	per doz.	" "
Valley tiles	3	8	" "	" "

## PRICES CURRENT (Continued).

[illegible]

## JOISTS, GIRDERS, &amp;c.

	In London, or delivered, Railway Vans, per ton					
	£	s.	d.	£	s.	d.
Roller Steel Joists, ordinary sections	6	5	0	7	5	0
Compound Girders	8	2	6	9	5	0
Angles, Tees and Channels, ordinary sections	7	17	6	8	17	6
Fitch Plates	8	5	0	8	15	0
Cast Iron Columns and Stanchions, including ordinary patterns	7	2	6	8	5	6

## METALS.

Iron—	Per ton, in London			
	s.	d.	s.	d.
Common Bars .....	8	5	0	0
Staffordshire Crown Bars, good merchant quality .....	8	5	0	8
Staffordshire "Marked Bars" ..	10	10	0	0
Mid Steel Bars .....	9	0	0	10
Koop Iron, basis price .....	9	5	0	10
" " Crowned .....	15	0	0	0
(* And upwards, according to size and gauge.)				
Sheet Iron, Black—				
Ordinary sizes to 20 g. ....	10	0	0	0
" " to 24 g. ....	11	0	0	0
" " to 28 g. ....	12	0	0	0
Sheet Iron, Galvanised, flat, ordi- nary quality—				
Ordinary sizes 6 ft. by 2 ft. to 3 ft. to 30 g. ....	12	15	0	0
" " 20 g. and 24 g. ....	13	5	0	0
" " 28 g. and 30 g. ....	14	9	0	0

## PRICES CURRENT (Continued)

		METALS.				Per ton, in London.			
Sheet Iron, Galvanised, flat, best quality—		£	s.	d.	£	s.	d.		
Ordinary sizes to 26 g.		12	0	0	12	0	0	-	-
" " 22 g. and 24 g.		16	10	0	16	10	0	-	-
" " 26 g.		18	0	0	18	0	0	-	-
Galvanised Corrugated Sheets—									
Ordinary sizes, 6 ft. by 26 g.		18	15	0	18	15	0	-	-
" " 22 g. and 24 g.		13	5	0	13	5	0	-	-
" " 26 g.		14	5	0	14	5	0	-	-
Best Soft Steel Sheets, 5 ft. by 21 g.									
" " 25 g. by 20 g.		12	0	0	12	0	0	-	-
" " and thicker		13	0	0	13	0	0	-	-
" " 22 g. and 24 g.		13	0	0	13	0	0	-	-
" " 26 g.		14	5	0	14	5	0	-	-
Cut nails, 3 in. to 6 in.								9	15

(Under 3 in. in usual trade extras.)

LEAD, &c.

		Per ton, in London.					
		£	s.	d.	£	s.	d.
LEAD—Sheet, English, 3 lbs. & up.		14	2	6	-	-	-
Pipe 12 coils		14	12	6	-	-	-
Soil pipe		17	3	6	-	-	-
Comp Pipe		17	2	6	-	-	-
ZINC—Sheet—							
Ville Montagne	ton	25	0	0	-	-	-
Silvan	ton	24	15	0	-	-	-
COPPER							
Strong Sheet	per lb.	0	0	10	-	-	-
Thin	"	0	0	11	-	-	-
Copper nails	"	0	0	11	-	-	-
BRASS							
Strong Sheet	"	0	0	9	-	-	-
Thin	"	0	0	10	-	-	-
Sheet—English Ingots	"	0	1	4	-	-	-
SOLDER—Plumbers	"	0	0	8	-	-	-
Tinmen's	"	0	0	8	-	-	-
Blow pipe	"	0	0	9	-	-	-

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	.....	31d.	per ft. delivered.
21 fourths	.....	74d.	" "
21 oz. thirds	.....	33d.	" "
21 fourths	.....	78d.	" "
25 oz. thirds	.....	4d.	" "
21 fourths	.....	39d.	" "
32 oz. thirds	.....	5d.	" "
21 fourths	.....	43d.	" "
Filted sheet, 15 oz.	.....	39d.	" "
21 Oz.	.....	4d.	" "
$\frac{1}{2}$ Hare's Rolled Plate	.....	12d.	" "
$\frac{1}{4}$ " " "	.....	2d.	" "
" " "	.....	24d.	" "

## OILS, &amp;c.

Raw Linseed Oil in pipes or barrels..	per gallon	0	2	3
" " " in drums..	"	0	2	7
Boiled " " in pipes or barrels..	"	0	2	5
" " " in drums..	"	0	2	9
Turpentine, in barrels .....	"	3	0	0
" " " in drums .....	"	3	0	8
Genuine Ground English White Lead	per ton	20	10	0
Red Lead, Dry .....	"	20	0	0
Best Linseed Oil Putty .....	per cwt.	0	8	0
Stockholm Tar .....	per barrel	1	12	0

## VARNISHES, &amp;c.

Fine Pale Oak Varnish	.....	£ s. d.
Pale Copal Oak	.....	0 20 6
Superfine Pale Elastic Oak	.....	0 20 6
Extra Hard-drying Oak	.....	0 10 0
Superfine Hard-drying Oak	.....	0 10 0
Churches	.....	0 14 0
Fine Elastic Carriage	.....	0 12 6
Superfine Pale Elastic Carriage	.....	0 16 0
Fine Maple	.....	0 16 0
White Dull Oil	.....	0 10 0
Extra Pale French Oil	.....	1 1 0
Eggshell Flaking Varnish	.....	1 8 0
White Copal Enamel	.....	1 4 0
Extra Pale Paper	.....	0 12 0
Best Japan Gold Size	.....	0 10 0
Best Black Japan	.....	0 16 0
Oak and Mahogany Stain	.....	0 8 0
Brunswick Black	.....	0 6 0
Berlin Black	.....	0 16 0
Knapping	.....	0 10 0
Knapping and Polishing	.....	0 10 0

## TO CORRESPONDENTS

A. F.—H. C. J.—S. S. P.—C. & W. (Amounts should have been stated). J. L. (Below our limit).

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

*We cannot undertake to return rejected communications.*

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatis-

All communications regarding literary and artistic matters should be addressed to **THE EDITOR**; those relating to advertisements and other exclusively business matters should be addressed to **THE PUBLISHER**, and *not* to the Editor.



## COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

(For some Contracts, &amp;c., still open, but not included in this List, see previous issues.)

## COMPETITIONS.

Nature of Work.	By whom Required.	Premiuns.	Designs to be delivered
*Laying Out Calverley Park (about 24 acres).....	Ruby U.D.C.	20l. and 1M.	Mar. 17
*Proposed New Hospital .....	Manchester, &c. Hospital Committ.	75l. 5s. and 125l.	April 30
*Designs for Public Offices and Town Hall .....	Acton Borough Council	50l. each to Shortest Competitors.	No date.

## CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c., supplied by	Tenders to be delivered
*Sewer (2 miles), Lady's-bridge Asylum .....	Banffshire Lunacy Board .....	Jenkins-Marr, Civil Engineer, 16, Bridge-street, Aberdeen .....	Feb. 14
Street Works, Grenville-road (Section 1) .....	Plymouth Corporation .....	J. Paton, Borough Surveyor, Town Hall, Plymouth .....	Feb. 18
Church, Lincoln .....	Glasgow District Lunacy Board .....	C. Holson Fowler, Architect, Durham .....	Feb. 17
Houses at Asylum, Leamington .....	Salford Corporation .....	J. R. Motion, 268, George-street, Glasgow .....	do.
Villa, Higham Ferrers, Northants .....	Teitlington R.D.C. .....	G. Hall, Architect, Higham Ferrers .....	do.
Two Houses, Hoyland Common, near Barnsley .....	Wellborough R.D.C. .....	Wade & Turner, Architects, 10, Pitt-street, Barnsley .....	do.
Street Works .....	Leamington R.D.C. .....	L. C. Evans, Town Hall, Plymouth .....	do.
Kerbing, &c. .....	Teitlington R.D.C. .....	M. Halseworth, Surveyor, Public Office, Teitlington .....	do.
Culvert, Workhouse, &c. .....	Wellborough R.D.C. .....	J. T. Parker, 29, Church-street, Wells .....	do.
Drainage Works, Abbeys, Lincs. &c. .....	Belfast Corporation .....	A. F. Macdonald, 160, High-street, Elgin .....	do.
Culvert, Whitechapel road .....	Wellborough R.D.C. .....	City Surveyor, Town Hall, Belfast .....	do.
Boundary Wall, &c., Leamington R.D.C. .....	Kent County Council .....	Company's Architect, Cavendish House, Derby .....	do.
*Erection of Police Station, Swanley .....	Huntingdon County Council .....	County Surveyor, 88, Week-street, Maidstone .....	Feb. 18
Supply of Road Materials (Royal Parks) .....	Commissioners of H.M. Works, &c. .....	H. Loate, County Surveyor, Huntingdon .....	do.
Electricity Buildings, Butts-oval .....	Walsall Corporation .....	Munro & Crabtree, Architects, York Chambers, Kelgley .....	do.
Granite Setts .....	Tanworth Corporation .....	A. Wyllie, Borough Engineer, Town Hall, Walsall .....	do.
Road Works .....	Watford U.D.C. .....	F. E. G. Bradshaw, Borough Surveyor, 36, Aldergate, Tanworth .....	do.
Road Works, Catharine-street .....	Wokingham (Lincs.) R.D.C. .....	D. Waterhouse, Surveyor, Watford .....	do.
Slag Road M.C.U. .....	Havering (Essex) R.D.C. .....	T. S. Fenton, Civil Engineer, Town Hall, Stoke-on-Trent .....	do.
Police Station, Swanley, Kent .....	Kent County Council .....	J. C. Coates, Surveyor, New Headington .....	do.
Surveyor's Materials .....	Watnam Abbey U.D.C. .....	County Surveyor, 88, Week-street, Maidstone .....	do.
Sewage Disposal Works .....	Devonport Town Council .....	F. Holman, 81, High-street, Leeds .....	do.
Mortuary Chapel, North Prospect .....	Stoke-upon-Trent Corporation .....	W. P. St. John, Surveyor, Ilkley, Ilkley-street, Waltham Abbey .....	do.
Additions to Steam Laundry, Worthington .....	Stonehaven (N.B.) Town Council .....	C. W. Eaglesfield, Architect, Gordon-street, Worthington .....	Feb. 19
Road Materials, &c. .....	Norden (Lincs.) U.D.C. .....	H. A. Mear, Architect, Dale-street, Liverpool .....	do.
Electricity Building, Stalybridge .....	Norden (Lincs.) U.D.C. .....	G. Marloch, Borough Surveyor, Stonehaven .....	do.
Cast Iron Pipes .....	East Leake (Leics.) School Board .....	J. W. Sunderland, Surveyor, 10, Church-view, Norden .....	do.
Sewers, &c. (Contract No. 5) .....	Wortley R.D.C. .....	G. E. Cartwright, Council Office, Horwicks .....	do.
Granite, &c. (Contract No. 5) .....	Nelson (Lancs.) Corporation .....	Barrowcliff & Alcock, Architects, Mill-street, Longborough .....	do.
Additions to Schools, near Loughborough .....	Leamington R.D.C. .....	G. E. Beaumont, Civil Engineer, Grenoside, near Sheffield .....	do.
Sewers, &c., Ecclesfield, near Sheffield .....	Leamington R.D.C. .....	B. Ball, Civil Engineer, Town Hall, Nelson .....	do.
Street Works .....	Leamington R.D.C. .....	A. Runkin, Road Surveyor, Aldridge, N.C. .....	do.
Disinfecting Buildings, Rensford .....	Leamington R.D.C. .....	Borough Engineer, Town Hall, Ealing, W. .....	do.
Road Materials, &c., Hamilton, N.B. .....	Leamington R.D.C. .....	Company's Architect, Cavendish House, Derby .....	do.
*Making up of Roads .....	Leamington R.D.C. .....	T. Partington, 117, Market-street, Westhoughton .....	Feb. 20
*Coal Offices & Child's Hill .....	Leamington R.D.C. .....	J. W. Brown, C.E. .....	do.
Sewers, &c. (Contract No. 5) .....	Leamington R.D.C. .....	H. H. Pettit, Surveyor, Wash Farm, Haulon, Suffolk .....	do.
Granite (Contract No. 5) .....	Leamington R.D.C. .....	J. Quinn, Surveyor, Tost Dale, Stockport .....	do.
Street Works, B. Hill, &c. .....	Leamington R.D.C. .....	J. Haviland, 2, St. Giles-square, Northampton .....	do.
Surveyor's Materials .....	Leamington R.D.C. .....	J. Boyce, Main-street, Donagall .....	do.
Creamery, Donegal, Ireland .....	Leamington R.D.C. .....	H. Y. Boreham, Architect, 73, Finsbury-pavement, London, E.C. .....	do.
House, Alresford, Hants. .....	Leamington R.D.C. .....	T. Partington, 117, Market-street, Westhoughton .....	do.
Sewers, &c. .....	Leamington R.D.C. .....	J. H. Davies & Sons, Architects, 14, Newgate-street, Chester .....	Feb. 21
Library .....	Leamington R.D.C. .....	D. J. Michael, Architect, 97, Oxford-street, Swansea .....	do.
House, &c., Pontefract .....	Leamington R.D.C. .....	Borough Surveyor, Town Hall, B. Hill .....	do.
Additions to Electric Light Station .....	Leamington R.D.C. .....	Borough Surveyor, Bridge-street, Walsall .....	do.
Road Works, Shaw-street .....	Leamington R.D.C. .....	Secretary, C. Hillier, Office, Thirsk .....	do.
Seventy Houses, Wheatley Hill, Durham .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
Rail Metal .....	Leamington R.D.C. .....	D. Thomas, Architects, Paradise-parade, King's Lynn .....	do.
Chapel, Fair Green, Middleton, King's Lynn .....	Leamington R.D.C. .....	R. C. Duffield, Surveyor, Duffield, near Derby .....	Feb. 23
Road Metal .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
Macadam (7,000 tons) .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
Gasworks Buildings, near Kelgley .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
Two C (Lancs.), Ystradgynlais, Wales .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
Stone (6,000 tons) .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
Road Works, Dunderdall, N.E. .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
Sewer Pipes, &c. .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
Cement, &c. .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
Reservoir, Blackdon Asylum, Wrangaton, Devon .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
Hospital, &c. .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
Cast Iron Pipes .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
Moorty Works for West Bridge .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
Sewerage Works, Moretonhamstead .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
*Works of Sewerage and Sewage Disposal .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
*Extension of Works and Supply of Materials .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
*Sewerage Works, Granchester .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
*Making up Roads .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
*Supply of Road Materials (one or three years) .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
*Rebuilding Pier House, Widening Pier, &c. Long Beach .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
*Making up Streets .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
*Providing and Setting Kerbing .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
Lifboat House, Folkestone, near Faversham .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
Broken Granite, &c. .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
*Work of Paving Works .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
*New Electric Power Station .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
*Annual Contract .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
*Enlarging Buildings of Technical Institute, Norwood .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
Steel Rails (200 tons) .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
*Additions, &c. to Public Washhouse, Camlen Town .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
*Underground Conveyance, Blandford-street .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
*New Sorting Office to Head Post Office, Bridgewater .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
*Three New Blocks of Buildings, &c. .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
*Well Sinking, &c. .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
Factory Buildings, Stockport .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
Granite, &c. .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
Mill, East Bergholt, near Colchester .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
Schools, Bradwaite, Kew .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
*Supply of Materials for Works Department .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
Three Cottages, Allthwaite, nr. Grange-over-Sands .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
Rebuilding Retaining Wall, Kendal .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
Fence and Retaining Walls, Norton Hill .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
Surveyor's Materials (12 months) .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.
Triennial Contract .....	Leamington R.D.C. .....	E. P. Hooley, Shire Hall, Nottingham .....	do.

[See also next page.]



## PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
* Clerk of Works	Ilford School Board	£2 3s. per week	Feb. 20
* Quantity Surveyor for Works of Sewerage	Woodford U.D.C.	Not stated	Feb. 23

Those marked with an asterisk (\*) are advertised in this Number.

Competitions, iv.

Contracts, iv. vi. x. &amp; viii. xxi.

Public Appointments, xviii. &amp; xix.

## TENDERS.

(Communications for insertion under this heading should be addressed to "The Editor," and must reach us not later than 10 a.m. on *Thursdays*. N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is not special, unless in some exceptional cases and for special reasons.)

\* Denotes accepted. † Denotes provisionally accepted.

ALFRISTON (Sussex).—For three summer cottages for Mr. C. G. Champion. Mr. Bertram Earp, architect, Eastbourne.—  
J. Vinall, £1,240 0 | King & Son,  
W. E. Noakes, 1,005 0 | Eastbourne, £978 19

BANBURY.—For the supply of Hartshill stone for one year, for the Town Council. Mr. N. H. Dawson, C.E., Town Hall, Banbury.—

Per ton.

s. d.

Tee's Hartshill Granite and Brick Co., Ltd., Hartshill, near Atherstone	7 9	Block stone, hand picked
Do.	7 3	Coarse chippings
Do.	7 3	Fine chippings
Do.	7 3	Granite dust
Do.	9 3	14-in. machine broken stone

BARNSELY.—For the erection of seven dwelling-houses and outworks in Grafton-street, Barnsley. Messrs. Wade & Turner, architects, 10, Pitt-street, Barnsley.

Quantities by the architects—	
Building—Alfred Smart, 11, Leopold-street, Barnsley	£948 10 0
Joinery—J. Thornley, Shambles-street, Barnsley	305 0 0
Plumbing and Glazing—Rogers, Barnsley	49 0 0
Slatting—M. Fleming, Barnsley	78 10 0
Plastering—J. Shaw, Barnsley	99 10 0
Painting—C. Whitwell, Barnsley	95 17 6

BOLTON-LE-SANDS.—For additions to Hawksteads, for Mr. H. J. Coulson. Mr. J. Parkinson, architect, 67, Church-street, Lancaster.

Masonry—R. B. Wilson, Bolton-le-Sands	
Joinery—T. Pearson, Bolton-le-Sands	£1,078 4
Slatting and Plastering—Hall & Son, Lancaster	
Plumbing—Calvert & Head, Lancaster	
Painting—H. Warbrick, Lancaster	

BRENTFORD.—For making-up Lamb-passage, for the Urban District Council. Mr. Nowell Parr, Surveyor, Clifden House, Boston-road, Brentford.—

Bail & Co., £140 0 0   W. Parker, £131 9 8	
Mowlem & Co., 140 0 0   Peters & Co., 126 8 0	
R. D. Daniel, 139 10 0   Nowell & Co., 131 15 0	
W. Swaker, 131 15 0   Kensington, 119 0 0	

BRISTOL.—For the erection of a group of homes, Hall, &c., Downend, for the Guardians. Messrs. La Trobe & Western, architects, 20, Clare-street, Bristol.—

Browning, £204 98	Stephens, 200	Baston
Beaven, 200 20	R. & Co. Ltd., £18,987	
Wilkins & Son, 19,439	R. F. Ridd, 18,793	
A. E. Longden, 19,411	E. Clark, 18,740	
	Dew & Son, 17,610	

[All of Bristol.]

BURGH-BY-AVILSHAM (Norfolk).—For the restoration of the nave, &c., at St. Mary's Church, Burgh, for the rector and churchwardens. Mr. John B. Pearce, architect, 15, Upper King-street, Norwich. Quantities by architect—

J. Holmes, £216 0 0	G. Hawes, £622 0 0
J. Tuddenham, 808 13 6	R. Scarles Bros., 598 10 0
R. Morris, 692 15 6	R. Watts, 555 13 4
W. Porter, 675 17 9	W. Lamer, 544 17 1
W. & H. Wain, 659 11 2	F. & S. Smith, 535 0 0
R. Chapman, 647 0 0	T. H. Blyth, 509 0 0
H. Greengrass, 624 0 0	Foulsham, 509 0 0

BURTON LATIMER (Northants).—For sinking a well, &c., for the Kesteven Rural District Council. Mr. J. B. Everard, C.E., 6, Millstone-lane, Leicester.—

Timmins & Sons, Ltd., £3,732 7 2	Loch, £1,824 11 0
J. H. Dawson, 2,516 9 0	C. Chubb, 1,824 11 0
Siddons & Freeman, 2,416 0 0	Law, Leices., 1,650 3 0

CARDIFF.—For the construction of two masonry bridges, Cathays Park and North-road, for the Corporation. Mr. W. Harpur, C.E., Town Hall, Cardiff. Quantities by Engineer, Town Hall, Cardiff:—

Williams & Hoare, £5,042 14 9	Bridge No. 1	Bridge No. 2
Frank Ashley, 4,932 3 6	1,659 13 9	1,659 13 9
A. W. Cadwallader, 4,873 13 6	1,676 6 5	1,676 6 5
Lattey & Co., Ltd., 4,763 18 9	1,592 0 0	1,592 0 0
Allan & Son, 4,705 9 9	1,596 7 7	1,596 7 7
Turner & Sons, 4,392 5 5	1,481 3 3*	1,481 3 3*
Chas. Davies, 4,035 11 9	1,499 0 10	1,499 0 10

[All of Cardiff.]

CASTLEFORD.—For the improvement of Duke-street, for the Urban District Council. Mr. W. Green, surveyor, Carlton-street, Castleford.—

Joas L. Rodger, Albion-street, Castleford, £1,055	
Geo. Dyson, Rochdale, £330	

CASTLEFORD.—For relaying causeway, Carlton-street, for the Urban District Council. Mr. W. Green, surveyor, Carlton-street, Castleford.—

Geo. Dyson, Rochdale, £330	
----------------------------	--

DIDCOT.—For additions and alterations to the Board School at Didcot, for the Didcot School Board. Messrs. Hoare & Wheeler, architects, Reading and London. Quantities by Messrs. H. Cooper & Sons, Reading:—

J. Smallbone, £1,748 0	J. Colborne, £912 17
H. Bowden, 970 0	Boher & Son, 850 0
G. King, 944 12	Cholsey, 850 0

DUBLIN.—For the erection of a public library, Lower Kildare-street, for the Public Libraries Committee, Corporation of Dublin. Mr. C. J. MacCarthy, City architect, City Hall, Dublin. Quantities by Mr. J. Mackey:—

Foley & Son, £4,886 3 4	J. Pemberton, £4,321 10 0
Samers & Son, 4,612 3 8	McGloughlin, 4,275 0 0
James P. Hill, 4,449 0 0	Harvey, 4,275 0 0
H. J. Monks, 4,410 0 0	Alexander-Hill, 4,150 0 0
J. Hemmingsway, 4,337 14 7	& Co., 4,150 0 0
Conolly & Son, 4,130 0 0	Jas. Donovan, 4,099 0 0
Pemberton & Son, 4,126 0 0	Camden-st., 3,088 0 0

IPSWICH.—For additions to St. John's Home, for the Guardians. Mr. H. J. Wright, architect, 4, Museum-street, Ipswich. Quantities not provided:—

C. A. Green, £1,486 0 0	M. Death, £1,453 0 0
Cooper & Howard, 165 10 0	W. H. Death, 144 0 0
H. Skerritt, 157 8 0	W. H. Bloomfield, 140 0 0
T. Frost, 155 0 0	C. Thwaites, 134 0 0
W. A. Marriott, 155 0 0	E. Scott, 129 10 0
R. G. Seaman, 154 10 0	Stearn & Co., 120 10 0

[All of Ipswich.]

KIRKCALDY.—For causewaying works for the Town Council.—

W. Dobson, Edinburgh, £1,317 5 4	
----------------------------------	--

KNARESBOROUGH.—For the execution of main sewerage-works, Killingham, for the Knareborough Rural District Council. Mr. R. Annakin, Surveyor, 44, Station-parade, Harrogate:—

Dickinson, £1,790	Exors. late W. J. Godfrey, 1,475	Annakin, £1,438
J. Buckley, 1,455	B. Oxley, 1,239	G. Parsons, 1,455
J. Thompson, 1,452	J. L. Matthews, Harrogate, 1,210	

LITTLEHAMPTON.—For paving works, &c., Dorset-road, for the Urban District Council. Mr. H. Howard, Surveyor, Town Offices, Littlehampton:—

H. A. Chambers, £432 13 6	W. Wallis, £340 0 0
E. H. King, 432 0 0	B. G. Holland, 335 0 0

LONDON.—For paving, &c., Roach-road, Bow, for the Poplar Borough Council. Mr. Harley Heckford, Borough Surveyor:—

W. Peters & Co., £886 13 11	
Geo. G. Anderson, North-street, Poplar, E., 830 0 0	

LONDON.—For the supply of cockle shell required for use at parks and gardens for the London County Council:—

	Mr. Gibbs.	Messrs. Tuff & Miskin.	Messrs. Shelbourne & Co.	Mr. Sommerfeld.
	per cubic yard.	per cubic yard.	per cubic yard.	per cubic yard.
Battersea Park	8 0	8 0	8 0	8 0
Brockwell Park	6 4	10 0	9 0	9 3
Deptford Park	7 6	10 0	9 0	8 0
Hilly Fields	9 0	10 0	10 0	8 0
Maryon Park	9 0	13 0	8 0	8 0
Royal Victoria Gardens	5 6	13 0	8 0	8 0
Peckham Rye	7 6	8 0	10 0	8 0
Southwark Park	7 6	9 7	9 0	8 0
Lincoln's Inn Fields	8 0	12 0	8 0	8 0
Victoria Embankment Gardens	8 0	9 2	12 0	8 0
Clissold Park	8 0	13 0	8 0	8 0
Victoria Park	5 9	8 0	9 0	8 0
Wandsworth Park	6 6	7 8	9 0	9 0

\* Messrs. Tuff & Miskin do not tender for whole cockle shell. Their prices are for shell containing fine sand and shingle.

(Mr. W. Gibbs accepted as regards Battersea Park, Brockwell Park, Deptford Park, Royal Victoria Gardens, Peckham Rye and Park, Southwark Park, Lincoln's Inn Fields, Victoria Park, and Wandsworth Park; and Mr. J. Sommerfeld accepted as regards Hilly Fields, Maryon Park, Victoria Embankment Gardens, and Clissold Park.)

LONDON.—For alterations and additions to the United Friends B.H., Wellington-street, Deptford, for Mr. C. Conlay. Mr. John Jas. Downes, architect, 199, Lewisham High-road, S.E. 1:—

W. Martin, £1,450	W. O. Collingwood, d.
Hall Bros., 1,390	Brockley, £1,740
S. R. Best, 1,285	

LONDON.—For the erection of Darcy-buildings, London Fields, for the accommodation of persons to be displaced by the carrying into effect of the Mare-street improvement, Hackney, for the London County Council:—

	Estimate	Estimate
	A.	B.
C. Dearing & Sons, 10,610	10,702 13 2	
B. E. Nightingale, 10,022	10,094 5 10	
Martin Wells & Co., 9,442	9,597 4 7	
Marsland & Sons, 9,428	9,495 2 6	
A. E. Symes, 9,230	9,270 1 6	
H. L. Holloway, 9,200	9,253 7 8	
Stanton & Co., 9,240	9,268 0 0	

[The architect's estimate, including alternative estimates for the works referred to, amounted to £8,912.]

LONDON.—For erecting bakery, shop, and flat, Nos. 106 and 110, Brompton-road, S.W., for Messrs. Spiking & Co. Messrs. Blangy & Van Baars, architects, 19, Old-square, Lincoln's-Inn, W.C. 1:—

	Estimate	Estimate
	A.	B.
T. Boyce, £8,783	8,783	
Leslie & Co., 6,540	6,540	£38
Lole & Lightfoot, 6,744	6,744	75
Syme & Duncan, 5,921	5,921	150
Langdale, Hallett, & Co., 5,485	5,485	220
Turtle & Appleton, 4,920	4,920	55

For Building Twelve Ovens.

T. Smith & Sons, £1,050 15	
----------------------------	--

LONDON.—For fencing work, Tottenham-fields Estate, Tooting, for the London County Council:—

Mr. R. Mulford, £232 2	
------------------------	--

LONDON.—For the construction of a timber jetty, Cheyne-walk, for the Chelsea Borough Council. Mr. T. W. Higgins, C.E., Borough Surveyor, Town Hall, King's-road, Chelsea:—

G. Webb, £1,420 6 11	Shelbourne & Co., £915 0 0
Facey, 1,115 0 0	Grice, 933 0 0
Chafin, 1,208 0 0	London & Tilbury Lighterage Co., 910 0 0
Reader, 1,259 0 0	Munday & Sons, 1,079 0 0
Woodhouse, 1,231 13 2	Catharine House, Timbury, 84 0 0
Co. Crane, 1,100 0 0	
Leggatt, 1,079 0 0	
Colwell & Hall, 1,010 13 0	
C. Wall, 975 0 0	

[See also next page.]



MIDDLETON (Lancs.).—For the erection of a post office and offices, Long and Sautter-streets. Messrs. Stones & Stones, architects, 10, Richmond-terrace, Blackburn. Quantities by architects:—

W. A. Peters & Sons, Crossfield, Rochdale\* £3,268

MUNDESEY-ON-SEA.—For cottage residence, Messrs. Clare & Ross, architects, Chelmsford and London:—

Cornish & Gaymer £83 12 | J. S. Smith,  
Wilkins & Randal 727 0 | Norwich\* ..... £630 0

NAAS (Ireland).—For the erection of a house, dispensary, &c., Blessington, for the Guardians of Naas Union. Mr. Francis Bergin, architect, Kildare. Quantities by architect:—

H. J. Mond .... £1,600 0 | J. Taylor, Bran-  
Kennedy ..... 1,600 0 | nortown, Kil-  
Joan Jennings .. 1,200 0 | cullen\* ..... £1,185 10

PENTRE (Glam.).—For additions to chapel, for the Building Committee. Mr. W. D. Morgan, architect, Victoria Chambers, Pentre:—

Alban Richards, Pentre, Glam.\* ..... £560

PORTSLADE (Brighton).—For the erection of new school. Mr. E. A. Lingen Barker, architect, Hereford:—

Drake .....	£2,050 0 0	Sattis & Ever-	shed .....	£1,797 0 0
Huntley & Beck .....	1,979 0 0	Nash & Nash .....	1,605 4 0	
Holland .....	1,094 10 6	Wells .....	1,601 0 3	
Cook & Sons .....	1,350 8 0	Gunn & Co. ....	1,077 0 0	
Hackmann Co. ....	1,025 0 0	Field & Co. ....	1,672 0 0	
Rowland Bros. ....	1,750 0 0	Smith & Sons ..	1,673 0 0	
Longley & Co. ....	1,749 0 0	Eastwood, Mar-	ket Harbours* ..	1,618 0 0

ST. ALBANS. For the erection of a stable and coach-house, for the Visiting Committee of the Hill End Asylum. Mr. G. T. Hine, architect, 35, Parliament-street, S.W.:—

King, Son, & Townsend & Cotes .....	£1,000 0 0	G. Wiggs .....	£927 0 0		
Goodchild & Jeffery .....	971 11 6	E. Dunham .....	925 0 0		
Willmott & Sons .....	966 0 0	J. T. Bushell ..	911 7 0		
S. Worboys .....	935 0 0	Miskin & Sons ..	910 0 0		
		Newton .....	871 0 0		
		J. Naden .....	862 17 5		
		W. H. Hinkins ..	High-st., Roy-	ston, Herts.* ..	792 0 0

SUNDERLAND.—For the erection of a Congregational Church, Roker Baths-road, Monkwearmouth. Messrs. Jos. Potts & Sons, architect, 57, John street, Sunderland. Quantities by architects:—

Tiffin .....	£7,574 0 0	W. B. Cooper ..	£5,469 0 0	
Raniken .....	6,998 0 0	J. E. Stott .....	5,419 19 4	
Armitage .....	6,428 0 0	Sunderland* ..	5,446 0 0	
White .....	6,335 0 0	Taylor & Wel-	ford .....	5,446 0 0
Shaftoe .....	5,959 0 0			
Robertson & Sons .....	5,774 18 0			

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WINCHESTER.—For the erection of a house, St. Cross, for Mr. J. C. Lyell, Messrs. Clison, Farrow, & Nisbett, architects, 45, Jewry-street, Winchester. Quantities by architects:—

Chinchen .....	£3,604 7 10	Barcomb .....	£2,820 0 0	
Avery .....	3,375 0 0	Scamond .....	2,700 0 0	
White .....	3,100 0 0	Golding & An-	sell .....	2,620 0 0
Franklin .....	3,050 0 0	Coston & Co.,	Jenkins .....	2,914 0 0
Rashley .....	2,943 0 0	South Hamp-	Stevens .....	2,924 0 0
		ton* .....		2,586 0 0

WOKING.—For gardener's cottage, St. Peter's Home. Messrs. Clare & Ross, architects, 1, West-street, Finsbury Circus, E.C., and Chelmsford. Quantities by the architects:—

W. & C. Brown .....	£580 512	Martin Wells & Co.,	Ltd. ....	£493
R. Pain .....		Harris & Son, Woking*		485

WORCESTER.—(A) For pulling down and rebuilding Nos. 55-58, High-street, and (B) forming new arcade, &c., from St. Swithun-street to Church-street, for Messrs. Woodward, Messrs. Clare & Ross, architects, 1, West-street, Finsbury-circus, E.C., and Chelmsford. Quantities by Mr. H. M. Messenger, 16, Great George-street, Westminster, S.W.:—

A		B	
Thos. Vale .....	£2,279	8,273	4,440
Collins & Godfrey ..	8,273	4,440	
Stokes Bros. ....	8,135	4,679	
Wood & Sons .....	7,850	4,527	
F. J. Briley .....	7,470	4,577	
Promage & Evans ..	7,420	4,193	
J. & A. Brazier .....	7,380	4,060	
Hansley & Sons .....	7,138	4,200	
W. Hopkins, Birmingham*	6,900	4,100	

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# The Builder.

VOL. LXXXIV.—No 2133.

FEBRUARY 21, 1909

## ILLUSTRATIONS.

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The Church Schools, Arundel.....Mr. Gerald C. Horsley, Architect.

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### Exeter Cathedral.



CERTAIN public interest is from time to time aroused in the repair and restoration of our cathedrals. We feel sure that this interest is entirely genuine.

It would be idle to suppose that the progress and development which now present themselves in every branch of the arts have gained no reflection outside their immediate centres of activity.

That the public has no definite *locus standi* in such matters we are, of course, aware. But, sooner or later, a matured public opinion does make itself felt, and in a notable and recent instance has even led to the undoing of work already accomplished. A portion of the scheme which it is now proposed to carry out at Exeter is, moreover, in some degree, of a public nature, since the funds for it are being raised by subscription. This projected work, which is causing agitation in the Press and elsewhere, resolves itself into two distinct heads. One is the removal of the Peckitt window from the west front and the substitution of a window of modern design; the other is a matter of repairs to the fabric of this front generally, and particularly of the stone screen that stands against it, upon the outside.

The Peckitt window has long been threatened. The desire to remove it is by no means of recent growth, and the cost of a new window has alone preserved it. It now seems possible that the loss sustained by the nation in the death of Archbishop Temple, a loss which is especially felt in the West, where his diocese was once situated, may take the form of defraying the cost of a window erected to his memory, to supersede that by Peckitt.

With the restless desire to get rid of this window we have no sympathy whatever. Those who thus strenuously call for its removal seem to us as deficient in a recognition of its merits as their forefathers were blind to its faults. It was thus described in the seventeen-sixties, when it was set up:—

"The great west window in the cathedral church

of Exeter is now completed in painted glass by the ingenious artist, Mr. William Peckitt, of York, which for the variety of its design, the beauty and richness of the colour, the elegance of the figures, and the embellishment of the several parts, is esteemed equal to any specimen which has yet been given of this curious and exquisite art. This window not only exhibits a pleasing specimen of the perfection to which Mr. Peckitt has brought the complicated art of staining glass with the richest plain colour and of painting various colours on ye same glass, but is intended also to represent by their coat armours those noblemen and baronets who by their residence or possessions are more particularly related to these counties, and who, at the request of the Dean, have been pleased to promote this work of contributing their respective arms."

We may explain that the "coat armours" referred to were inserted in the tracery at a charge of five guineas apiece to the several bearers of the arms, a circumstance which, presumably, led a recent correspondent in the *Times* to speak of "the history of its erection" as "a particularly sordid story," and "an evidence of Capitular zeal and other people's vanity." We are, however, inclined to regard the endeavour as very much more reasonable and direct than many of the methods now in vogue for a similar purpose, in connexion with a bazaar or *café-chantant*, for instance, since the coats-of-arms are in themselves essentially decorative features of the window.

Such, at any rate, was the estimation in which William Peckitt was held in his own day, and it is an estimate which, we venture to think, can no longer be sustained, although age has mellowed the colouring and produced amongst the yellows of the canopy work some very tender effects. We now recognise the difference between the methods of a mosaic and the production of an easel painting—between the effects of enamel colour fired on to colourless sheet glass, where the lead lines are regarded as interruptions, and coloured pot-metal glass of irregular texture united by lead lines that assist the design. Peckitt's crude tones, and his violent kelp and stain effects, are an assault upon the onlooker, it is true. Yet we think that there are some too ready to take offence, and who, consequently, never try to perceive the artist's excellences. Peckitt had a style—his work possesses dignity and character; just what is lacking in nine out of ten modern examples. Those of our readers who look for these qualities

in work will understand us. It would be a vain task to explain our meaning further.

Now we are not necessarily arguing for the retention of this window. The inherent imperfections of its methods cannot, we think, command a respect for it sufficient to withstand a natural desire for something that is after all more true to the essential nature of coloured glass. We have rather directed our remarks against those who are so loud in their demands for its life, and whose sense of observation seems to us to be so inadequate. For ourselves, we would prolong this life to its utmost limits, and not alone for the window, but for the preservation of the tracery also, which we fear may need extensive renewal when it comes to be tampered with. This question still remains: when the present window goes, what will be put in its place? There are one or two artists who might be trusted, if they were wholly trusted. Interference with a conception upon the strength of that old saw that who pays the piper chooses the tune, must seriously jeopardise the result. It is not always understood that any work of art is a little republic whose existence is staked upon a subtle harmony of its parts, and an alteration that seems but a small thing may throw the whole system into anarchy. So far as we gather from the correspondence, the consideration of the future is swallowed up in a controversial dispute over the past. If those who are bent upon the alteration could point to any instance where coloured glass has been introduced into the cathedral with really satisfying results there would be a guarantee—at least, a hope. The west window occupies the width of the nave. If a mistake is made, the mistake will be truly gigantic.

As regards the second matter, the repairs to the screen and stonework of the front generally, we understand that Mr. Bodley's advice has been sought, and that it is the intention of the authorities to faithfully adhere to this advice. The south end of the screen has already been restored, and unless the detail upon that portion differed materially from that elsewhere, we must confess to thinking the new work to be wanting in vigour. Weather-worn and defaced as this screen is, the lights and shadows of the detail are still strong. We are only asked to imitate, and the more slavishly we imitate



the better. And the less of it we do, also, let us add, the better. What we desire is a record of the old work before it has decayed past recognition. For no one supposes that an imitation can ever be a work of art in the true sense of the word. It must lack all those creative qualities that are essential to work of that description.

One thing we may at least congratulate ourselves upon: it is not proposed to touch the sculptural figures that occupy the niches. Among the French cathedrals, it is deplorable to notice the quantity of sculpture that is being removed and replaced by copies, excellent though these copies be in many respects; an excellence that we cannot pretend to attain to.

Such alarming reports have been circulated as to the condition of this west front, and of the proposals to deal with it, that we have been glad to satisfy ourselves that these at least are an exaggeration.

#### LONDON BUILDING ACTS (AMENDMENT) BILL.\*

By MR. H. H. COLLINS, F.R.I.B.A.



PERUSAL of this Bill will at once evince that if it were permitted to become law it would materially and vexatiously interfere with all classes of property. It would prejudicially affect all financial transactions with regard to building—both past, present, and future. It would prevent future mortgages on buildings used for trade and residence, and would impair the value of existing ones. It would render it extremely difficult to build factories or workshops, and as regards flats and office buildings, more than 50 ft. above the pavement, it would practically prevent their erection except under exceptional circumstances.

The whole machinery of the Bill is left in the hands of the London County Council, which practically means the officers of that body. The worry, time, litigation, and consequent expenses, which would be involved by the provisions of the Bill would be so great as to be financially prohibitive, and when all the requirements (if they were possible of execution) were complied with then there would be no finality.

One would have thought that "prevention would be better than cure," and that if the London County Council would insist on proper fire-resisting material being employed and would pay more attention to their fire brigade arrangements, sufficient precaution could be taken without involving owners in the difficulties which they propose; particularly as the statistics of the fire insurance companies are such that they have very recently reported that their business has been increasing and their policies have in nearly all cases proved good, showing that there is no necessity for many of the proposed amendments. Should the suggested clauses, introducing unknown factors into building construction, become law, it would practically mean ruin to most holders of the class of property referred to in the proposed Bill, and would certainly retard building operations not only structurally but financially.

Analysing the clauses of the Draft Bill, it will be observed that all buildings which are more than 50 ft. above the level of the foot-

way are to be considered as "existing high buildings." It will be remembered that in the present Building Act the height is limited to 60 ft., and this was because it was asserted by the Fire Brigade that ladders were not available beyond that height. It would appear, therefore, that the London County Council's means of rescue have degenerated, instead of improved, since the passing of the Act.

Clause 6 sets forth most ambiguously that every high building shall be supplied with such means of escape as shall be reasonably practicable, and the provision applies not only to persons "living in the house, but resorting to or frequenting," a form of expression drastic and difficult to comprehend, but evidently any house, club, billiard-room, masonic lodge, &c., would come under this clause, and a great expense must necessarily be incurred if the same is to be of universal application by reason of the large staff which would have to be employed in the inquisitorial task required.

Clause 7 requires a certificate to be issued by the London County Council which may be revoked hereafter, but what the nature of that certificate is to be it does not state; and, of course, a revocation of a certificate for a building already passed may incur very large expenses and great trouble to owners.

Clause 8 is of a most arbitrary character. It again applies to any dwelling in which persons "are employed or resort to, or frequent the upper stories." It gives the Council power to revoke any certificate granted, and demands that as regards any changes, alterations, or additions notice is to be given in writing to the Council. It requires the owners to keep in good condition and free from obstruction all the work certified, and it gives twenty-four hours' notice of revocation, although it may be utterly impossible for the owner to be made acquainted with the resolution of the Council. He may be out of England, out of town, on the Continent, ill, &c.; and lastly, when they have revoked it within the said period of twenty-four hours, the form of certificate will be null and void, and the granting of a new certificate may involve large alterations in the building which the Council (*i.e.*, their officers) may choose to demand, and which in other cases they generally and arbitrarily do. It would be fair that where a building had been sanctioned for a certain purpose and used for a totally different one, for the Council to impose restrictions as to such use, for I have known in my own experience whole blocks of buildings for which notice has been given to me that the same were to be used as offices afterwards to be used for warehouse storage and other purposes of a totally different character.

Clause 9 requires altering in this respect: that, although it is perfectly right that staircases should be enclosed with fire-resisting material, the arbitrary proposition that it is "to be done in such method and to such extent as the Council may prescribe" ought to be deleted and it should be perfectly clear what the fire-resisting doors are to be composed of, otherwise in private houses all decorative and architectural features would perhaps have to be omitted and aesthetic effect entirely destroyed. In addition, I think it would be well if any conditions laid down by the Council were subject to submission to the Tribunal of Appeal.

Respecting Clause 10 this is one of the

most confiscatory and arbitrary suggestions of the proposed Act. It seems to be contrary to public policy and to all sense of justice. There is no reason why individuals should be put to the enormous trouble and cost suggested, and it would be difficult in many cases to comply therewith, the property having been let under certain covenants rendering it impossible without litigation to disturb an existing condition of things.

It is proposed to enact that two years hence the owners of any building over 50 ft. high are to submit to the Council particulars in writing, accompanied by detail plans and drawings showing not only the existing means of escape from the house, but what is proposed to be provided. The owners having gone to all this expense by the employment of surveyors, solicitors and others, the Council may, and probably generally would, disapprove such existing means of escape, or, if they did approve them, may attach such conditions as they may think fit, or they may demand that further means of escape may be considered necessary. Practically, they would shut up many existing buildings, and the proposition, so far as regards existing buildings, is in many instances absolutely impossible to comply with.

Then, if there be difference of opinion as between the Council and the owner, a most expensive litigation ensues. It is to be submitted to arbitration similar to the Factory Act, whereas there exists at the present time a Tribunal of Appeal composed of gentlemen who would thoroughly understand the question, and to whom any matter could be referred without the enormous expense and trouble which the suggested proposition of the L.C.C. would involve.

Then the owner is to put his occupier (notwithstanding any provision in his lease or agreement) to the expense of appearing before a County Court, to ascertain whether he cannot ask his tenant for the whole or part payment of the cost of the works required by the L.C.C. to be executed, so that not only the owner, but likewise the occupier or tenant is to be subjected to these most drastic obligations.

Clause 11 enacts that five years hence all buildings are to be subjected to the obligations set forth.

Clause 12 applies to every new building erected, I presume, after 1908. It will be observed that it will not be possible to make any change (whatever this may mean) nor any addition or alteration to such building, and that if the number of persons dwelling, resorting to, employed in, or frequenting, is in the opinion of the L.C.C. too many, they may, I suppose, revoke their certificate and put the owner to additional expense. One fails to see how the owner can do all that is required of him without he resides on the premises.

Then by Sub-Section E it would appear that every building, even if only one story or ground floor high, would be subjected to some demands; in fact, the requirements are so vaguely stated that gross injustice may be occasioned and involve confiscation and continual inspection.

Clause 13 may cause the entire closing of a building, with its attendant consequences, and may mean ruin to the owner. In my judgment the whole of this clause should be deleted.

Clause 17 would prevent in a large mea-

\* We give Mr. Collins's article as an expression of opinion, without by any means endorsing all his objections.—Ed.



sure office buildings being erected; the eight squares is much too small and would be found impracticable in working out. It might be applicable to small buildings, but certainly would not be to, separate sets of chambers or rooms, and no glazed partitions or divisions would be allowed.

Sub-Section (6) is impracticable. Surely it would be sufficient to say that no passage should be less than 3 ft. in width.

Sub-Section (8) is again impracticable, and would really destroy a great many sites. Assuming, for instance, that a site was 41 ft. long, then two staircases would be required, rendering it impossible to financially utilise the site; and there are many other objections to such a provision. It often happens that there is only a small frontage to a large and exclusive site or building in the rear, and then all precautions as set out in the proposed Bill would be null and void.

Respecting Clause 18 the same remarks as I have before made apply to the width of passages, and particularly with regard to Sub-Section (3), which is impracticable.

Respecting Clause No. 19, one is rather surprised to find that boarding or panelling should be allowed at all, certainly to places of business, or where more than forty people are employed.

No. 21 is exceedingly ambiguous and doubtful. It is quite obvious that the Council can, at their own will, continually harass by their requirements owners of property. I think the Council should be compelled to state absolute and final requirements at the time of issuing their certificate and so end the matter.

Clause 22 appears to give power to the owner to continually harass his tenant, so that both are to be punished by the action of the L.C.C.; that is to say, the owner is to be compelled to do the work—he may recover the whole or portion of the cost from the tenant, but if the owner subjects him to any damage, he, the tenant, may obtain compensation from the owner for executing works which the said owner is compelled to do, thus abrogating all contracts, destroying all security, preventing lettings, deteriorating rents, and, in fact, confiscating property.

As a minor point the fees payable to district surveyors are anything but equivalent for the onerous and inquisitorial work they are asked to perform.

Lastly, the penalties are excessive, the requirements drastic in the extreme. Many owners are, no doubt, abroad, and some would probably be without the means of complying with the demands of the Act.

#### NOTES.

The death of Mr. Penrose removes from the architectural world a very remarkable personality. Doing little of ordinary architectural work, he was nevertheless a power in the profession owing to his special knowledge, his scientific habit of thought, and his high character, associated as it was with a remarkable simplicity and modesty of disposition. Under the heading of "Obituary" we have given the main facts of his career; we may here add that we do not think the importance of his great publication on the Principles of Athenian Architecture has been anywhere sufficiently recognised. Such a publication cannot of course be "understood of the people,"

and the *Times* merely makes a passing reference to it; but it is much more than a record of accurate measuring; it is the most remarkable architectural monograph ever issued in this country; a monumental work, on which chiefly Mr. Penrose's fame will rest.

Influence of the Institute on Competitions.

A REPORT in a local paper of a recent meeting of the Town Council of St. Ives, in which the question of new municipal buildings was discussed, affords evidence that the determination of architects to require the appointment of a competent assessor in connexion with competitions, and the support given by the Institute of Architects to this demand, is having a very real and practical effect upon the action of building committees. It appears that the Corporation of St. Ives at first advertised for competitions for new municipal buildings without providing for the appointment of an assessor. The result comes out in the statement made by the Mayor at the meeting referred to, in which he explained that "the original advertisement was not in accordance with professional etiquette, and the British Association of Architects (*sic*) did not advise the architects and members of the Association to compete, which was the real reason why only one plan was submitted." It thus appears that the profession, if they act loyally in combination with the Institute, can practically prevent people having any architectural competitions except on the Institute terms; which is so far very satisfactory.

The Private Street Works Act, 1892.

THOSE householders who own property fronting streets which come under the Private Street Works Act, 1892—viz., streets which are not "highways repairable by the inhabitants at large"—will do well to study two decisions recently given in the Courts, and which deal with the rights of objection they have to charges imposed on them under this Act in respect of paving, lighting, and other expenses. This Act in relation to such streets has taken the place of the Public Health Act, 1875, and the rights of frontagers to object are defined by its provisions in substitution for the general right of appeal given by Section 268 of the Public Health Act. The rights of objectors are divided into two classes, to be taken at different stages:—I. Section 7 gives the owner of premises the right to take certain specified objections to the works proposed during the month in which the specifications and provisional apportionments are lodged. II. Section 12 enables certain objections to be taken to the apportionment one month after notice of the final apportionment has been received. One of the objections capable of being taken under the first head is that the street in question is a highway repairable by the inhabitants at large, and the Court of Appeal have now decided (in the case of Wakefield Corporation *v.* Cooke) that when a decision has been once given on this point by the Court of Summary Jurisdiction, the matter is *res judicata*, and cannot be opened up again, even when an additional portion of the same street is involved as well as the old portion, and when some of the objectors are fresh parties to the proceedings. The second case, Hayles *v.* Sandown Urban Council, relates to the

second class of objections: An objector three months after notice of the final apportionment objected to the apportionment on the ground that it was made before the works were "completed," and, therefore, was invalid under Section 12; but the Divisional Court held his objection to be out of time, as not having been made within one month of the notice of the apportionment. This decision made it unnecessary for the Court to determine whether this objection fell within the classes specified under Section 12 of the Act; but the Judges intimated an opinion that it would be sustainable unless it solely depended on an allegation of negligence or misconduct on the part of the Surveyor in his duties, for which they decided that no remedy was provided by the Act.

Expenses of Private Street Improvements.

THE Court of Appeal in the case of Surtees *v.* Woodhouse (reported on p. 177 *ante*) has had to consider a further question under the Private Street Works Act, 1892, as to when expenses incurred by the Authorities attach to the premises so as to become a charge upon them. The defendant in this case was the assignee of a lease under covenant to observe all the covenants of the original lease. The lease under which he held the premises was dated November 30, 1899, and the Corporation of Maidenhead had completed certain works under the Private Street Works Act on the previous October 7, but the final apportionment under Section 12 had not been made until December 11. The question therefore arose whether these expenses were "present assessments and outgoings charged upon the said premises or the owner or occupier" within the covenant in the lease, so as to render the defendant liable to repay them to the plaintiff, the assignor of the lease; and the Court has held that they became so charged on the completion of the works, and before the defendant became possessed under his lease. There are expressions in Section 13 which would lead the uninitiated to believe that the expenses must be finally apportioned before they become so charged; but it was held in a former case, Stock *v.* Meakin (1900 1 Ch. 683), that this Section merely determines the amount of the charge which has already attached. The layman, whilst noting the effect of these decisions for his future guidance, can only regret that legislation which deals with matters of every-day occurrence in relation to house property is drawn in such a form that even professional advice affords no certain guide to the right course to be adopted, and that questions such as the above require decision by the Court of Appeal or possibly the House of Lords, and add the expenses of litigation to the already too heavy burdens imposed on owners or lessees of house property.

Land Agents' Commissions.

THE recent case of Wood *v.* Pember is of some importance as showing that scales of charges issued by societies of professional men are not necessarily binding. Mr. Justice Kennedy some two or three years ago held that where an architect charged the scale approved by the Institute that was evidence of the reasonableness of his charges. In the present case Sir James Pember alleged that



he was only bound to pay the scale approved by the Society of Auctioneers on the sale of property, whereas the plaintiffs, a firm of land agents, stated that he was aware of their own private scale, and that they should be paid on that basis. As it appeared that Sir James Pember had knowledge of this special scale, the jury came to the conclusion that he had impliedly agreed to pay commission at this rate. Probably their decision was, under the circumstances, right, but we certainly think it would be very desirable that house and estate agents should agree upon a common and accepted scale. This would be just both to themselves and their customers, and would prevent disputes and make dealings between house and estate agents and their clients more easy and satisfactory.

Builders and  
the  
Education Act.

WE have received from a correspondent an inquiry as to the position of builders and architects who are members of a Town or District Council which is the Local Education Authority, in regard to executing work in school buildings for the body of which they are members. So far as regards the voluntary or non-provided schools, they will clearly be in the same position as at the present time, since the Local Authority has no responsibility for the building. As regards Council or non-provided schools, a member of a Town Council is obviously in the same position as he is in regard to any other work for the Council, in regard to which they are the authority—as, for instance, the repair of sewers repairable by the Local Authority. The rights and duties defined in Acts of Parliament show whether a builder can legally do work for a Corporation of which he is a member.

Atmosphere in  
the "Tube."

THE Report issued by the Public Health Committee of the London County Council on the condition of the air in the Central London Railway contains matter of general public interest. The result seems to be that the quantity of carbonic acid varied between 15.2 and 9.6 volumes to 10,000 of air, the average in the streets outside being about four volumes. This proportion was the greatest in the lifts and carriages, though less in smoking carriages than others. The chemist considers that the standard of purity should not be less than about a maximum of eight volumes, or twice as much as in the outside air, having regard especially to the fact that in the tube this impurity in the air is practically solely due to the respiration of human beings. The bacteriological examination shows that micro-organisms were present in the proportion of thirteen to ten compared with the outside air. On reading this report Londoners would be interested in the answer to two questions, viz., 1. How the above figures as to the condition of the air compare with samples taken in ordinary railways or omnibuses; 2. How far the air in the tube favours infection compared with that in the Underground Railways and other public vehicles. A few figures are appended to the report, which show that on the Metropolitan Railway two samples of air were obtained containing respectively 16 and 28.8 volumes of carbonic acid, but this is due to the combustion of fuel and other causes which,

however, do not, as the report states, create an atmosphere nearly so objectionable as that due to respiration alone. We gather from the report that no larger proportion of pathogenic organisms existed in the atmosphere than is usual in places where human beings are congregated together.

Building  
Societies and  
Legal Infants.

THE case of the Nottingham Permanent Benefit Building Society v. Thurston, which was recently decided by the House of Lords, finally sets at rest an important point of law with regard to building societies. This decision of the final court of appeals clearly states that an infant, that is a person under twenty-one years of age, cannot execute a valid mortgage to secure advances from a building society. According to the Infants Relief Act, 1874, such a mortgage is absolutely void as against an infant. On the other hand, the Building Societies Act, 1874, by Section 38, states that an infant may be a member of a building society and "may give all necessary acquittances." The result of the interpretation of the conjoint relationship of these two Acts is to show that the position of an infant in a building society is limited—he is a member of a society who cannot obtain advances by mortgage. As Lord Davey said, a man may be a member of a building society without requiring an advance from it. If an infant does require one, then "he may possibly obtain an advance by giving a mortgage to some friend or relative; if he cannot do that it may be his misfortune or his good fortune, but the result is that he cannot exercise that particular privilege of obtaining an advance (from a society) until he becomes of age."

Repairing a  
Railway Tunnel.

SOME interesting repair work has recently been executed in the Corallaz Tunnel, on the railway from Lausanne to Berne, the tunnel having a masonry lining about 26 ft. in diameter. Last year about 35 ft. of the roof arch fell, and a considerable quantity of rock caved into the tunnel, causing an obstruction for a distance of fully 45 ft. Holes were cut in the crown of the uninjured arch about 33 ft. beyond each end of the obstruction, and vertical drifts were run through the axis of the tunnel at an inclination of 20 deg. to 30 deg. from the horizontal. These drifts were timbered, and when they reached the cavity from which the material had fallen into the tunnel, they were driven under poling-boards with very heavy supports until they finally met over the centre of the cavity at a height of about 44 ft. above the level of the permanent way. Timbering and excavating were then very carefully continued down both sides of the drifts until the pocket from which the material had fallen was thoroughly enclosed, the timbering being braced across to the solid rock. The fallen material was then removed from the tunnel, centres were set, and the arch was rebuilt. The new arch masonry was covered with Portland cement plaster, tarred plates, and rubble masonry, and all cavities remaining above the roof were well grouted. All the work mentioned was successfully carried out, and traffic was resumed after an interruption of less than eight weeks.

The "Arch-  
bishop's House,"  
Westminster.

THE building in Carlisle-place, formerly known as the Archbishop's House, which it was lately proposed to supplant with a block of residential flats, has been taken for purposes of the General Register and Record Office of Shipping and Seamen, upon its removal in the course of last week from the Custom House. The house in Carlisle-place, Vauxhall Bridge-road, was originally built as an institute, with clubhouse and library, for the non-commissioned officers and men of the Brigade of Guards by the officers of the then three regiments. Having been purchased in 1872 as a residence for the Archbishops of Westminster it was occupied during many years by Cardinal Manning until his death on January 14, 1892. The new Archbishop's House, with a diocesan hall and other departments, arranged in communication with the Cathedral, was built in Ambrosden-avenue, Ashley Gardens, by Messrs. Shillitoe & Sons, contractors, after the late J. F. Bentley's plans and designs, at a cost of nearly 40,000*l.*, for Cardinal Vaughan and his household, who removed thither from Carlisle-place about eighteen months ago.

WE read that the Fort de Nieulay, Calais, has been sold by the municipality for 1,800*l.*

to a purchaser who is about to demolish the southern portion and build a château on the site, whilst he will preserve the moat, bastions, and postern works. Until Philippe, Count of Boulogne, built the fortifications around Calais in 1224, the town had for its sole defence the two towers erected in 997 by Baldwin IV., Count of Flanders. The old Fort de Nieulay, guarding on the land side the approach from the marshes, is situated on the road to Boulogne, about one mile to the south-west of the citadel in the town. Together with the Fort de Risbank on the side of the Dunes, and protecting the port at a point distant half-a-mile north-eastwards from the citadel, it played its part at the times of the investment of Calais by Edward III., who established his headquarters near the bridge of Nieulay, and at the subsequent recapture of the town in 1558 by the Duc de Guise.

Royal Academy  
Lectures.

It will be interesting to hear what Professor Aitchison has to say at his next lecture to the students of the Royal Academy upon "Metallic Architecture." The first of the series, on Tuesday last, was in praise of architecture as a fine art, its place in the education of intelligent people, and the emotions that it inspires, good or bad, according to its quality. The Professor claimed a future for iron architecture, but, we thought, struck a false note in his admiration of the Crystal Palace. He, of course, referred to the difficulties of the material, its expansion and contraction, its treachery in cases of fire or shock, and quite rightly, in our opinion, deprecated taking the "orders" as models for iron columns. By a number of lantern slides of the wall decorations at Pompeii the lecturer showed forms more in the nature of the material for this purpose. The Professor's remarks, as usual, were illuminated with anecdotes and classic allusions. Some of the lectures will deal with enamelled terra-cotta and colour.



The Fine Art Society.

MR. WILMOT PILSBURY'S art as a water-colour painter moves within rather restricted limits, but he is quite worth making a "one man" exhibition of; more worth than some who have obtained that honour. Among the sixty-seven drawings exhibited here there is nothing carelessly or slackly painted. There is, it is true, little of the poetry of art among these drawings; what poetry there is arises from the impression of the scene itself, not from the realistic manner of portraying it. Yet there is a great deal of beauty among these water-colour drawings; one only wishes that the artist could now and then have "let himself go" a little, but this he will not or cannot do; all is delicate, careful, highly finished, but somewhat prosaic; the minute study of detail, in foreground vegetation and trunks of trees, &c., has to be accepted in place of the broader quality which belongs to the higher school of water-colour art. Nevertheless, there is much pleasure to be got out of the collection, because the artist is quite perfect within his own range; what he wants to do he does admirably; it is not all we want from water-colour landscape, but it is entirely satisfactory and learned within its own lines. Farmyards, woods, and pastures, are represented with great truth of local colour and a fine attention to detail; "The Path to the Village" (75) is so like what one may come across in a country walk; "A Farmyard" so true and complete in its local colour and topographical circumstance; and so with many others. It is not high art, but it is conscientious and careful art, and makes a very pleasant and interesting exhibition. For Mr. Whyte's sketches in Switzerland and the Italian lakes, which form another small exhibition in the same galleries, we confess we cannot care very much; they are in a rather conventional and commonplace style. The two which interested us most are "Samaden, Engadine" (2) and "Gerona, Spain" (8), in each of which a small town, with its picturesque cluster of buildings, forms a foreground to an extended landscape.

At Messrs. Agnew's Gallery in Bond-street there is on view their thirty-seventh exhibition

of water-colour drawings—one of the most interesting which has been seen in London of late years. For these are mostly works of the old school, such as we do not find in ordinary exhibitions. Among them are two Turners of exceptional interest. One of these is that grand work representing Chryses, the priest of Apollo, bowing before the setting sun on the loud seashore; one of the most poetic of Turner's imaginings. The other is not poetic—not in the same sense at least; it is one of Turner's early architectural drawings (28), with little colour—almost a monochrome, but a perfect specimen of architectural illustration, showing what an architectural draughtsman Turner was before his genius beckoned him to higher things. It is called in the catalogue "Glastonbury," but Glastonbury is not; what ruins it really represents, however, we are unable to suggest. Another splendid early Turner, of the "brown period" (as it may be called) is "Rothaite Bridge, Borrowdale" (30). How did Turner find time to produce all these masterpieces, which meet us in one exhibi-

tion after another? Certainly the estimate of one of his biographers (we forget which) that he had left an important drawing or picture for every day of his life, can be hardly exaggerated. Several fine specimens of the classic work of Barrett are to be seen; various works by De Wint; David Cox's "Welsh Funeral" and other examples—some of them rather too "blot-tesque" in style; while specimens of Copley Fielding and Duncan remind us agreeably of a school of water colour art which, with all its gifts, is *passé*, because its makers went to their inner consciousness rather than to nature. Prout, too, "statuomnis umbræ" in this collection; he had his value, and a high one on occasions, but who can now care for his "Church Porch Rouen" (34), with its brown architecture and highly-coloured figures? Yet it is interesting for the sake of old times, when people believed in this kind of thing. Girtin, with his limited palette, shows well in the "Water-mill" (51); "Canterbury Meadows" (70) reminds us that at one time Sidney Cooper could really paint cattle; and W. Hunt's "Hedge Sparrow's Nest and Apple-blossom" (84) reaches the sublime of still-life painting. T. B. Hardy's sea-pieces remind one of a good artist now nearly forgotten; and Wimperis's "Windermere" shows the survival of the real English water-colour style in an artist of later days, who has only recently left us. There are many other works that we have not space to name, in an exhibition which, taken as a whole, is a pure joy to the visitor.

#### THE "FOUR SHOPPES" AND "QUEST HOUSE" IN ST. GILES'S, CRIPPLEGATE WITHOUT.

THE house over the gateway (1660) of the churchyard, Nos. 1-4, and the adjoining Quest—or rather, Inquest—House are now being demolished, the Corporation having bought the property for, it is said, 19,000*l.* for the widening of Fore-street, Cripplegate, on the south side. The buildings, albeit a menace to the safety of the church, and blocking in two of the north aisle windows, formed the picturesque group, of which we published Mr. Roland Paul's drawing on March 30, 1901. The middle block had retained its wooden gabled frontage on the south side, close against the church, but the north front had been modernised and covered with stucco. That block, Nos. 1-4, consisted of the "four shoppes," as they are called in the Ward accounts, which were erected in the "little churchyard" in 1655-6 with a fine of 200*l.* paid to the vestry on a lease of some parish property in Sugar Loaf-court; the building cost for carpenter's work 80*l.*, for bricklayer's 24*l.*, and for plasterer's 17*l.* The rents of 6*l.* a piece were allotted to providing "grayshutes and coats" for forty poor children—as we read in Mr. J. J. Baddeley's "Account of the Church and Parish," 1888. We do not find, however, any mention of the houses, or the fund, in the complete and detailed history of all the charities, gifts, &c., belonging to the parish, compiled from the Commissioners' Reports and published in 1830. St. Giles, Cripplegate, possessed many endowments for gifts in kind to the parishioners.

Adjoining the "four shoppes," on the east, stands the Quest House which is thus named in a lease from the vicar dated April 22, 1582, as well as in an arbitration settlement of that same year, and in all likelihood is identical with the "Common Hall" cited in a deed of conveyance of 1564. By that instrument William Rylandes, of Folkestone, and his wife, Agnes, widow of John Rogers, late Surveyor to the town and works of Calais, exchange the Common Hall of St. Giles for 100 acres of marche ground in Lydd and Browne, or Prome, Hill, in Kent and Sussex, to Arnygell Wade, of Belsays, Hampstead, and his son William. Three years afterwards Wade

grants the house to James Pilkington, Bishop of Durham\*. Investigations made in 1682 proved the title to the Quest House and the "four shoppes" to vest in the vicars, who leased the former for a business office of the Ward, and for the meetings of the eighteen or twenty Inquest men who there kept their "great chest." The ownership by the vicar appears to have been an obstacle against various projects for removing the property as obstructing the highway. But several structural alterations were effected during the eighteenth century. Until the rebuilding of the Quest House in 1811, the Quest room, "one pair of staires high," had but one window—*teste* an old print; there were two windows in a line above the archway leading to the north porch of the church. On the arch was a figure of Time between two hour-glasses. The roof was high pitched and tiled. In 1811, the entire front was pulled down, and the elevation was set back to widen the footpath; a new plastered facade in a debased Gothic style was built; the roof was raised and slated. In his "History of London," Vol. III. (1828), Allen writes that the present house was erected in 1811 on the site of the "old frame house" mentioned in his "Londinium Redivivum," 1803, by Malcolm as being, he thinks, "as nearly as ancient as Edward VI.'s time." In 1811, two rooms in the basement were converted into a house for the Watch, and the ground floor was assigned to the vestry clerk for his offices. In 1805 the Inquest men presented to the Vestry sundry pieces of their plate, including a brown tobacco dish, having silver feet, given to them in 1568. In the Quest House were preserved a valuable collection of views, prints, portraits, &c., relating to the parish and its worthies, amongst them being the plans and elevations of the almshouses, since removed to Tottenham, founded in 1780 (in Jacob's Well-alley, Barbican) by Alderman Sir William Staines, elected Lord Mayor in 1800. In 1704 the Vestry ordered the demolition of one of the little shops that abutted against the church eastwards from the Quest House. In June, 1757, they obtained a licence from the Dean and Chapter of St. Paul's, as ordinary and patron of the living, to pull down the rest of those little shops. They applied the proceeds, 49*l.* 7*s.*, of the materials to the building of a small room on that side of the Quest House and of the dwarf wall, and railing beyond, depicted in Mr. Roland Paul's drawing. In front of the big gate (which will be preserved) opening into the "lower churchyard" formerly stood a conduit-head of water conveyed from Highgate. The gate and the adjoining engine-house were built in 1660; in 1775, a new house for two engines was erected in the churchyard near the church tower.

#### THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE usual fortnightly meeting of the Royal Institute of British Architects was held on Monday evening in the Meeting Room of the Institute, No. 6, Conduit-street, Mr. Aston Webb, A.R.A., President, in the chair.

##### The Death of Mr. Penrose.

The Chairman said his first duty that night was a sad one, for he had to announce the passing away of a great man and member of their profession, Mr. F. C. Penrose, who died the previous day. It was naturally the desire of the Council to approach the Dean and Chapter of St. Paul's with a request that the body of their late surveyor of the fabric might be laid in that building; but they understood from Dr. Penrose that it was the wish of the family, and was also the wish of the late Mr. Penrose himself, that he should be laid in the church near which he lived at Wimbledon, by the side of his wife, who only predeceased him a few days. They therefore proposed to respect the wishes of the deceased and his family, and not to approach the Dean upon that point; but they hoped in due course that they might see a memorial on which erected in that building upon which for so many years he bestowed so much loving care. It was hardly necessary for

\* Armagill Waad, or Wade, whose voyages gained for him the title of "the English Columbus," was in 1540 Clerk of the Council at Calais, and in 1569 had a grant of the salt marshes near Lydd and the mouth of the Camber. He lived at Belsize (see the *Builder's* of December 11, 1895, with illustration), and was buried, 1568, in Hampstead (old) church.



him to say anything in reference to their past President. Mr. Penrose was born in 1817, and was therefore in his eighty-fifth year. Many of them would remember that only a few weeks ago Mr. Penrose stood in that room and gave them a most interesting paper on "The Evolution of the Volute in Greek Architecture," and he seemed then as full of interest as ever in a subject which had interested him all his life. It certainly was not his (the speaker's) intention that night to enter upon any general details of Mr. Penrose's life and work, for that would be better and more worthily done later on by a notice in the *Journal*. He must, however, just remind them what a wonderful, many-sided man he was. He was a Winchester and Cambridge man, and took a most excellent mathematical degree; and not only that, but he rowed in the University boat for two years. Besides that, when he came into practice he erected many buildings, one that he (the Chairman) had often noticed and admired being the Choir School at the back of St. Paul's. Mr. Penrose was made surveyor of the fabric of St. Paul's Cathedral, and was also one of those selected to prepare a design for the alterations in the National Gallery. In addition to that he was a man of a scientific and analytical turn of mind, and produced one or two books which certainly would live as long as interest was taken in ancient architecture. His "Principles of Athenian Architecture" was the principal work, in which he pointed out many refinements of Greek architecture which he (the speaker) believed had not been thought of until his minute and careful researches were made. Mr. Penrose was also a great student of astronomy, he wrote "A Graphical Method of Predicting Occultations, Stars, and Solar Eclipses," and this also led him into researches as to the Orientation of temples, and one of the last things in which he took an interest, and was full of up to the last few weeks of his life, was the Orientation of the Druidical remains of Stonehenge, and he carried out but a short time ago a large number of most careful researches with Sir Norman Lockyer on this subject. As a man they all knew him, and they all respected him, and they all loved him very much. He had a power of intellect and a simplicity of mind which were a constant delight to all with whom he came in contact. No one could meet him without seeing that wonderful simplicity of character, accompanied with very great energy, which Mr. Penrose had. He received the Royal gold medal, and acted as their President for two years late in life, and performed all the duties without flinching, and those duties would be very exacting for a man at his time of life. For many years, as many of them would remember, he attended the annual excursions of the Architectural Association. Those excursions took place with young men, and Mr. Penrose was by far the senior to most of them, and yet he always seemed to be one of them, although never would it have occurred to any of those young men to in any way have taken any advantage of his presence amongst them. He entered into the sketching and into all the enjoyments of the meetings, and to those who went to those excursions some of their pleasantest recollections would remain of that great man, Penrose, who attended them and sketched and played and worked with them. With these imperfect words he merely asked them, as he was sure they would do, to most sincerely pass a vote of condolence and sympathy with the members of the family who were left. There was his distinguished daughter, Miss Penrose, the principal of Holloway College, and also his distinguished son, who was a physician at St. George's Hospital. The Council had already passed the same resolution, viz., one of sympathy and condolence with the family on the great loss they, the profession of architecture, and this Institute had suffered.

The motion was carried in silence.

Mr. Basil Champneys, B.A., then read a paper on "The Planning of Collegiate Buildings," of which the following is an abstract:—

The author said he proposed to treat of such types of collegiate architecture as could be dealt with by one with such authority as practical experience might justify. Briefly touching upon the archeological aspect of the subject, he referred to the changes of custom which had served to modify the standard set up by the old builders, and to the different conditions now to be provided for. When the

old buildings were erected, students entered on their University careers at a much earlier age than now; the standard of expense, too, was very much lower. Nowadays the University is considered the privilege of the more wealthy; formerly it was designed for all who had sufficient ambition or enterprise, and offered every facility to those who were prepared to face poverty and hardship in the pursuit of mental training. While the change in the age of the students revolutionised the arrangements of rooms, the increased size and scope of the colleges afforded occasion for larger and more comprehensive schemes of planning, and made effective grouping of the buildings possible. The great increase in size opened the way to the development of collegiate planning on an extensive scale, and suggested the type which nearly all existing colleges to some extent illustrate—the grouping of the buildings into one, two, or more quadrangles of rather low buildings (in the original colleges there were never more than two floors and an attic), from which the special and more important features, the chapel, the hall, and the library, stand out as salient features.

The lodgings of the president, warden, principal, or master, were usually included in the general grouping, and are seldom distinctive features in the older college buildings. In the present day the head of the college usually requires a more sumptuous abode, which must become an important item in contemporary college architecture; while the fact that many of the tutors and fellows are now married will also serve to complicate the future of collegiate grouping.

For the students' rooms the general arrangement was almost invariably as follows:—A staircase, entered from the quadrangle, led to rooms on either side, and, as there were three floors, opened into six sets. This arrangement is usually adhered to in contemporary schemes, and, Mr. Champneys thought, with good reason. In the few cases in which a departure from the ancient type had been attempted the result seemed to be unsatisfactory and destructive of collegiate character. As examples, the author cited Mr. Butterfield's buildings at Keble, where it would have been far more satisfactory had the ordinary rooms been planned upon the old-established system; the new buildings at New College erected by Sir Gilbert Scott about 1876; and a new group of buildings built by Mr. Bodley at King's College, Cambridge. In both the latter instances the fourth story, which the author had considered subversive of collegiate effect, had been, he believed, forced upon the architects largely, no doubt, from motives of economy. There was, however, no economy secured by this piling up of buildings. He had tested the comparative cost of buildings of two, three, or more stories, floors of moderate height, was definitely more costly for the same accommodation than one of three; but four or more floors were not more economical than three.

The old system of college planning needed but few modifications to bring it up to date. A few practical requirements consequent on the change of custom have to be met. It is essential that living-room, bedroom, and cupboard or "scout's hole" or "gyp-room" should be independently accessible, though there is some advantage in having a door between the sitting-room and bedroom, as it allows the bedroom to some extent to benefit by the sitting-room fire, and enables the occupant to obtain more breathing space at night. The "scout's hole" or "gyp-room" need be little more than a mere cupboard; one of the most modern ideas is to provide for a group of rooms a kind of general "scout's hole" or pantry, with a sink and gas-stove, &c. These are the principal points in which a modern set of rooms differs from the ancient type, which, on the whole, has vindicated its claim to be applied to modern schemes as the best and most economical arrangement.

As an example of the most highly developed idea of a mediæval college, the author cited New College at Oxford, which in its ancient form showed a complete design carried out at one time. In order to realise Wykeham's idea it is necessary to remove in imagination certain later additions which have obstructed the original intention. Chief of these is the addition of a story to the main quadrangle. This raises the buildings to the same level as the gateway tower which originally surmounted them, and also decreases the predominance of the chapel and hall. William of Wykeham

was a great churchman, and his intention was to make the chapel the chief feature of his main quadrangle. The great height and scale still preserves its relative importance, but its predominance over the residential portion of the quadrangle is much hampered by the added story. The marked predominance of the chapel over the adjoining buildings, the cloister, and the tower are somewhat exceptional features in college architecture, and serve to emphasise the ecclesiastical intention of the founder. The same idea is manifest in a college of modern foundation—Keble—which, as a memorial to a well-known churchman, was founded with a somewhat similar view. Other colleges which bear the impress of a specially ecclesiastical ideal are Christ Church and Magdalen at Oxford and King's at Cambridge. In the more ordinary type of college the chapel hall, and, in many cases, the library, are salient features in the grouping, but their relative importance varies very considerably.

A new phase of collegiate life which involves certain modifications of the original type of building is the establishment of colleges for women both at Oxford and Cambridge. Life in these must necessarily be of a more domestic character than in colleges for men, and, if the style of architecture follows the requirement, the result will be something which may be called "Domestic Collegiate." Access to the several students' rooms can no longer be from staircases entered direct from the open air; the approaches must be properly enclosed and the passages warmed. In the building illustrated by the author—Newham College at Cambridge—the deviation from the original type is greater, because the system of the college is that of subdivision into halls, each of which is on the whole complete in itself (a reversion, as it happens, to the original arrangement), the only features used equally by the entire college being the great hall and the library, the lecture-rooms and the laboratories. Moreover, the scheme as it now stands has been developed piecemeal; has started from small beginnings and grown up step by step, each instalment of the group of buildings having been supposed, at the time of its erection, to be the last, until the pressure of applicants suggested a further extension.

Another building referred to as deviating from the original type on account of a change of purpose was Mansfield College, which contains all the features of a college without residence for students. It consists of a chapel, a hall and common-rooms, with the requisite offices, bursar's, and tutors' rooms, a few bedrooms, several lecture-rooms, a large library, and a principal's residence. The author exhibited plans of the building to show how the various requirements had been met.

In conclusion, the author referred to the most modern type of collegiate arrangement, viz., that designed to meet the requirements of elaborate scientific training. To get an idea of the complicated planning involved in a very moderate portion of these requirements, the author advised his audience to read the papers on "The New Science Laboratories at University College, London," read before the Institute in March, 1894.

Mr. W. M. Fawcett, in proposing a vote of thanks to the reader of the paper, said it had been of great interest to him, knowing, as he did, one side of the question. He did not know Oxford as well as Mr. Champneys did, and could not follow all the details there, but Cambridge he knew well. One thing that had ever struck him as rather interesting was that the system of planning the old colleges was taken directly from the old manor houses of the date, and they had kept up that character. They had the court with the buildings grouped around it; they were never conventional buildings, but were always taken from the manor houses of the domestic character of the time. So long as buildings for men were to be erected, these arrangements seemed to be universally accepted and worked up to even to the present time; but when changes came, as Mr. Champneys had mentioned, and colleges for women were erected, a totally different character had been taken, and instead of taking the mediæval manor houses as a type, they had taken the modern large house. The hall was part of the house, and the rooms were grouped around it, and the offices branched from it, and they had



taken the luxury of the modern house instead of the austerity of the mediæval one. Mr. Champneys had brought that out very well, and it had struck him (the speaker) many times. Nearly all the absolutely new colleges had been built on that line.

Mr. W. D. Caröe, in seconding the motion, said he was sure that those who had seen Mr. Champneys' works at both Oxford and Cambridge must feel that he had carried the charming feeling that there was in that ancient architecture connected with their colleges even a step further than his predecessors. He happened to be at Cambridge at the time Mr. Champneys was erecting the buildings he had referred to at Newnham, and it was a great delight to see them growing. A year or two ago he paid a very interesting visit to Oxford, and he felt very much the same when he saw the buildings of Mansfield, and those charming buildings Mr. Champneys had erected at New. He had listened with very great interest to the remarks upon the gyp rooms, having learned that the old type were certainly not quite up to the desire for modern luxurious comfort which, perhaps, one at the age of an undergraduate was too apt to enjoy. He believed it was the case that in more recent planning the single gyp room communicating with the whole staircase had been almost entirely adopted, and he was sure with advantage not only to the undergraduates but also to the bed-makers. He had consulted these estimable ladies from time to time, and had been assured that the amount of running about was very much decreased, and that there was possibly a great deal more cleanliness. Mr. Champneys did not go so far as perhaps some of them might have liked to have heard in connexion with the more modern Universities which were of such an entirely different type to the ancient ones. With regard to them one could not help feeling that one ought to look in University buildings not only for a fine and convenient type of planning, but for a continuation of that admirable level of architecture which the ancient builders had left to them. He was not sure that that had always been realised in modern work. He did feel very strongly indeed that if there was one place where architecture of a noble and dignified and, at the same time, simple type might be looked for, it was at the Universities which were growing up in our large towns. They were looking forward with no little anticipation to the great university their President was about to create at Birmingham. That building seemed to him to have great dignity and quietness, and at the same time that flavour which belonged essentially to this modern time, and was in no sense a copy of the past, and precisely that flavour the mediævalist would have given to it if he had remained down to this day. One of the great difficulties, of course, which had been mentioned in connexion with modern universities of that type was the difficulty of site and the expense connected with it, and therefore, more or less, he was afraid it must be the case that the buildings might have to be carried to a greater height than one would wish; but he was very glad, indeed, on that account to hear Mr. Champneys tell them that beyond three stories there was really not much advantage with regard to the cost.

The Chairman, in putting the vote of thanks, said he was sure they were very much obliged to Mr. Champneys, who had had so much experience in work of this sort, for coming down and reading the paper. It was the man who had had experience in the special work upon which a paper was read whose opinion they valued. The particular quality which they so much admired in the ancient collegiate buildings, he was afraid, was a thing of the past. Many of them who had opportunities from time to time of building in a University town dare not do anything but endeavour in a quiet way to follow that great example of beautiful work which they saw surrounding them in those towns. Certainly they had no right, he thought, to impose themselves more strongly on those towns than they could help. At the same time he could not help feeling, must he say, a certain pride when he went both to Oxford and Cambridge to see how well the modern work did tone down and did stand in comparison with the ancient. It was a most difficult thing to do, and yet he did think the modern architect had, to a great extent, achieved it. Mr. Caröe had referred to Mr. Champneys' work at Mansfield College and elsewhere, which certainly

appeared to him to meet that requirement. There were many other modern buildings in Oxford which they could all mention—the additions to Trinity and Brasenose; the schools there and the additions to Magdalen. Nothing, he thought, could be more delightful than that and many others. And at Cambridge, again, they had the additions at Peterhouse, Christ's, and Pembroke, and at King's, which Mr. Champneys had referred to, where he must say he thought the difficulty of the extra story had been got over uncommonly well, and many other buildings there also. Just now he had to go to Cambridge, and it was always a delight to go to the other side of the river and see the gable and new portion of King's, which went down to the water and up to the sky. The difficulty of the tall building was seen, but it had been successfully and charmingly met. Architects seldom congratulated themselves, but he really thought they were entitled to a little bit of congratulation for many of the buildings that had been erected at Oxford and Cambridge in modern times. He was afraid that, coming to the new universities in their towns, it was absolutely essential to depart from that type which they all admired so much in the older cities. To begin with, a large number of the modern universities are not residential at all, and that, of course, at once sweeps away a great deal of that quiet domestic work which adds so greatly to the value of the semi-public buildings which are interspersed amongst them. Nearly all the great modern universities are non-residential. Then, again, unfortunately in a great many of them the chapel is absent, and that, of course, was a great loss of opportunity. He was not speaking, of course, of what they called theological colleges, but of universities; where it was non-residential the chapel did not appear. When it was non-residential the dining-hall formed a very much smaller part of the group of buildings because it was not much more than a lunching place. But, on the other hand, in modern universities the great assembly hall did take a very much larger place than in the older universities. It often struck him as he went through the old ones how very non-conspicuous the teaching portion of the colleges, were both at Oxford and Cambridge. They saw the dining-hall and the chapel and the library, but there was very little to be seen of the lecture-rooms and classrooms, and what could be called the purely educational work of the college. It did not, as a rule at any rate, form a distinctive part of the design of the buildings. But when they came to a modern university, of course it was these class-rooms and lecture-rooms and workshops which formed really the main group of the buildings, and so he thought they would be unwise and would find it almost impossible in any way to attempt to repeat the quiet calm of garden and hall which they admired in the old universities, and they were obliged to attempt to obtain their effect in some other way. The university which had been referred to, which Mr. Bell and himself were now erecting, was a great assembly of huge work shops for engineering and mining and metallurgy and such like things, together with a great hall where the great functions which took place from time to time would be held. The requirements were so different; the needs of the students were so entirely different to that of Oxford or Cambridge that one had to look naturally for a fresh type of building. He did not say, and it was not for him to discuss, what was the best form of education for young men, but the sound of the hammer and the forge was making its way even into Oxford and Cambridge, and in these other buildings there was very little heard except the anvil, the forge, and the blast furnace. But at any rate it was an opportunity for them as architects to develop some distinct English type of university, which he hoped in the future might be carried down as something of interest and worth which had been done in their time.

The motion was carried, and was briefly replied to by Mr. Champneys.

CO-OPERATIVE PREMISES, LANCASTER. — The Lancaster and Skerton Co-operative Society are erecting a new block of premises at the corner of New-street and Church-street, Lancaster. The building is Renaissance in style, and the architects are Messrs. Austin & Paley, of Lancaster. It is of stone facings, the stone having been quarried at the Greaves by the builders, Messrs. J. Hatch & Son.

#### THE ARCHITECTURAL ASSOCIATION.

THE following is the conclusion of Professor G. Baldwin Brown's paper on "What is the Real Value of Greek Work to the Modern Artist?" read at the meeting of the Architectural Association held on the 6th inst., and our report of the discussion which followed. The first part of the paper was given in our last issue (see p. 159).

"In Germany they have a very useful substantive 'Tectonics,' by which is meant the philosophy of construction. 'Tectonics' embrace the underlying principles of all constructive art, whether this be applied to the making of a tea-cup and a cabinet or a great architectural monument. An apprehension of these principles belongs of course to every competent architect and designer. There is no mystery about them. Just as in Molière's comedy, M. Jourdain had been talking prose all his life without knowing it, so the practising architect of our own day and country has been carrying out 'Tectonic' principles, without, perhaps, ever hearing the somewhat outlandish adjective. It is well, however, occasionally to disentangle general principles from their practical application, and to study them apart as representing an abstract standard to which all practice has to conform. Greek art is most educational when it leads us back to these general principles that apply to all the various operations of the arts, and it may repay us to consider for a few moments what 'Tectonics' imply, and how tectonic principles are illustrated in the work of the Greeks.

In the first place then the student of tectonics will apprehend the characteristics of different materials, and the methods by which these materials are put together, and will discriminate the forms naturally produced by one substance and method of construction from those that are the outcome of other materials and processes. Consider how many solecisms in design, how many contradictions and inconsistencies, would be saved if these fundamental facts about materials and processes were always clearly before the minds of constructive artists!

In the second place there will follow on the study here recommended a true apprehension of the principles of effective, as well as of sound and consistent, design. There will be an understanding of the value in any complex composition of a base, plinth, or pedestal to give the structure or object a proper stand; of a cornice, cresting, or other crowning feature to provide it with a finish above; of framings of various kinds to give value to particular portions; of mouldings and similar features which assist composition by connecting part with part, and furnishing guiding lines to unify the effect of the complex whole. Here, again, it is a most salutary process, not only for the learner, but for those already immersed in practical operations, to train the mind to get below the special forms, say, of mouldings of the different Gothic periods or of Doric caps or Ionic cornices, down to the fundamental idea of a moulding, a cap, or a cornice in the abstract. The intention and significance of such details in themselves is something prior to the special shapes they assumed in this or that particular architectural period, and there are many students who could sketch the profiles of all the mouldings of the 'styles' in half-an-hour, but who have never really argued out for themselves, as a matter of principle, the artistic functions of the moulding in its general idea as an aid to architectural composition.

In the third place, the principles of the placing and the selection of ornament are corollaries from the more general principles of tectonics. From an intimate knowledge of structure follows discernment of the fitting scheme for the distribution of ornament, the placing of which in its relation to the fabric is one of the most important matters for the designer to understand, while an apprehension of the differing characteristics of materials leads to an instinctive judgment of what sort of ornamental treatment is suitable for each. A phrase just used suggests a word of comment. The phrase in question is 'the principles of the placing and selection of ornament.' It would seem more natural to reverse the order, and to say 'the selection and the placing of ornament,' for to most lay people and to many designers the ornament is a thing apart, that has to be chosen for reasons of beauty or interest or symbolism, and applied later on to the fabric in some convenient position where it will 'go,' or 'come in,' or 'look well.'



If, on the other hand, we regard ornament from the tectonic point of view, we find that it is the placing which is the important matter, and the actual character of the motives a quite secondary consideration. In other words, ornament as enrichment, as the diversifying of a surface with light and shade or colour, is prior to ornament considered as the display of leaves and flowers or beasts or human shapes. Ornament which grows as all ornament should grow, out of structure and material, is primarily enrichment, and not representation. Its representative character comes into consideration only after its place and general artistic effect are properly determined. What, now, do we learn from Greek architecture about the principles of ornament?

In the first place, we learn to keep distinct in our minds two things which in modern practice are often confused—ornament and the detailed treatment of features. By this detailed treatment is meant such things as the fluting of columns, the curving of the echinus, the profiling of mouldings. This is not ornament. The purpose of a detailed treatment of the kind for architectural members is to emphasise function and make clear the relation of parts. It makes the particular feature what Boetticher called an "art form"—that is a member of the structure which receives a special shape and finish with a view to making it expressive of its place in the organism of the whole. So the fluting, the tapering, the entasis, the necking, of the Doric shaft are all intended to force on the spectator the impression of the work the column has to do and its relation to the rest of the fabric. It would be wearisome to attempt an analysis of the various forms used in Greek architecture, so as to show how in each case the general shape and the finish of details were not matters of chance or of fancy, but of deliberate artistic intent. By this, of course, is not meant that they followed any abstract formula, or were reasoned out in black and white as an engineer makes his calculations. The whole process of their creation and elaboration was an artistic one, just as the process of balancing pressure against pressure, and weight against support, in the French Gothic cathedral was one of tact and intuition, and not of formula or figuring.

This significant vesture, in which the architectural forms of the Greek temple were clothed, is something quite different from ornament. Ornament is abundant on very early buildings in Greece, but in the Doric temples of the severe archaic style it is sparingly introduced; while the tectonic details, especially of the architrave and of the necking of the capital, are tolerably pronounced. The mouldings of the early Doric style, especially the undercut hawkbeak moulding, are carried pretty far in their profiling, but the carefully composed contour is not ornament. When at a later time the same moulding is carved into the egg-and-dart or the Lesbian cymation, then there is ornament, but the profiling and the enrichment are, artistically considered, two quite different things.

On the Doric buildings of the normal type, represented, of course, centrally by the Parthenon, ornament takes its place as an important part of the effect of the whole. It is not so important that we can hold with Ruskin that the whole of the architecture of the building is a mere scaffolding for the support, a framing for the display, of the carved enrichment, but we cannot properly consider the monument without taking account of the figures in the pediment, the storied metopes and frieze. And it is one of the most instructive features of this central example of Greek work at its highest point in design and execution, that the placing and the character of the ornament are just as much matters of logical principle as the constructive skeleton. The principle on which the Greeks placed their ornament upon any complex structure, such as a building or piece of furniture, has been so often discussed that one ought, perhaps, to pass it over as something which like the justice of Aristides can be taken for granted. Gottfried Semper, whose work on "*Style in the Technical and Tectonic Arts*" is the Bible of æsthetic principles, as they are understood by the artist rather than by the literary critic, was the first to point out the true relation of ornament to structure as illustrated in the work of the Greeks. There is a well-known aphorism of Owen Jones, in the letter-press to the "*Grammar of Ornament*," to the effect that we are not to construct ornament,

but to ornament construction. The statement is epigrammatic, but, as it stands, misleading. To ornament construction, if it mean to lavish enrichment on the parts which actually form the skeleton or framework of the fabric, is contrary to sound principles, and is quite opposed to the practice of the Greeks. The phrase should always bear a due relation to construction. It is not the fact that construction is to be adorned, but construction is to provide the places where ornament may fittingly be disposed. The Greek practice was to choose for the location of ornament intermediate spaces, or points of rest as they have been called, in the construction, so that the beautiful and significant forms of the enrichment should be displayed where no structural work is being done by the members that form the actual framework of the fabric. In this arrangement there is avoided any conflict in our minds between the impression we receive from the structure and that which comes from the ornament. In any complex whole, compacted parts, one ought to be able to see at a glance what is the constructive function of each of the members that is really essential to the fabric. In the Greek façade this is particularly clear, for the contrast of the supporting members, the columns, with the corresponding horizontal of the architrave takes the eye in a moment. It is the function they are seen to fulfil that gives them their interest for us, and the Greeks kept these parts plain and simple in order that attention should not be distracted from the constructive significance which in their case is all important. The fluting and other details of the column are not, as we have seen, of the nature of ornament, but art forms intended to explain the position and function of the column in the structure. The sculptural enrichment of the Doric temple is practically confined to three positions—the frieze, the pediment, and the acroteria, for the lions' heads along the sima which act as gargoyles are exceptional features, partly tectonic forms and partly ornaments. In the Doric frieze the triglyphs are clearly structural features, short pillars repeating in their upright grooves the fluting of the column shaft below, and proclaiming thereby their function as supports for the third stage of the building, the cornice. The metopes, set back a little behind the face of the triglyphs, are points of rest where no structural work is actually being carried on, and when the eye rests on these there is nothing to distract attention from the ornament which is there displayed. The same may be said of the triangular field of the pediment, and as regards the acroteria, we have in the figures or ornaments exposed against the sky a crowning finish that sits lightly on the mass and is out of all structural relation thereto.

So far of the distribution of the ornament in its relation to the structure.

If now we examine a little more narrowly the character of this carved enrichment, we discern another artistic principle of equal value. Not only should ornament be intelligently related to the framework of a structure, it should proclaim itself a part of the fabric in that it blossoms out from it just at the right points, after the fashion of organic growth. It is from this point of view, interesting to note how recent archaeological discoveries seem to show that the sculpture on metopes and in pediments is not to be regarded as so many statues and groups in the round, independently made and set up in niches or blank spaces on the building, but as reliefs on the surface of originally plain slabs of stone that backed the pediment or filled the intervals between the triglyphs. The earliest metopes from Selinus in Sicily, in the Museum at Palermo, show this, because, though the relief is very high and the figures in part detached from the ground, yet a portion of the original slab is left all round the figures as a sort of framing, and is from the tectonic point of view the most important part of the whole. One of the most archaic of all extant pediment compositions, found some years ago on the Athenian Acropolis, is actually in somewhat low relief on the back wall of the pediment. The frieze of the cella of the Parthenon, save, perhaps, at the western end, was evidently carved *in situ*, perhaps before the stone roof of the peristyle was put on, and is worked on the very stones of the wall. Not only this frieze, the relief of which is very low, but also the metopes and the pediments, which, as we have just seen, are essentially reliefs and not

groups in the round, represent a diversifying of an otherwise plain surface of stonework with light and shade. The representative character of the ornament, the subject of the reliefs, is a secondary matter. The fact that these ornamented portions of buildings like the Parthenon have been abstracted from the fabric and set up in museums as specimens of representative sculpture, obscures their true character. At Palermo the Selinus metopes are properly placed in the museum, set between the actual triglyphs and under the actual cornice of the temple, so that their decorative character is emphasised. The same plan is adopted in the British Museum in the case of some smaller monuments, but the Parthenon sculpture is not tectonically shown.

The architectural monument represents, of course, the most important application of tectonic principles, but these same principles apply equally to furniture, to vessels and utensils, and, indeed, to everything which is made up of parts. There is always in regard to these objects a suitable or an unsuitable general shape; a right and a wrong way of putting the parts together; an opportunity for making the structure look clear and firm and serviceable, or mixing the whole thing up in a meaningless tangle. There is always a fit place and an unfit place for the display of ornament, and a correct and a mistaken character for the ornament to take. Moreover, the decorative painter and carver; the designer of coins, medals, and postage-stamps; the embellisher of books; and, indeed, the embellisher of every branch of his work, would find the advantage of a thorough grounding in the principles here called by the convenient term "tectonic." A course in tectonics should form, I venture to think, a fundamental part of every scheme of artistic education, whether for architecture, for sculpture, or for the various decorative and industrial arts. A student who has obtained a grip of these basic principles would gain enormously in directness of vision in regard to his general aims in his work, and would be saved from many tentative experiments and from not a few blunders.

The best work of the Greeks from this point of view is to be found in their stone buildings and in their gold jewellery. The painted vase, which is often regarded as one of the most characteristic Hellenic products, is in some of its aspects the exception that proves the rule. In its general shape in relation to its use, in its structure and the fitting together of its parts, as well as in the surface texture and quality of the glaze, it is one of the best products of the kind in existence, and in these aspects cannot be too often studied. In beauty of simple lines the contours of Greek vases of the fine periods are unrivalled, and the proportions and finish of foot and lip and handles are a model to all craftsmen. In two respects, however, these vases invite criticism. They are not frankly ceramic. Fashioned as they are of clay, they are far too often found trying to masquerade as metal. The influence of the bronze vase of the time on the clay one was very great, and was destructive of its original ceramic character. In certain curious features of the decoration, in the treatment of the black glaze, and, above all, in the thinness of the fabric and occasional wiriness of the handles there is betrayed a distinct effort to imitate the nobler and costlier material. Again, the choice of the style of decoration is not a fortunate one. The vase painting, representing always some figure scene for the most part of mythological import, though interesting in itself, is not a suitable form of decoration for the rounded body of the vase. A surface that recedes from the eye in every direction is not fit for the delineation of the human figure, as the parts are necessarily put out of due relation, and some disappear altogether over the horizon. As a ceramic product—that is, a glazed fabric of opaque clay—the Greek vase, though perhaps better as a whole than the over-praised Italian majolica, is much inferior to many coarser, more freely treated products, such as Hispano-Moresque or Persian lustre ware, in which the genius of the materials is the dominant factor, and substance, shape, colour, ornamental motives, texture, are all conditioned thereby.

Greek goldwork, on the other hand, is unrivalled for its simplicity and purity of style. It stands exactly at the opposite pole to the fashionable jewellery of modern times. In the latter the precious stone is all in all, and the setting of so little artistic account in itself that



it is changed at will to meet the vagaries of fashion. In the Hellenic work the precious stone is non-existent, any touch of colour desired being added in enamel pastes, and the artistic handling of the single material of ductile gold gives all its value to the product. Not only is the workmanship, as Castellani testifies, unapproachable by the modern craftsman, but the chasteness of the forms and the elegance and distinction of the ornament are beyond all praise.

The Greek coin is not a tectonic product, in that it is not put together of separate parts. As a model for style and treatment it is, however, in its own way supreme. Greek coins in their artistic aspects have never been sufficiently exploited as educational media. Whether as originals or in electrolyte reproductions they are too small to be seen properly by more than one or two persons at once. Furthermore, there is so much archaeological lore connected with them constituting an abstruse science of numismatics, that their purely artistic interest has been a little lost sight of. Some means of reproduction are needed that shall exhibit the design enlarged in scale to at least 3 in. in diameter. A couple of hundred selected Greek coins exhibited in this scale would be found to furnish an almost inexhaustible series of artistic lessons, in composition, in treatment of relief, in distribution of details, and in conventionalising of natural forms to suit the exigencies of space. The inventiveness of the Greek designer in his variations on some established type is inexhaustible. A single type, like the horse on Corinthian coins; the figure riding on the dolphin on those of Tarentum; the female head on the obverse, the four-horse chariot on the reverse, of the pieces of Syracuse—all appear in scores of examples, no two of which are the same. The dies of Greek coins were continually being renewed, and it is the rarest thing to find among existing specimens of coins any two that have been struck from the same die. Every time a die was cut the type, though remaining essentially the same, was varied in composition and details, and each modification seems happier than the last. The modern designer should regard these exquisite specimens of his art, not as archaeological curiosities, but as fresh and spirited creations, animated by just the same qualities as he would himself wish to secure in his work, and, regarding them in this way, he will find in them not only technical guidance, but also inspiration in the higher operations of design. For it is not only in composition and treatment that the Hellenic mint-master is so successful. He is just as distinguished for the felicity with which he conceives his expressive and suitable designs. The Greek coin differs from the painted vase and the engraved gem, forms of Hellenic art with which it may naturally be compared, in that it remained throughout a thing of use and never passed like vases and gems into the cabinet of the collector. Even in the antique world the vase and the gem had degenerated into the "object of virtu"; the coin escaped this fate, and remained the end and instrument of commerce bound up with the utilitarian needs of the community. Hence the device which marked the coin was never, like the device on the engraved gem, merely fanciful; it was always of serious purport and expressed some historical, commercial, or religious idea intimately associated with the state which issued it. The Greek designer was the master of an artistic shorthand by which he concentrated a world of significance into a single pregnant device. If we seek for a phrase in which to describe his operations, we may say that he excelled in "the artistic wording of an idea in terms of form," and the study of his work from this point of view cannot fail to be helpful to the designer of to-day. It need hardly be said that the work of our own more gifted artists in design is characterised as much by felicity in conception as by taste and skill in the carrying out. It is not work of this higher order which is here contemplated, but rather the mass of everyday design that is not the best we can accomplish, but is turned out in great abundance to supply the incessant demands of the market. In conception the motives of this decoration are often terribly bald and plain-spoken—wholly wanting in that poetic allusiveness that characterises Greek and mediæval design. The motives displayed on the ordinary modern trophy, or theasket to contain the illuminated address or Burgess-ticket, are depressingly prosaic,

and there is room here for some lessons in artistic shorthand, which a study of Greek numismatics would afford.

Time will not allow of any further illustrations from the varied and interesting artistic work of the Greeks, and what follows must take the character of a summary.

An ancient writer has preserved a record which touches with pathetic interest the later history of that Greek colony of Paestum or Poseidonia, where stands the great temple at which we have already glanced. It was in Central Italy, and was an outlying representative of Hellenic civilisation, so that as time went on the native Lucanians of the surrounding territory pressed in upon it, and almost submerged in barbarism its once pure Hellenic culture. It is said that the representatives of the original colonising stock used still to gather together once a year at the festival of their patron deity; in solemn assembly they would pour the wine once more on the unheeded altar, and with sighs and tears would profess one to the other that they were still Greeks.

We have not to lament that we were once Greeks and are in danger of being Greeks no longer, but are in the happier position that we can claim as our own the heritage of Hellenism in virtue of that free cosmopolitanism which permits us to choose from all the past such lessons and examples as we need.

And we need to take over from the Greeks that obligation to absolute thoroughness and certainty in all we do, which, as artists, they so well recognised and fulfilled. Nothing we owe to the Greeks is of greater value than the very high standard they set, both in artistic thought and in artistic execution. Whatever the Greek artist touched he gave to it beauty and significance, and there resulted what the Germans call a "Beseehlung"—a "giving of a soul" to all constructive forms. These possess, in consequence, a distinction, a look of purpose and efficiency, that have secured for them a sort of artistic immortality. They are still with us, and will probably remain a possession of the human race to the end of time. But whether we actually continue to use these forms or not they are abiding standards of form and finish, the value of which as standards will only increase with time. The tendency in modern days to haste and incompleteness of work will grow greater as the general hurry and strain of life increase, and the repose and perfection of Greek work will become more and more precious in contrast.

For, whatever our natural predilections in art, we can never for long keep far away from Greek principles and Greek models. It is the same with artistic thought in general as with the individual artist. After excursions into the alluring realm of the romantic, we return ourselves, and the world of art in general returns, to the old allegiance to the classical ideal.

Classical revivals must necessarily recur as periodical phenomena in the world of culture and of art, for the principle of form was worked out by the Greeks to a perfection never elsewhere attained, and without a discipline in form, renewed from age to age, both literary and artistic practice would become loose and experimental.

The Hellenic ideal of form is a severe ideal; one of uncompromising decision, of transparent clearness, of absolute finish, and we cannot trifle with it. It compels our homage, but it rewards our devotion, and if we approach it in the right spirit it will inspire our ideas and sustain our practice.

Professor Beresford Pite, in proposing a vote of thanks to the lecturer, said they owed him a debt of gratitude for his important and interesting paper. The paper opened a field of thought which few of them would have time to explore. Professor Baldwin Brown had brought to bear upon a large subject with which they were more or less acquainted a new frame of mind of philosophic habit of thought, and the paper had been very interesting indeed. There was a great deal in the paper which he ventured to think afforded ample ground for discussion, for it seemed to bristle with questions the debate of which, probably, would not give much of an answer to the initial question (which, no doubt, Professor Baldwin Brown wished them to discuss)—i.e., What is the real value of Greek work to the modern artist? The lecturer had not truly estimated—he (the speaker) said so

with diffidence—the action of time upon Greek buildings. He (the speaker) had had the opportunity of a short visit to Greece and confessed to very considerable disappointment as to the effects of the hand of time upon the buildings. Of course, it was time plus Turkish gunpowder, but the ruin of the buildings seemed to him to be, in every case, pathetic, and seriously to detract from their artistic value. The idea that any added value was given to Greek buildings by the loss of the statuary was an absurdity, and as Professor Brown said the accuracy of finish and completeness of idea of Greek work was one of its greatest charms; it at once put it in a different category from all that class of buildings which appealed to us because they were old. Greek work had never been in that category. There was a great deal of home work which was beautiful and which we try to sketch which could not be separated from the charm that time and vegetation gave to its forms. He thought that practically we could not get much real good from the study of monumental Greek architecture unless we are considering monumental design. If we have monumental buildings to design, Greek buildings become of very great value to us owing to their monumental character, and the Greek buildings which survive are mainly if not entirely monumental. When we come to monumental expression, the column and lintel order, were primary elements of impressiveness which we fall back upon very readily, and as such the careful and experienced adjustment of column to beam, of column to intercolumnar span which the Greeks arrived at, was of great value to us; but as practical architects and designers, the real value of Greek work would have to be what remained of it apart from its temple, or columnar, architecture. The Greek mind was a very narrow one, architecturally—perhaps the architecture was so perfect because the mind was so narrow. The quality was limited—it was limited almost entirely by the column and entablature. Remove the column and the entablature from the Parthenon and there was very little left that was of practical use to us. The Greek practised the peristyle and applied it in his propylæa and in his agora; what else he did we do not know, for very little else remains, though that little was important and interesting. There was that delightful Tower of the Winds at Athens, and the imaginary Greek house which we can construct now somewhere between Knossos and Pompeii; but apart from scrappy ideas and suggestions of that sort there was very little that was of practical use to us now apart from monumental design. Looking into the whole subject of monumental design in Greek art, we find still the same narrow view and still the same hardening influence of the temple form of architecture. The Greek seemed to be unable to think of ornament apart from architectural space. In Professor Brown's view that was a virtue; in his (Professor Pite's) it was equally a virtue and a fault. Who, for instance, did not seriously and solemnly regret that the exquisite east and west front sculptures of the Parthenon were cribbed, cabined, and confined in the awkward angles of pediments? The way the sculpture was grouped was masterly, and the scale was masterly, but he thought they would all prefer to see that sculpture free from the confining lines of the pediment—as seen within the cella the free lines apart from the architecture. This idea becomes inevitable when we consider the pan-Athenaic frieze; and he was interested to hear that that frieze was part of the wall structurally, and in view of that he should go to the British Museum to see how Lord Elgin had been able to take it down. The suggested application of tectonic principles to that frieze was a difficulty. The frieze was a beautiful work—a supreme work of the sculptor's art, but architecturally placed in a vastly unsuitable and uninteresting position. It was placed close up against the heavily coffered soffit of the peristyle, and it was broken at all points by the columns. It was no doubt in a beautiful light, but not sufficiently perfect position for such a work of sculpture, and quite incapable of being seen in relation to itself. One could walk along the peristyle, of course, but the frieze is overhead and the eye could not reach it. Apart from structural tectonics, it was not architecturally pleasing, and was an illustration of the narrowness of the Greek view, and his inability to get free and to deal



easily with the blessings of ornament for ornament's sake—the sculpturing of ornament upon a building. As to the Greek windows, surely what Professor Brown said must have been due only to the fact that buildings with windows have departed this life. The Greeks dwelt in houses, they exercised municipal and social life in very much the same circumstances as the Romans of later times, and they must have had windows just as the house must have had doors; and what he would imagine and hope to find in such buildings was the same exquisite refinement of feeling, the same delightful adaptation of moulding to material, the same crystallising of architectural form to design in their houses, and buildings of that kind as we find in the temples. They would have been the last people to use porticoes to dwelling-houses, and to build country seats on the plan of the Parthenon, as Wilkins did in a celebrated house in Hampshire. Professor Brown had treated them to a delightfully romantic and poetic description of a Gothic cathedral at night, but would it not be equally romantic applied to the Temple of the Vestal Virgins at Delphi? A far more ravishing picture could be imagined by Professor Brown if he ventured to introduce the mysteries of Greek mythology into such a subject; the picture would be more than romantic, it would be idyllic. But mediæval architecture was altogether—might he say more fully than Greek architecture—governed by tectonics. There was less room for romance and ideal treatment in a Gothic cathedral than there was in the Greek temple. The study of the perfect Gothic church from its embryonic condition to its perfection showed, as was seen in the French cathedrals of the thirteenth century, the tectonic principle fully developed—the principle of sound construction, of necessary sound construction, without which the building would not stand, coupled with the artistic expression of that safety which was the secret of all the mystery and charm of the Gothic nave, chevet, and aisle. If we try to analyse the effect which any building produces upon our minds, we should find it was due to far more than an effect of light. In trying to get an idea of the effect on us of the beauty of a Gothic cathedral we found it was due to the vault, the vault, and the vault again, and the masterful way it was carried over our heads out of sight and to its engineering skill—that was the charm of the Gothic cathedral, it was ordinary, every day, tectonics. He was afraid that with Greek vases, as with pretty girls, their form justified their existence, and they were sufficiently sweet for us to love till the end, whether they borrowed from a metal art or not. And as to the figure decoration, that was sufficient to justify the method of treatment. It was treated wholly as a flat surface decoration; and it would be a pity to reject a form of art which one felt was refined and which employed the figure—the most delightful and charming object which the mind could appreciate. As to Greek coins, he could only suggest that members of the Association should go to the British Museum and show their membership cards and see the collection there. The keepers, some of the best Greek scholars in the land, would, if anyone had an introduction, take out trays of coins and explain them and show their great beauty. For 2s. 6d. a delightful handbook could also be got at the Museum containing a beautiful collection of collotypes of the coins.

Mr. H. H. Statham said it gave him much pleasure to second the vote of thanks to Professor Baldwin Brown for a most interesting and thoughtful paper, which might be not without its effect on practical work. At the commencement of the paper he (the speaker) had been reminded of a sentence used many years ago by a former President of the Association (now, alas! dead) who, in a letter to him, said, "Don't you think the Law Courts is the grave of modern Gothic?" Professor Brown referred to the very different spirit in which we regard Greek and Gothic now compared with what we felt a quarter of a century ago. The next point the paper suggested was: are the Classic orders practically essential parts of architecture, or are they things which we can ever think of throwing away? He had almost come to the conclusion that we shall never get rid of those orders, and never really be able to do without them. Although the Classic order was not founded on nature, it seemed to him that we could regard it as a form of designing a supporting feature in a

building in somewhat the same way as we regard the arrangement of words into verse. If we could get out of our minds all notion of poetry that had ever been written, we might imagine that the human race might have expressed its ideas in some other artistic form, though we could not tell what; but as it is, verse and metre have come down to us as the way in which to express our more elevated and impassioned thoughts. We could not throw that means away, though Walt Whitman endeavoured to do so in his prose-poetry, which was interesting in a way because Walt Whitman was a man of genius; but his form of verse would not supplant the old stanza form. He thought it was the same with the Classic forms in architecture; although they were the creation of man, they were really so suitable and perfect that the world had not known how to invent anything better. He did not mean that we should copy the classical order in detail, but the general form had so impressed itself upon the mind of the architectural world that we could hardly get rid of them if we tried. When he heard Professor Pite charge the Greeks with being narrow, he thought that we ought to remember that we judge them by their temples, which took one particular form. If they had no variety there, he has no doubt, other developments—the Mausoleum, for instance; and that development was, perhaps, only one of many others, traces of which had now been lost. As to Professor Brown's charming and eloquent description of the mystery and the half-lights of a cathedral, that reminded him of Paul the Silentiary's highly-wrought description of St. Sophia, where he got absolutely poetic in his description of the silver lamps.\* That sort of feeling seemed to belong more to Christianity than to Paganism. But were we sure we understood the feeling with which the Greeks regarded their temples? There was a story told of Thorwaldsen, the sculptor, when he and his friends were sitting on a terrace in Rome admiring the sunset. Thorwaldsen got up and said, with a solemn voice, "Let us drink to old Jupiter." If we believed that the Greeks had a serious idea about their religion—and we could not prove that they had not—why should we not believe that they felt as much poetry in the dim interior of their temples, lighted only from the doors, with the great statue at the opposite end, as we did in our Gothic cathedrals. He believed that the Greek literary man might have written as beautiful a description as Professor Brown had done in his paper. A reference had been made as to the effect of sculpture being more important to the Greeks than the subject, and he thought that was the real explanation as to the frieze of the Parthenon. He agreed with Professor Pite that that frieze was very badly placed for effect if one wanted to see the detail, which was an important thing; but he doubted if the Greeks thought of that sculpture as we do. The frieze was put up just as a representation of the yearly Pan-Athenaic procession round the Parthenon, and evidently the men who put it in position thought more about having a piece of ornament which broke up the surface round that part of the building than they did about the detail of the sculpture. Something had to be put there as a band, and the Greeks chose the representation of the panathenæic procession. That sculpture looked beautiful to us because of the way it was executed; but possibly it did not appeal to the Greeks in the same way, and they may have thought more of that architectural effect. The most important point in the whole subject was the organic perfection of Greek work, and that was the real thing we had to learn from a study of it—not the imitation of any particular form; but the impression one got from the study of it that there was not a single detail that had not been thought out carefully, and which had not a relation to the whole. The ornament and treatment of every detail seemed to be thought out so that the result seemed to be the most perfect way of treating it. In connexion with that, he had been very much struck that afternoon in going round the Arts and Crafts Exhibition, where there were some pieces of very clever, and original metalwork and vases, which seemed to want that logical

perfection which was to be seen in Greek work. The Greeks never seemed to be in doubt as to what they were going to do; and they did not try to trick one by half-finished things, which looked picturesque, but they produced finished work, which would bear examination as the most perfect way of doing the thing. That kind of work required a great deal of thought, and it could not be done in a hurry. He believed that hurry was the bane of all modern architecture; the desire to get a building finished by a certain date did not conduce to the best thought. The important point of perfection in Greek art had been very well expressed by A. H. Clough in his "Dipsychus," where he traced the contrast between classical and mediæval work:—

"Maturer optics don't delight  
In childish, dim religious light,  
In evanescent vague effects,  
That shirk, not face, our intellects.  
They love not fancies lightly betrayed,  
And artful tricks of light and shade,  
But pure form nakedly displayed,  
And all things absolutely made."

That "absolutely made" was an admirable phrase; it expressed that which was complete and did not need improving; and that was what so much Greek work showed, and in that above all it was a lesson for us when we had time and opportunity to take advantage of it. Mr. Alexander Wood said that there were many points in the paper which invited discussion, but that there was only one point to which he desired to draw attention. Greek art had been spoken of as limited, as if that were a fault in it. It was, in his view, of the essence of Greek art that it should be limited. The Greeks must have been familiar with many forms in the architecture of other countries which they deliberately rejected from their own art. There were, again, many things in later architecture, mediæval and Renaissance, not found in Greek. In sculpture they had their own style, not wrought out with sharp strokes and strong contrasts of light and shade. They subordinated their sculpture to their architecture, and we must either accept that principle or condemn them. In the Greek vases the disposition of the figures in the later corrected the awkwardness of that seen in the earlier examples.

The Chairman, in putting the vote of thanks, said the paper was not, perhaps, so much for discussion as for meditation at leisure. The chief point seemed to be that the real value of Greek art to the student was the lesson it taught of thoroughness and of thinking out work to the uttermost detail. This, at a time when there was a very strong school of impressionism, was of extreme value. It had always seemed to him that when a work which relied upon its roughness and want of design and the suggestion of something it was not, was valued, it indicated a vitiated taste. That work which was highly finished and thought out in every detail, and which expressed exactly what was intended and meant by the artist, must appeal very much more to the mind of an educated man than the work which depended upon impressionism pure and simple. As to the value of time upon architectural works, of course, time had a mellowing effect, but the value of that applied very much more to Mediæval work than to Greek work. He had not had an opportunity of going to Greece, but he could quite believe what Professor Brown said as to the passage of time being rather detrimental than otherwise to the buildings of Greece. In studying and making use of the works of the past, as we did, although one represented to a great extent what had gone before, he did not think that that should be regarded as unjustifiable copying. There was great value in association and tradition, and association and tradition in the features of a building added very much to its effect and impressiveness. He was rather inclined to agree with Mr. Statham in thinking that Professor Pite was a little hard in his remarks as to the Parthenon frieze. The effect of it in position must have been extremely good; it must have been in considerable shade, but in that climate there would be a beautiful reflected light on it, and as to its being cut up by the columns, he did not think that would matter at all if one was walking round the building and observing as one walked.

The vote of thanks having been very heartily agreed to,

Professor Baldwin Brown, in reply, said many points had been raised, and they might continue the discussion over a considerable

\* "And whoever gazes on the lighted trees with their crown of circles, feels his heart warmed with joy; and looking on a boat swathed with fire" [a lamp in the shape of a boat] "or some single lamp, or the symbol of the Divine Christ, all care vanishes from the mind."



amount of time. The point that Professor Beresford Pite made about the comparative limitation of Greek work was perfectly true, and that was partly a condition of the excellence of that work. The Greeks in everything limited their world, but they took very good care that they should explore the whole of their world in order to know it thoroughly, and then work all the elements into harmony, and into the most definite form possible. In the normal Greek city of the Republican period the colonnade really served all purposes, and all the structures the people required were combinations of the colonnade. The colonnade round the shrine produced the temple; the open space surrounded with colonnades formed the public place of gathering; the colonnades round the smaller space made up the house—for the Greek house consisted really of colonnades in which people lived; when the sun was hot they took the shady side, and when the weather was cold they took the sunny side. There were no large wall spaces, with doors and windows as architectural elements, and he did not think that was an ancient feature at all. There were holes for light, but the rooms which opened from the colonnades were as a rule very small. There was a window in the Propylæa, but anything like a composition of windows in buildings to give effect to a façade he did not think they would find in Greece. The first use of a wall in this sense was in the Palace of Theodoric in Ravenna, the front of which presented a wall as an architectural feature. The Greek world widened enormously in the later period after the conquest of Alexandria. There was evidence that cities were founded by the Greeks in regions where it was impossible to find the building material they had been accustomed to. The city of Seleukeia, on the Tigris, was a Greek city of 600,000 inhabitants, and was largely built out of the ruins of the brick structures of ancient Babylon. Alexandria, too, was a city where brick traditions existed. It was a lost chapter of architectural history the way the Greeks dealt with the materials they found in these eastern regions, and, no doubt, Greek architecture blossomed out into many interesting forms of which we cannot guess except by referring to Imperial Rome, which was the continuation of Alexandria. He expected that many of the forms we call Roman were really begun in these later Greek cities, whence the Romans gained their idea of monumental splendour. There was a gap in the history of architecture due to the destruction of these magnificent cities in the East. The Greek architectural forms, as we know them, were limited; but they were worked out so admirably that though they might go out of fashion, they would return again. As to the contrast in general impression between mediæval and Greek buildings, he meant what he said in his paper. One received the impression of mystery in mediæval buildings more strongly in half light. The logical consistency, the engineering interest, of the French Gothic cathedral was by no means the only thing in mediæval architecture; moreover, that interest was not always present, and was, indeed, hardly noticeable except in the French cathedrals; there was very little of it in our own cathedrals, but in all forms of Gothic and Romanesque architecture there was a remarkable flexibility and many-sidedness. The buildings were never finished—they could always be added to by the provision of chapels and towers, for instance—and there was always a feeling that the thing might go on—an effect of space opening out beyond space. He had felt this impression more strongly at night than at any other time. We did not know what the interior of a Greek temple looked like, and we did not know how the lighting was arranged, but we did know that when one went into a Greek Temple like the Temple of Zeus at Olympia, or the Parthenon, one was able to walk all round the great statue. There was no corner of the temple hidden: everything was intended to be seen and was seen clearly, in sufficient light for all the details to be explored. He thought that the difference between the complexity and consequent effect on the imagination of the mediæval buildings and the clearness and definiteness of Greek forms (for after the Greek temple was finished you could not add to it—it was absolutely complete) was very great, and was fundamental. The point raised by Mr. Statham as to our impressions of size was very interesting, but it had never been worked out. Sometimes a simple plain thing looked bigger than a large cut-up thing,

but we did not know why [Mr. Statham: I suggested that the detail to the mind was one thing, and different from the appeal to optics.] It was not easy to say in an impression of sight how much was contributed by the mind. The analysis of these impressions was a difficult and somewhat subtle matter. As to ornament, he put forward strongly the architectonic side of ornament, because he thought it was a point often missed. Our schools of art had rather been against our getting a clear idea of the intimate relation of ornament to structure. Ornament under the names "applied ornament" and "historic ornament" was dealt with as if it were a thing in itself, whereas ornament could not be dealt with except in relation to the structure, to which it was related, and out of which it ought to grow. Whatever ornament there was ought to be there because it was wanted there, and not because it could be traced from the pages of Owen Jones. They did not want to place ornament on their buildings unless it grew from within. The Temple of Pæstum had no ornament, and the Church of St. Front at Périgueux had hardly a scrap of ornament. As to the Greek vases, the rounded surfaces were incompatible with a suitable representation of the human form.

The Chairman announced that the next meeting will be held on February 20, when Mr. Silvester Sparrow will read a paper on "Stained Glass."

The meeting then terminated.

#### THE SANITARY INSTITUTE: THE PRESENT SHORTAGE OF WATER.

A MEETING of the Sanitary Institute was held on Wednesday evening last week at the Parkes Museum, Margaret-street, W., when a discussion took place on "The Present Shortage of Water Available for Supply." The chair was occupied by Sir Alexander Binnie, and the discussion was opened by Mr. W. Whitaker, B.A., F.R.S., F.G.S. Mr. Whitaker said he should limit his remarks to "The Shortage of Water." That the shortage existed he did not think would be disputed, but people naturally wanted to know why it was so. Roughly, the reasons were two, artificial and natural, and the artificial reasons were those about which there was most controversy. Water supplies could, roughly, be divided into two classes—the overground, by gravitation works over great collecting areas and with reservoirs; and the underground, by wells and pumping. Artificial shortage was mainly due to pumping from wells. A paper had been given him showing as one reason for shortage of gravitation supply the insufficiency of reservoirs; and naturally, if reservoirs were not big enough to impound the large amount of water in wet seasons which would otherwise run to waste, there might be a shortage when the dry season came; but large reservoirs were very expensive things, and that was a reason why some Corporations and water companies had not increased their storage power quite as much as they might have done. There were some exceptions, and in London we did not hear anything serious as to shortage, whereas we did hear of shortage all over the country. If the companies which have charge of the supply in London had not increased their storage largely as they have done lately, there would, he was sure, have been many complaints. Of course, there had been complaints in regard to some of the London companies, but for some time there had, he believed, been no complaint at all. The difficulties of water supply on the large scale perhaps increase pretty well as the square of the population. With reservoirs large enough, the flood water could be stored, but the case was different with underground water. The lowering of springs and water in wells had been noticed for many years. As to the reasons, it was said that too much water was being pumped up and that the water level in a given area was consequently lowered. In taking a great deal of water out of any watershed, it seemed clear that they must affect the level, but it depended on how, when, and where the water was taken. In the case of a large watershed, whether in the chalk or in the new red sandstone, a great deal depended on where the wells were and how the pumping was done. It stands to reason that with wells near a set of springs, which were as a rule the outflow of subterranean water, heavy

pumping operations would affect those springs, but the result would vary according to the local circumstances. Little springs would be dried up by heavy pumping, and he instanced a case of some chalk springs and a stream being exhausted largely in consequence of some heavy pumping in connexion with quarrying. At first it might be supposed that a water company and some manufacturing works which pumped about 3 million gallons a day above and below the springs and the stream had pumped them dry, but he was inclined to think that if that were all there would still be water, although the supply would be diminished. In order to carry on the quarrying, 7 million gallons a day were being pumped into the tidal river to waste, and deducting, say, 2 million gallons—a liberal amount—for water not being fresh water, there were 5 million gallons being pumped from that water-bearing area in connexion with those quarries and 8 million gallons altogether, and it was only natural that those springs should dry up. That those 5 million gallons a day should run to waste seemed a wickedness, but it could not be helped with the law as it is at present; what was wanted was some public interference, some rule as regards underground water. Whether the nation would nationalise all the underground water and sell it itself he did not know, but something would have to be done. There were cases where there was fairly heavy pumping with very little effect on the supply, and in his experience every case had to be judged on its merits and all the local circumstances had to be considered before it was possible to say to what a shortage was due. There were other matters of importance besides shortage—the fouling of good water, for instance—and he regarded the preservation of water, whether surface or underground, as a very important matter. Pumping in a quarry which was near the salt water was a very risky thing, for it not only drew salt water into the pumping station, but it might draw it into reach of other wells. That was shown in the Mersey Tunnel (which had to be pumped in order to be kept dry), which was in the new red sandstone—a highly permeable bed, more permeable than the chalk, if anything—and there a mixture of half salt and half fresh water was pumped and brought perhaps into the reach of other wells, which thus got more salt than they should. The Severn Tunnel was another case, where 16 million gallons were pumped every day partly to waste. As to natural causes of shortage, they were more widespread than the artificial causes. Artificial causes might be more harmful within a small area than natural causes, but the natural causes were spread over a wider area. In out-of-the-way places, where there was no pumping at all, certain springs almost ceased to flow, and the reservoirs got very low. In Bath there was a shortage of supply of water, and a curious fact had been noticed, i.e., that while the main stream and springs had gone very low, there were a lot of surface springs, which, it would have been supposed, would have been affected, but which ran on pretty steadily. One natural cause of the shortage of water was the decrease in the rainfall. Putting it roughly, we were in the last six or seven years pretty well a year short in rainfall, and that could not be made up unless we established large reservoirs, and even then, if the shortage of rainfall continued, there was no knowing if the deficiency could be made up. There were some favoured places where there were good rain supplies, but they were rare, and over the greater part of these islands there had been for many years a great deficiency in the rain supply. He was inclined to think that disafforestation may have had something to do with this; and, while he was not sure, he thought that drainage may have had something to do with it too. Water was drained from the land quicker than it would be naturally. There might be some other explanation, not so apparent, of this decrease of rainfall. Our rain gauges, although not always placed in the best positions (i.e., on the high ground rather than in the valleys) told us of this deficiency, but he thought that the seasonal explanation (of dry seasons) might be supplemented by what he might call a secular change affecting our climate and rainfall. If we had the records of a good many years past he thought we might find that in long past years the rainfall over a long period—say several hundred years—was on a higher level than it is now. There was one illustration of that, arising out of antiquarian research, which



showed how one science helped another. On an estate owned by General Pitt-Rivers were a great many Roman remains, and amongst them an old well, which was dug out to the bottom only to be found to be perfectly dry. The Romans were practical people and good water-works engineers, and he could not conceive of them digging a well and stopping a few feet short of the water: they would have gone on until they got to the water, and for that reason he thought that in the Roman days there was water in that well. No pumping could have removed the water from that well, and the change had been a natural one. His impression was that in those days there was a greater rainfall over a larger number of years—perhaps due to the larger number of trees existing. It was known that in various parts of Africa and Asia the land is much drier than it used to be a good many years ago, and he thought there was room for inquiry whether there has not been some secular change affecting climate and rainfall, for it had been established that very small astronomical changes might have large climatical effect.

The Chairman, in inviting discussion, said that before long some steps would have to be taken to guard the water-supply of the country.

Mr. Hopkinson referred to the percolation of water through the soil, and showed how much larger it is in winter than in the summer months. As to the decreasing supply of water in Hertfordshire, he said that the companies were reducing the water level in the chalk, but, at the same time, by a natural process, the water had been going down in this county for centuries past. One could not but be struck by the number of dry valleys in Hertfordshire which must have been caused by water. At Hitchin traces of a lake had been found and traces of water-plants. The flora there now, however, is of a kind which flourishes on a dry soil. Large quantities of water are being taken from Hertfordshire by the companies for London, and he thought the time would come when we should have to go greater distances for our water than the Thames basin, to a place where the rainfall is two or three times heavier than it is here. What Glasgow and Manchester had done, London could do.

Dr. H. K. Mill referred to the variations in rainfall. As to secular changes, the variations which had taken place so far as we had knowledge of them were in the nature of spells of weather—now wet, now dry, but no progressive change in one direction. There was a tendency for the effects of dry seasons to be more conspicuous in their action than the effects of wet seasons. He referred to the deficiency of rainfall, and said that the present dry period might be the middle or it might be the near end of the dry period, but it was impossible to say positively. Taking the period from 1865 to 1902, the first seven years show the average rainfall of the whole period. The next fifteen years show an excess, and the following fifteen a deficiency. That meant that since 1886 we are short of our usual quantity by rather more than a whole year's rain.

Mr. Baldwin Latham said there was no doubt that last year and this year there had been considerable deficiency in the underground water supply in the southern and midland districts of England, and the deficiency had been intensified by the large amount of pumping which had taken place. But seasonal fluctuations had always been greater than the fluctuations due to pumping in most districts. According to old chroniclers, in 1539 the river Lea was nearly dried up, and people in the neighbourhood suffered from pestilence; the same occurred in 1662. In recent times the Lea had never been as low as that, although it had got very low in consequence of the great amount of pumping. In 1874 the waters in the North Downs of Surrey were lower than they had been since. As to the deficiency in the valley of the Wandie, that was due to the pumping in London. Some rains were of little use for supplying springs or wells with water, and it was usually the great rains from October to March to which replenishment was due.

Mr. Verney, L.C.C., said he wished to deal with a few certainties. In 1893 there was a Royal Commission, and the verdict of that Commission was that the average daily flow of the Thames at Teddington Weir, adding the water taken by the companies, was about 1,350 million gallons a day. "It will thus be seen," they said, "that when 300 million gal-

lons are taken, there will be left to flow down the tidal portion of the river a daily portion of not less than 1,000 million gallons." Lord Balfour's conclusions did not fit in with the facts. Taking the three months from July to September, 1898, there were an average of 135.8 million gallons a day passing over the weir; from May to October, 1899, there were 235.8 million gallons; and from June to November, 1901, there were 237 million gallons a day. He had before him a diagram showing for twenty years the average of abstraction from the Thames. In 1883 the daily average volume of water abstracted came to a little over 70 million gallons; in 1890 there was something like 90 millions a day taken; and in 1900, 120 million gallons were abstracted by the companies from the Thames, and the last figures he had were 135 or 136 million gallons a day abstracted. They had heard of the uncertainties to which our water supplies were subjected, and the one conclusion to be drawn from that seemed to be that London should have an adequate supply not liable to these uncertainties, and that the water should be sufficient in quality and quantity. London suffered a great financial loss due to preventable disease which came from the shrinkage of water supply.

Mr. C. Beadle referred to the fact that some of our industries round about London were largely dependent upon a copious supply of water. A pamphlet was issued some time ago in which the author stated that he was of opinion that there is an abundant supply of water in the London basin, and that there are at least 1,000 wells pumping on an average of 100,000 gallons a day each. Those figures could not be verified, he was afraid, for there were no records kept. The water companies were pumping, according to their last issued report, about 50,000,000 gallons a day for the supply of the Metropolis; and in addition to what is pumped or removed from the neighbourhood of London, there was also the question of the leakage which takes place; and, altogether, it seemed possible that there was more water being taken or going from the London basin than could reach it from rainfall. Where people had gone wrong in their calculations that there was an enormous amount of water in the London basin was in taking the whole area for supply, whereas that area is available which is not covered by the impermeable beds. Some of the largest consumers of water in and around London were brewers and paper makers, and there were many causes contributing to the abstraction of water of which we had no particulars.

Mr. Douglas Archibald said he believed the present drought would come to an end in a few years—about the year 1905 or 1906—and, according to Dr. Bruckner, of Germany, in his "Variations of Climate," published at Leipzig in 1890, the remaining years up to 1921 ought to be wet.

The Chairman said there were two facts quite apart from theories on cycles of wet or dry years which should be remembered. The Royal Commission presided over by Lord Balfour of Burleigh, in one paragraph of their report said that a great deal of evidence was put before them of a more or less controversial character, and the difference of opinion of engineers and others was very conflicting; but on one subject there was no doubt whatever, and that was that the level of the water in the chalk in London was falling at the rate of 12 in. per annum, according to one gentleman, and 18 in. according to another. In the commencement of last century, when artesian wells were first sunk in London, water overflowed at the level, or a little above the level of the Thames. There was on record a case at Hammersmith where, on the first well being sunk, the water rushed up with such violence as to destroy two neighbouring cottages. At the present time the water level is 100 ft. below high-water mark. Then as to the River Lea. The New River Co. and their predecessors had known that valley as a bountiful source of water from the time of James I. down to the present time. By recent legislation and works which they were carrying out, they were expending over one million of money and going twenty miles to the Thames at Hampton for supplementary supplies to those chalk sources on which they hitherto depended in the Lea Valley. Whatever opinion of the New River Co. we might form, we must give them credit for being far-seeing and astute men of business, and when they abandoned their source of supply for fresh supplies and spent

a large sum of money, it was rather good proof that the water available in the Lea Valley is decreasing, or, if not decreasing, that the point had been reached beyond which they could not go in the way of obtaining more water from the Lea Valley. Another important fact in the Balfour Commission in regard to the Lea Valley was this: the pumping in the lower part of the valley is such that the water level in the chalk is below ordnance datum of the United Kingdom. If that be the case, the surface water cannot be passing down the Lea Valley into the Thames without there is some unknown power at work which will force the water to go up hill against the tidal action.

A vote of thanks to Mr. Whitaker and the Chairman concluded the proceedings.

The next meeting will be on the 11th prox., when a paper will be read on "Sewage Disposal, and Qualities Essential in Sewage Effluents," by Dr. D. G. Reid.

#### ARCHITECTURAL SOCIETIES.

MANCHESTER SOCIETY OF ARCHITECTS. The fifth sessional papers meeting was held on February 12, when Mr. E. Percy Hinde read a paper on "Some Elementary School Buildings." The chair was taken by Mr. J. D. Mould, in the absence of the President. The lecturer pointed out the principles that affected school planning, and showed how the new Code modified largely previous conditions. Plans of school buildings of various types were hung on the walls to illustrate the lecture. Much, he remarked, was to be said in favour of the one-story building if the site would permit of its adoption. In the future the average cost of buildings, he thought, would be greater than hitherto. The subject for the Society's last monthly competition for students was a "Sun-dial." The prize was awarded to Mr. C. H. Potter, and a special prize to Mr. F. Osler. Messrs. A. Maclaren, Frank Dyer, R. J. Vernon, Q. M. Bluhm, and Norman Taylor were each awarded an honourable mention.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—The annual dinner of the Leeds and Yorkshire Architectural Society was held on the 12th inst. at the Queen's Hotel, Leeds. The President (Mr. Butler Wilson) occupied the chair, and amongst those present were Mr. John Belcher, A.R.A. (Vice-President of the Royal Institute of British Architects), Mr. Rowland H. Barran, M.P., Dr. Bodington (Principal of the Yorkshire College), the Mayor of Harrogate (Mr. Horace Melling), Mr. H. Perkin, Mr. Carby Hall (past President), Mr. H. S. Chorley (Hon. Secretary), and others. Dr. Bodington, in giving the toast of "The Royal Institute of British Architects," said the problem had been propounded as to whether architecture was a profession or an art. He sincerely hoped it was both, or at all events that the element of art was not neglected. Of all the arts surely architecture was the most universal and the most national—the most universal because though music might disappear and painting might pass away, so long as men required houses to live in and buildings for public purposes, architecture must flourish. Moreover, of all the arts architecture most accurately expressed public sentiment, and most expressed the ideals of the national feeling of the day. If the literature of Greece, of the Middle Ages, of Egypt, or of India had totally disappeared, they could still have learned much of the national characteristics and the national ideas of these periods from the architectural monuments which they had left. When national life was simple architecture was simple. To-day we live in an age of confused ideals—we scarcely knew whether we were Hebraic or Greek in our sympathies. We tried to combine the devotion of the Middle Ages with the scepticism of the Renaissance, and the result was that our architecture, while it was learned, while it was careful, while it was often inspired by genius, reflected the incoherence and want of simplicity of the national life. Under these circumstances it was of particular interest and importance that there should be architects such as this, without which architecture would tend to become merely whimsical and merely a matter of individual taste. To an institution of this sort the whole profession of architecture, and, more than that, the whole public, owed a great debt of gratitude.—Mr. John Belcher, replying to the toast, said that the Institute might be said to be the



representative body of British architects throughout the Empire. The more thoroughly architects co-operated with the Institute in maintaining the status and integrity of the profession the more effectively would its status be safeguarded and the beloved art advanced. There were, he continued, other things which conduced to health than a proper system of drainage, and he thought the authorities should not only take precautions against contamination through the senses of smell, taste, and feeling, but they should also be careful that nothing should be received through the eye or ear which was corrupt, coarse, or vicious. That which was repulsive must affect the mind, and the mind reflected upon the body. "Leeds," continued Mr. Belcher, "possesses many admirable buildings which may be said to be healthy in all respects, but I am sorry to say that, like other cities, there are a great many buildings that cannot be so described. I cannot say that I would suggest that this question of aspect and design of buildings should be considered by the Sanitary Department, but it is very important from the point of view of health, and there is much to be said in favour of a Minister of Fine Art, under whom some general supervision might be wisely exercised over all that is to be presented to the public eye. In the meantime we must, as architects, remember our responsibilities. We must protect and lead the public taste, and we must resist as strongly as possible such insidious, enervating, and unwholesome forces as are affected by what are known abroad as *les nouveaux*, and we must endeavour to encourage pure, simple, and manly methods which belong to a healthy British tradition."—Mr. Fred Kinder proposed "The Houses of Parliament." Mr. Rowland Barran, M.P., responded to the toast. Both the direct and indirect influence of Parliament on architecture was very great, and whilst there were many architectural achievements of which past Governments might with justice be proud, there were some buildings put up by our Governments which architects preferred to pass by in silence. Many of Mr. Belcher's colleagues of the Royal Academy must envy the position of a man who worked in the methods and with the substances that architects dealt with. Water-colour painters knew that in 150 years at the outside their colours would begin to fade. Those who dealt with the more durable pigments of oil realised that within a limited number of centuries, at any rate, their works must to some extent fade also. But there was in architecture an art and a science which lasted almost as long as the solid fabric of the earth itself. There were to-day buildings which dated back beyond all written history. In that there seemed to be room for a natural envy. He did not mean it to be supposed by that that a building put up, say, in Leeds, under the building by-laws, and complying with all their specifications, was likely to last till eternity. God forbid that many of them should do anything of the kind. Architects, looking around Leeds, would be inclined to say that the city had buildings of great utility, great size, erected possibly at great expense, useful and suitable buildings, but buildings that were not architecture. The Government had one advantage over commercial towns in the provinces, in being able to centralise large suites of public buildings and offices which gave the architect an opportunity of erecting something which was in the highest sense architecture, which some of the buildings which had to be erected in industrial centres certainly were not. Architects felt somewhat keenly those limitations. "In a city like Leeds," Mr. Barran continued, "questions of utility must take the first place, and it is therefore a very difficult thing for an architect to erect any building which can correctly be described as belonging to a high-class of architecture, or to claim any amount of beauty. We have in Leeds, however, a growing number of buildings which have some claim to art. I often think that in these smoke-begrimed cities, if we could pay rather less attention to the ornamentation of our buildings and more attention to the proportions, we should achieve more architectural success than we do at the present time." In conclusion, Mr. Barran spoke of the influence of the Houses of Parliament upon architecture, and said that he hoped whatever Party might in the future be in power, the Government would keep in view that we required not only a successful and prosperous nation, but that we need a cultivated nation.—The Mayor of Harrogate gave the toast

of the Society, and remarked that it was one of the oldest provincial societies in existence, having been founded in 1877. He was pleased to see they were also a prosperous body, as during the past year their income exceeded their expenditure by 961, while their membership had increased from 118 in 1901 to 124 in 1902, and 137 in the present year. The President, in responding, said the area covered by the Society extended from Teesdale in the north to Huddersfield in the south, from a considerable distance in the west to Flamborough in the east. They had instituted a system of education for the Associates of their Society, and they had ventured to name it a school of architecture. Although at present it might exist only in name, they hoped in the near future to make it a reality. They hoped to make Leeds prominent as the Metropolis of the North so far as architecture was concerned. He regretted that the old universities, such as Oxford, which owed so much to architecture, offered no rewards to the architectural student, but he hoped the time was not far distant when a degree of architecture would be offered by these ancient seats of learning. In the meantime, it had been left to the newer universities, such as the Victoria University, to take the first step, and he hoped before long that at the Yorkshire College they would have a chair of architecture. Mr. F. G. Bowman submitted "Our Guests," and Mr. W. J. Locke (secretary of the Royal Institute of British Architects), in responding, said that, speaking unofficially, Mr. Frampton's scheme for the rearrangement of Victoria-square seemed broad and delightful, and all he could say was that when one had an artist so sensitive and yet so broad as Mr. Frampton, it was as well to leave oneself absolutely in his hands, and rely upon the dictates of his genius. The toast was also acknowledged by Mr. J. E. Bedford, chairman of the Leeds School of Art Committee.

SHEFFIELD SOCIETY OF ARCHITECTS.—A meeting of the Sheffield Society of Architects and Surveyors was held in the Lecture Hall of the Literary and Philosophical Society on the 12th inst., when Mr. Gill Parker, curator of the Ruskin Museum, gave a lecture on "Architectural Examples of North France and Italy," as shown by drawings in the Ruskin Museum. The lecture was illustrated by lantern slides, which had been specially prepared. Mr. Parker explained that the many drawings in the museum were executed by Mr. Ruskin and the band of artists who worked under his direction on the Continent, for the purpose of illustrating the fine work of the Mediæval architects, sculptors, and masons. Amongst the series of illustrations given were representations of cathedrals and other edifices in several of the old towns in the north of France, where fine examples of the Gothic of the twelfth and thirteenth centuries had been fairly well preserved up to the time of the drawings being made, including Rouen, Chartres, Amiens, Auxerre, Abbeville, and Laon. There were also thrown on the screen picturesque drawings of scenery associated with these places, and in Switzerland quaint buildings at Sierre and Brig, in the Vallais. At Bergamo, over the frontier, the Church of St. Maria Maggiore was an interesting example of the Lombard-Romanesque, possessing a curious admixture of Veronese, Venetian and Pisan characteristics. Attention was then directed to other cities in the north of Italy, where Byzantine, Romanesque, Gothic, and later styles of architecture might be studied. At Venice, St. Mark's Cathedral and an old Byzantine ruin were first considered, then the Ducal Palace and some of the Renaissance palaces on the Grand Canal. Lucca afforded an example of the Tuscan style in the Dicomio with arcaded façade, richly carved columns and wall veil decoration, as did also the church of St. Nicholas at Pisa, whilst the beautiful drawing by Ruskin of the Spina Chapel in the same locality exemplified the elegant Gothic of North Italy. Florence was the last city dealt with. The Duomo of Arnolfo del Cambio with its great cupola by Brunelleschi, and Giotto's Campanile, claimed a large share of attention, being followed by illustrations of the baptistry, the doors of which were shown with some of the panels and bronze decorative work of the jambs and lintels in detail. In concluding his remarks, Mr. Parker stated that Ruskin and his artists had shown us in this fine collection of works that architectural drawings could be made which were not only accurate and in some instances

included detail carried out to the most delicate minutæ, from which facts could be gleaned concerning the buildings, but which were also, artistically considered, fine art productions. They were precise, not generalised, yet artistic in the highest sense of the word, and had a beauty and charm entirely their own.

NORTHERN ARCHITECTURAL ASSOCIATION.—The Students' Sketching Club of the Northern Architectural Association held a conversation on the 13th inst., at the Church Institute, Hood-street, Newcastle. Around the walls of the hall were displayed competition and other sketches. During the evening Mr. Frank Caws, F.R.I.B.A., of Sunderland, and President of the Association, presented books and other prizes to those who had been successful in the sketching competition.

EDINBURGH ARCHITECTURAL ASSOCIATION.—The Associate Section held their fifth ordinary meeting in the rooms, 17, George-street, on Wednesday, February 11, Mr. J. Douglas Trail in the chair, when Mr. J. A. Arnot read a paper entitled "Notes on the Treatment of Corner Sites." In the course of his paper he said that in designing a building to occupy a corner site the architect often finds himself face to face with many difficulties and opportunities. The difficulties are associated with both plan and elevation. In arranging the plan a considerable amount of trouble is sometimes experienced in obtaining a sufficient amount of light to a number of the rooms, &c., and also of giving to many apartments pleasing shapes. The difficulties associated with the elevation are due partly to the necessity for a truncation of the angle and partly due to the opportunity offered for introducing a prominent feature in the design. But the architect should consider whether it is necessary or desirable to have the angle thus emphasised, as it may be more suitable to have a less conspicuous feature, and whether it is necessary to truncate the angle at all; but in most cases it will be found imperative on account of traffic, and the desire to display shop goods, to cut off a portion of the angle, be it large or small. One difficulty was to treat the angle so that the lack of basement to the design might not be too apparent. This might be done by abstaining from giving to the corner a pronounced vertical appearance—the horizontal mouldings might be continued round the corner. The lecturer showed slides illustrating his remarks, and pointed out that a turret roof was a useful finish, in that it concealed any awkward intersections of the main roof, and, in the case of high buildings and where the perspective was sharp, it might be carried up and figure prominently on the sky line; but in low buildings, or where the perspective was less marked, a more squat effect should be aimed at—as a domed roof. These remarks applied also to cases where the corbelled turret was used, and when this feature was resorted to the projection from the wall should not be great, as it made the corbelling heavy in appearance, and the centre of the turret, whether circular or polygonal, should be kept well within the angle. On account of the necessity for introducing windows which would admit a sufficient supply of light, and thereby causing a cutting up of the wall space, the octagonal turret was preferable to the circular, although the latter, with small windows, had a bolder effect. The lecturer proceeded to remark about sites occupying prominent positions, such as at the end of vistas or in open spaces, and the opportunities thus given of introducing prominent features, such as towers. He spoke of the suitability of such sites for public buildings and the necessity of doing away with as many sharp angles as possible, and also that in our large cities picturesque treatment was not so desirable as a dignified one in main thoroughfares.

#### BOOKS RECEIVED.

AN ALPHABET OF ROMAN CAPITALS, WITH OTHER LETTERING. By G. Woolliscroft Rhead. (E. T. Batsford. 2s. 6d.)

HOUSING BY VOLUNTARY ENTERPRISE. By James Parsons, Barrister-at-Law. (P. S. King & Son.)

TOWN HALL, BRADING, HANTS.—A new town hall has been built at Brading, in the centre of the town. It is built of red brick and stucco. The hall itself is 55 ft. long by 25 ft. wide, with open timber roof, the height at the centre being 20 ft. Mr. Newman, of Sandown, was the architect, and Mr. Brading, the builder.



## Illustrations.

### INTERIOR OF HOUSE, RICHMOND TERRACE, WHITEHALL.

**T**HE late Mr. Penrose, as most of our readers will be aware, did not practise extensively as an architect outside of his official position as Surveyor to St. Paul's; but the staircase hall at Nos. 4 and 5 Richmond-terrace, when the two houses were thrown into one, was carried out under his direction, and an illustration of it may therefore be of interest at the present moment, when we are paying the last honours to a distinguished man.

The uniting of two houses left ample room for a spacious hall. The staircase itself is formed of polished Hopton Wood stone. The balustrade was adapted from an old Viennese Renaissance grille, a large portion of which was actually incorporated in the work. The floor of the hall is paved with Verona marble.

The two Cinquecento caryatides which support the landing are Renaissance works brought from Italy by the father of the present owner of the house.

### A PAVILION IN A PUBLIC GARDEN.

We illustrate this week the design by Mr. David Smith for "A Pavilion in a Public Garden," for which the Tite Prize was awarded this year by the Institute of Architects. The design is entirely in accordance with the object for which the prize was founded, viz.: the study of Italian architecture; and the subject, given by the Council of the Institute, was very happily selected for the purpose, as there is no class of structure for which the Classic Italian style, which blends so happily with garden scenery, is better suited.

The following is the author's description of his intentions in the design:—

"The building is designed to give as much shelter space as possible, as this seems to be the chief requirement of a public pavilion in a public garden. A large rectangular hall from end to end of the building is therefore provided for this purpose. This hall or shelter is entered through the open arcade facing the garden, and also from a back entrance planned between the two lounges on the north side of the hall. The hall is paved with marble slabs and roofed in with a plaster barrel vault supported on steel lattice principals, and covered on top with lead.

Lounges, in which seats are provided, are arranged in arcade form along the north side of the shelter. At each end of the shelter are loggias leading to four sculptured halls. Accommodation for sculpture groups is also provided in the centre of the shelter on pedestals round which seats are arranged.

An internal bandstand is provided for music and entertainment when the people would gather inside during showery weather.

A bar and gentlemen's retiring-room and lavatory (cut off by special door and passage), with caretaker's house over, are planned at the north-west corner of the building. Similarly at the north-east corner are placed the refreshment-room and ladies' retiring-room and lavatory, over which is placed the kitchen premises required for the working of the refreshment-room.

The shelter is lighted by means of skylights placed the entire length of the building in the crown of the barrel vault, also by the open arcade, clearstory, and other windows. The sculpture halls are lighted by clearstory windows.

The building is designed in the late Italian Renaissance style. The exterior bandstand is arranged, as far as possible, to form part of the south elevation of the building. The end and north elevations are designed in keeping with the south, although the treatment of the latter is much simpler. The ends of this elevation are designed as two-story buildings for caretaker's house and kitchen premises. The building is designed for Portland stone."

### ARUNDEL CHURCH SCHOOLS.

THESE schools were built for the managers of the Church of England Schools, Arundel, Sussex, in 1900, on the site of the old school and the master's house, which were pulled down. Accommodation is provided for 111 boys, 111 girls, and 120 infants.

The materials used were local bricks and tiles, and Mr. A. Burrell, of Littlehampton and Arundel, was the builder.

GERALD C. HORSLEY.

### COMPETITIONS.

**CENTRAL LIBRARY, HAMMERSMITH.**—The Public Libraries Committee of Hammersmith Borough Council have reported that: "In compliance with the Council's reference, we have considered the arrangements to be made for the architectural competition for the Central Library, and submit the following recommendations thereon: (a) That each competitor be paid a fee of 25 guineas, provided he complies with the conditions of the competition to be hereafter arranged. (b) That provided the designs submitted conform to the requirements of the Council, the assessor's decision thereon be accepted." It was also recommended that the competition be limited to six architects, and that the following be invited to compete: Mr. Maurice B. Adams, Mr. Henry T. Hare, Mr. J. Henry Richardson, Mr. G. Sedger, Mr. Sidney R. J. Smith, and Mr. E. W. Wimperis. In the course of a lengthy discussion, objection was made to names being received from the assessor, and Councillor Colonel Hopkins spoke in favour of an open competition. After some amendments had been disposed of, the report was carried.

**EXTENSION OF NEWARK INFIRMARY.**—At a meeting of the Newark Board of Guardians on the 10th inst. the Report of the Infirmary Committee was received on the competitive plans for extensions at the Newark Infirmary. The committee had consulted Mr. Percy Gordon Smith, who, in his report, selected the designs and plans of Mr. Arthur Marshall, Nottingham. The Committee recommended in accordance with this advice.

**YORKSHIRE PENNY BANK, ACCRINGTON.**—The plans of Mr. Henry Ross, architect and surveyor, of Accrington, for the new premises of the Yorkshire Penny Bank in that town have been accepted.

### SANITARY PLUMBING.

ON Friday evening last week a lecture on "Sanitary Plumbing" was delivered at King's College, Strand, by Mr. Arthur Young, R.P., under the auspices of the Worshipful Company of Plumbers. The Chair was occupied by Professor W. J. Simpson, M.D., Professor of Hygiene, King's College.

In the course of an interesting address Mr. Young referred to soil and waste pipes, cisterns, services, &c. He said that the first point of interest to them was as to the size of a soil pipe. That was governed to some extent by the number of fittings the pipe had to take. There were soil pipes which were only 3 in. in diameter, and if there was only one fitting on such pipes, that diameter was no doubt large enough; but in the ordinary course of things a soil pipe must have a larger diameter. A water-closet was often looked upon as a general dustbin, and all sorts of things were sometimes thrown in to be got rid of as soon as possible. That being so, provision had, to some extent, to be made to deal with that, and soil pipes were in actual practice a little larger than 3 in.: a good diameter was 3½ in. or 4 in. There was a large hotel he knew where the soil pipes were 6 in. in diameter, but he thought that such a large diameter was unnecessary. A 4 in. diameter pipe was a size generally used. As to branch soil pipes, they should be as short as possible consistent with getting the fitting on to an external wall of some sort. An important thing about the branch pipe was its fall and its junction with the main stack. The fall should not be too great, and a good fall for a branch soil pipe was, perhaps, 6 in. in a 5 ft. length. When the fall of a branch soil pipe was greater than that it gave an ugly rake and if the branch was a long one it left a portion of the discharge high and dry, to be flushed away by the next flush of water. As to the entry into the main stack, an entry should be provided that would not reduce the rate of flow and the velocity, and the hydraulic rule given was that such a bend should be of no less a radius than five times the diameter of the pipe. As to the materials of which soil pipes were made, there were lead, heavy cast-iron, and cast-iron which had glazed enamel inside, or was protected in some manner either by Dr. Angus Smith's solution, by the Bower Barff

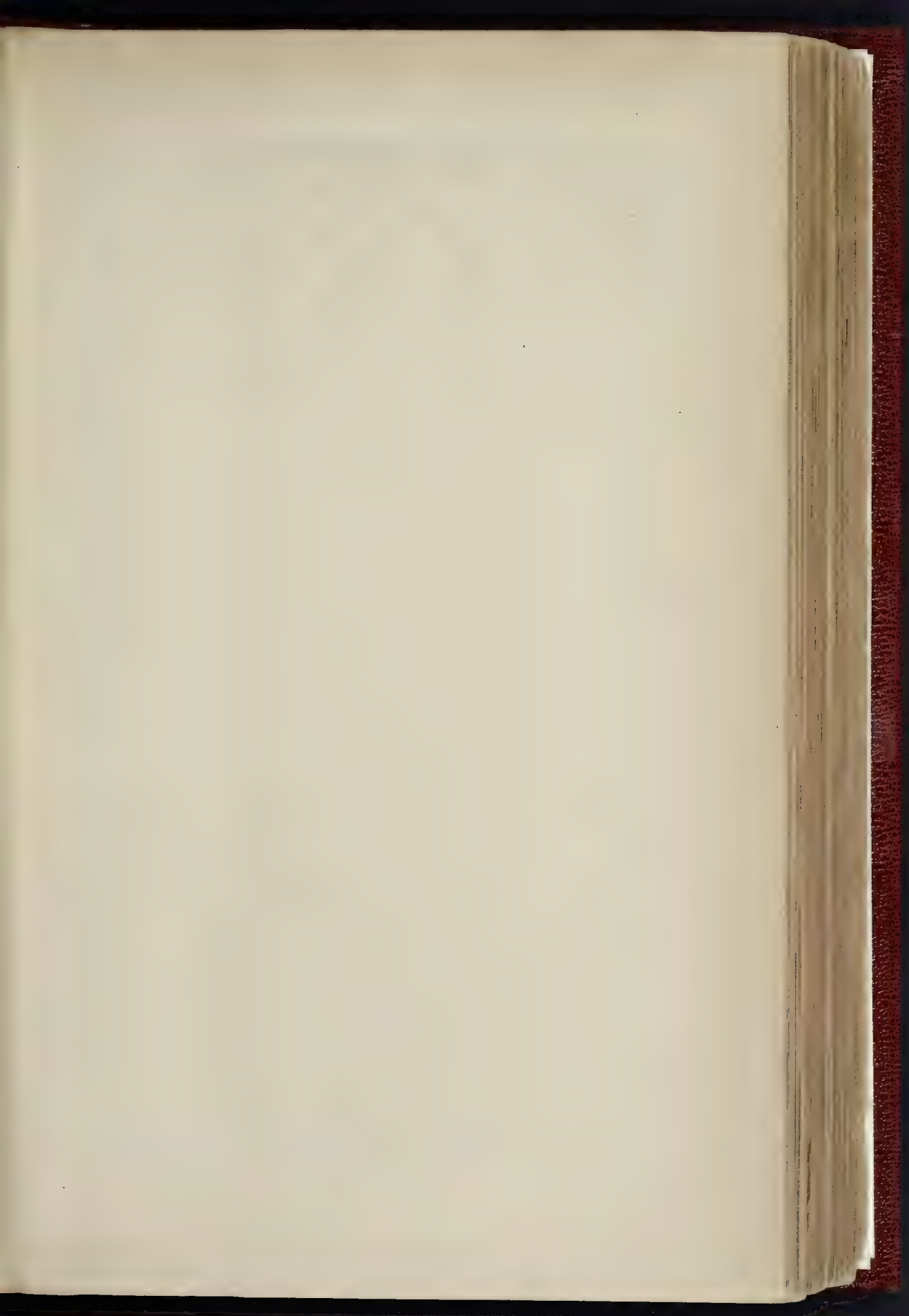
process, or by ferrodore—a paint made with an iron base which was very elastic. Soil pipes had been made of zinc—though he hoped no one used that now—and copper, which he was told made excellent work. As a material for soil pipes, there was no doubt that lead was by far the best, for lead did not perish rapidly provided the soil pipe was given adequate ventilation. Another great advantage in the use of lead for soil pipes was that it gave an internal smoothness to the bore, obviating paper or anything of the kind adhering to its sides. It was cheap, too, but iron was cheaper, though if iron pipes had glass enamel inside and were of good weight the difference as to cost between them and lead pipes was very slight. Heavy cast-iron was now being used very largely, and it was a very good material for work which was to be in an exposed position, or where the pipes were liable to be knocked about—in factories, schools, or institutions, for instance. Zinc, for a soil pipe, or for any sanitary purpose, was a useless material to use and a dangerous one, and the same remarks applied to galvanised soil pipes, for certain acids soon ate away the galvanising, with the result that the iron rusted and the rust collected at the bottom of the pipes and caused an obstruction. Glass enamelled iron pipes gave very good internal surface, and no doubt that was the coming process in the case of iron pipes. The glass was put on at a high temperature and was fused into the pores of the metal. The position of the soil pipe should, if possible, be external, and if the pipe must be put inside it should be protected with casing. There was one architect in London who said that the ideal way to design a house was to draw out the plan and then fix where the sanitary fittings were to be, and make the whole plan of the house subservient to that position. Things were not so bad now as they used to be, when any hole and corner was considered to be good enough for a water closet. Dealing more or less with a country house, if a soil pipe was placed externally, the best aspect for it was on the north, where it would get no sun. However well a lead soil pipe might be fixed, and however straight it might be suspended, if it was subjected to great variations of temperature sooner or later it would suffer and lose its straightness. The ideal method of connexion between the soil pipe and the drain was by means of cast-iron sleeve pieces.

The lecturer then described a number of lantern illustrations, which indicated the various methods by which soil pipes were fixed to walls, defective joints, soil pipes terminating in rain-water heads, traps and siphonage, and cisterns. Cisterns should not only be accessible but they should be provided with a cover. Iron was the material generally used for cisterns, whether galvanised, painted, or made up of cast-iron plates. Lead-lined cisterns were going out of fashion, which was a pity from the plumber's point of view. Slate was an excellent material, especially for rain-water cisterns, as rain water attacked lead very rapidly.

The Chairman said plumbers' work was a very important factor in the healthiness of every house. Mr. Young was a product of what had been done by the Plumbers' Company. The Plumbers' Company, ever since 1886, had been holding local examinations all over the country, and registering plumbers so as to give them, as it were, a hall-mark of qualification. They had done more than this; they had brought the most intelligent men, and those who had done best in the examinations, to London and sent them to King's College to get a further knowledge of physics and sanitary matters relating to plumbing, in order that these men might go out and teach others the sanitary necessities of plumbing. This had been done in a voluntary way, and, in his opinion, it was essential that there should be some statutory power given by which plumbers should be registered, and he believed that a Bill is before Parliament giving powers to that end. Registration of the plumber would not interfere in any way with the sanitary inspector; the sanitary inspector had to do sanitary inspection, but the plumber had to do sanitary work. There need be no rivalry between the two, for both were needed. The public should be very much indebted to the Plumbers' Company for the persistent way in which they had tried to raise the education of the plumber, and train him for those duties which were now so much more complicated than they used to be.

A vote of thanks was accorded to the









INTERIOR OF HOUSE, RICHMOND TERRACE, V.



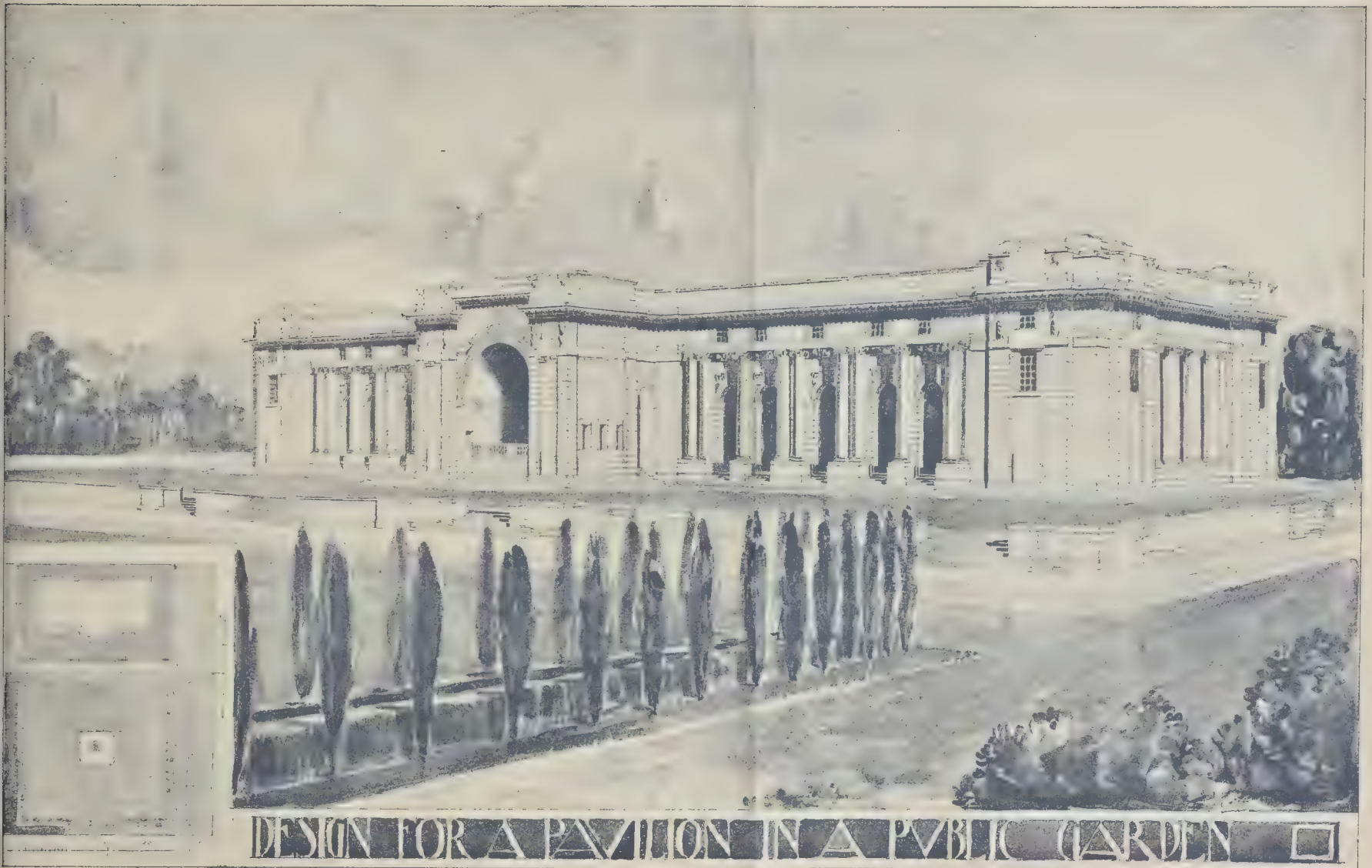


INK PHOTOGRAPH BY J. S. EAST HARDING STREET, FETTER LANE, E.C.









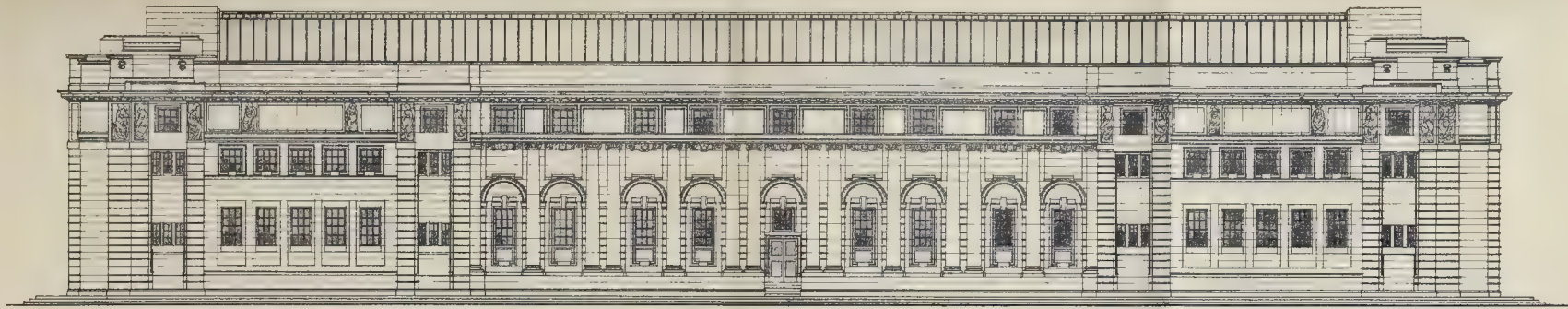
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DESIGN FOR A PAVILION —By MR. DAVID SMITH

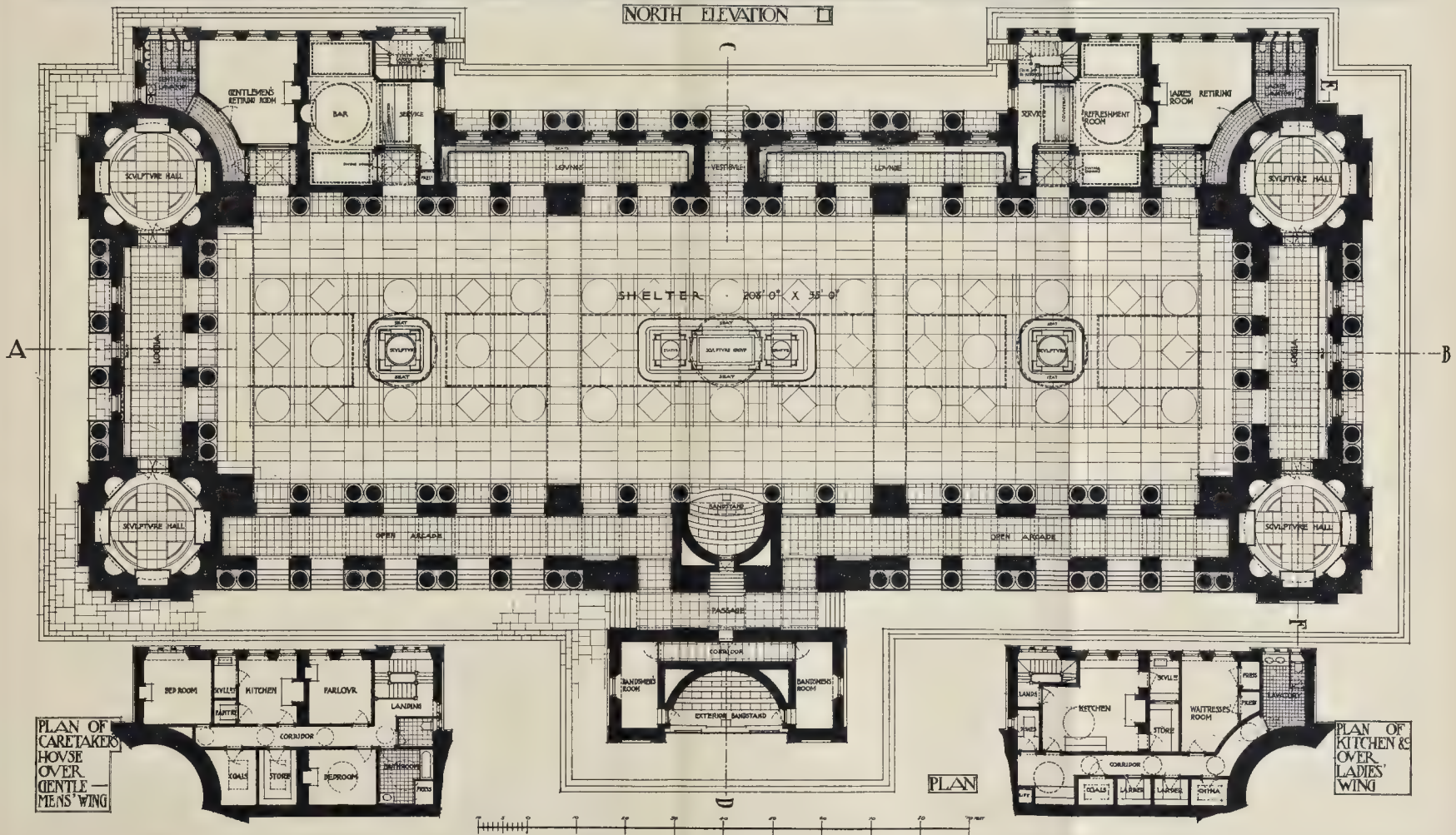








NORTH ELEVATION



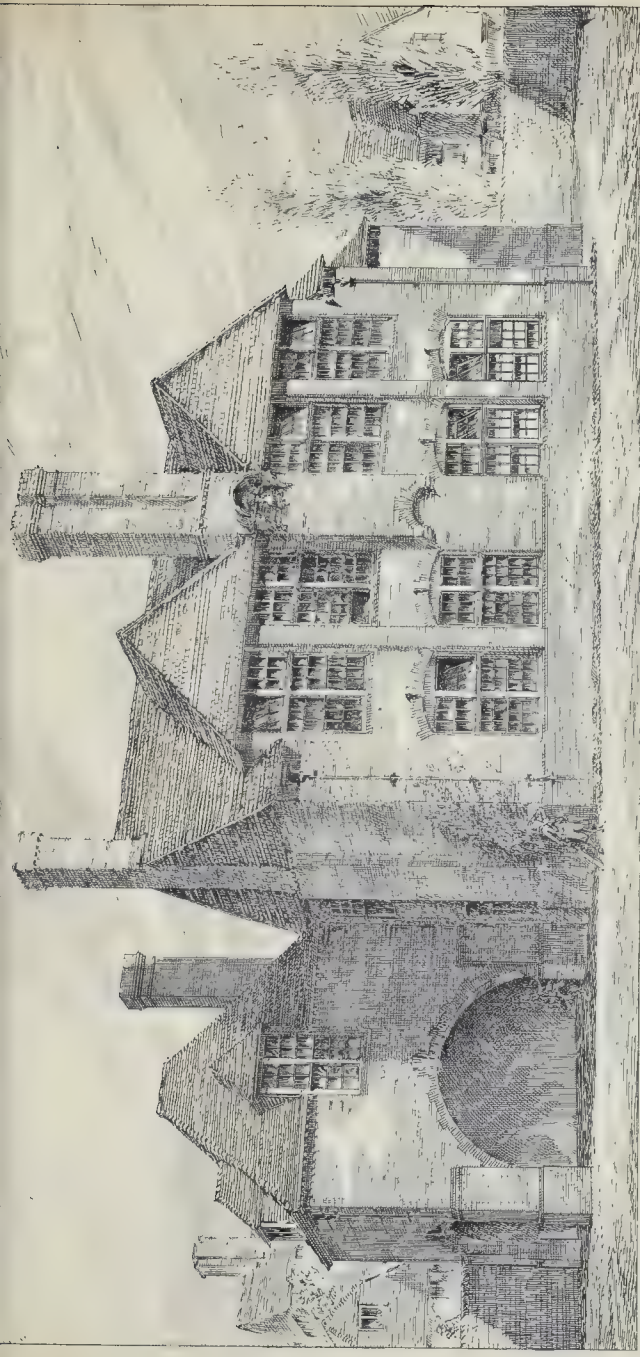
DESIGN FOR A PAVILION.—By Mr. DAVID SMITH.

BY PHOTOGRAPHIC & CO. 4 & 5 EAST HARDY STREET, LONDON E.C.

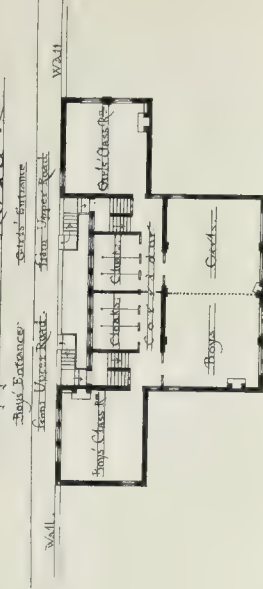




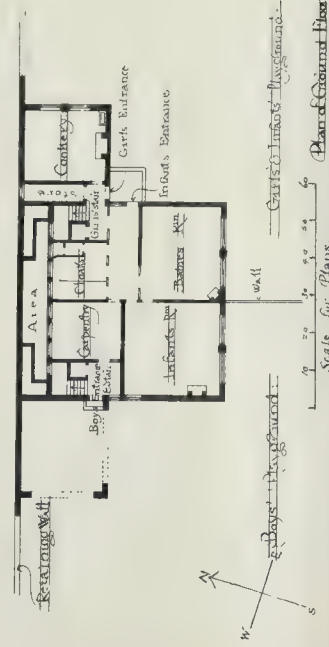




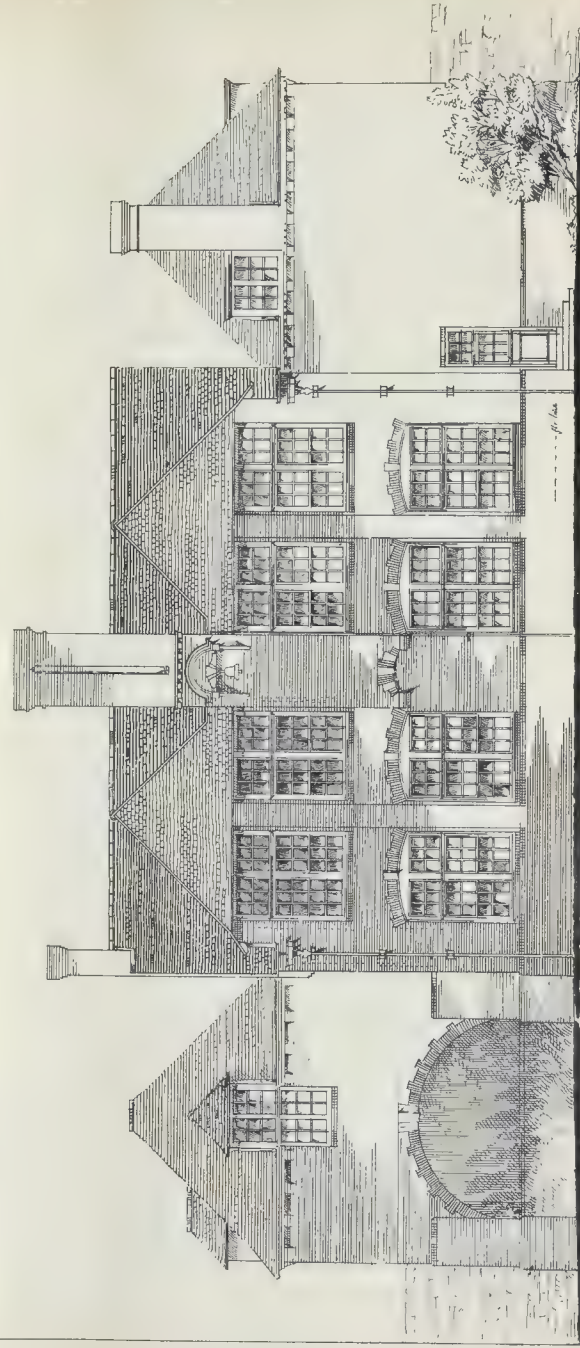
# Upper Road



Plan of First Floor



Plan of Ground Floor



Elevation to Playground

Scale of 1 inch = 10 feet







lecturer, who, in reply, said that a great deal of what the Plumbers' Company had done was due to Mr. Coles, the Secretary of the Company.

A vote of thanks to the Chairman brought the proceedings to a close.

#### THE CLERKS OF WORKS' ASSOCIATION: ANNUAL DINNER.

At the King's Hall, Holborn Restaurant, on Monday, the twentieth annual dinner of the Clerks of Works' Association of Great Britain was held. Mr. C. R. Harston, F.R.I.B.A., presided, and 320 members and guests were present.

After the loyal toasts had been honoured, Mr. F. Walker proposed "The Architects and Surveyors," Mr. E. T. Hall and Mr. W. T. Farthing responding.

"The Worshipful Company of Carpenters" was proposed by Mr. John Pain, who said it was only right that they should give expression verbally to the feelings of esteem and regard which they entertained for the company. It was probably known to the majority present that the Company had taken the Association under their wing, and consequently they felt much stronger. Accommodation had been provided at Carpenters' Hall for the meetings of the Association, and the library had also been placed at their disposal. Not only the Association, but, he added, the building trade in general, owed a great debt of gratitude to the Company. The building trade was indebted to the Company for the technical education which they had given to the students in their schools. Great benefits had accrued in that way.

Mr. J. Hutton Freeman (Clerk of the Carpenters' Company) briefly replied, saying that the Company owed a debt of gratitude to the Association for the help they gave at the examinations. It was always pleasant to the Company to feel that they had such competent men to fall back upon as those who constituted the Clerks of Works' Association. He referred to the certificates for clerks of works given by the Company, and hoped that more would seek to secure them.

In proposing "The Clerks of Works' Association," the Chairman said the present year was their twenty-first, and they were practically celebrating their majority. Steps were being taken for the incorporation of the Association as a recognised society, and if they were successful they would be able to extend the influence of the organisation far beyond what was the case now. The objects of the Association were the attainment of knowledge and the maintenance of the integrity of the building trade. In that trade the best men were, in his opinion, the clerks of works.

In responding, Mr. James Petrie (President) said the Association always tried to do what was right for the clerks of works generally. Architects did not, as a rule, look upon the clerks as practical men, and in that respect they made a great mistake. He regretted that more clerks of works did not join the Association, but added that at the present time they were stronger than ever.

Other toasts followed.

[The above has been taken from the *City Press*. Owing to an error on the part of the Hon. Secretary of the Association, we did not receive the usual invitation to the dinner, and were consequently not represented.]

#### THE LONDON COUNTY COUNCIL.

The usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, Sir J. McDougall, Chairman, presiding.

**Loans.**—On the recommendation of the Finance Committee, it was agreed to lend Fulham Borough Council 4,000*l.* for plant in connexion with dust destructor; Shoreditch Borough Council 8,000*l.* for reconstruction of Cat and Mutton Bridge; and Lewisham Borough Council 1,000*l.* for alterations and additions to Manor-house Library, Lee.

**The Metropolitan Water Board.**—The following members of the Council were appointed as members of the Metropolitan Water Board, *i.e.* Messrs. R. Melville Beachcroft, John Burns, Henry Clarke, E. A. Cornwall, W. H. Dickinson, H. P. Harris, T. H. W. Idris. Sir John McDougall, G. M. Radford, Lord Sandhurst,

Henry Ward, Lord Welby, Edward White, T. McKinnon Wood.

**International Fire Exhibition and Congress.**

—The General Purposes Committee recommended that the British Fire Prevention Committee be informed that the Council did not consider it expedient to take part, officially, in the International Fire Exhibition and Congress to be held in the summer. The Committee's reasons for this decision were that the exhibition will not be promoted by any public department or Municipal authority, and is, moreover, for private gain. The Congress will be held from July 6 to 11, and the exhibition from May to October. Mr. Beachcroft moved, and Dr. Longstaff seconded, to refer the recommendation back for further consideration and report, but, after considerable discussion, the amendment was defeated, and the Committee's recommendation was agreed to.

**Working-class Dwellings.**—The following adjourned report of the Housing of the Working-classes Committee was then considered:—

"In July, 1902, our attention was drawn to a site on the west side of Brixton Hill, the houses in which are at this point set back over 50 ft. from the centre of the road. The site, which is about one acre in extent, has a frontage of 240 ft. to Brixton Hill, with a depth of about 190 ft. It is situated in the Metropolitan Borough of Lambeth, and is, in the housing manager's opinion, well adapted for development by the erection of working-class dwellings. We therefore entered into negotiation with the owners for the purchase of the site under Part III. of the Housing of the Working Classes Act, 1890. The price first asked was 8,500*l.*, but we have now ascertained that the owner is willing to accept 7,000*l.* We have carefully considered the question of the dwellings that should be erected on the site, and from plans which we have had before us it appears that three blocks of five-story dwellings can be built for the accommodation of 620 persons in sixty tenements of two rooms, fifty tenements of three rooms, and ten tenements of four rooms. This accommodation gives an average of 513 persons per acre. We are advised that dwellings of this kind are greatly needed in the neighbourhood, and that there is therefore every probability that they will let readily. From estimates of cost which we have had prepared, it appears that the price now asked by the vendor can be given by the Council, and that dwellings of the description mentioned can be erected without involving any charge upon the county rate. Having regard to this and to the fact that the site is situated within the county, where sites for dwellings are greatly needed but very difficult to obtain, we are strongly of opinion that the Council should not hesitate to purchase this site. There are at present four houses on the site in the occupation of yearly tenants, and we propose to proceed at once to make terms with them for vacant possession. The estimate of 7,000*l.*, which we sent forward when we anticipate, cover the cost of any necessary compensation, and also the costs involved in the purchase of the site. We recommend that the estimate of 7,000*l.* submitted by the Finance Committee be approved, that the freehold of the site in Brixton Hill, near The Avenue, be acquired by the Council under Part III. of the Housing of the Working Classes Act, 1890."

Mr. Hubbard moved that the recommendation be referred back, and said the approval which was alleged to have been given by the Borough Council had been misunderstood. The Borough Council did support the Council in promoting working-class dwellings in the district, but they did not approve of this particular site. The site was not one suitable for workmen's dwellings; for it was occupied by houses let at 40*l.* and 50*l.* a year, and the inhabitants strongly objected to having working-class dwellings placed between the villas. Even the tradespeople thought that Brixton would suffer. There were better sites available and cheaper sites.

Mr. Shrubsole seconded the amendment.

Mr. Burns, M.P., pointed out that they were already creating cities of the poor, and that was not a thing to be encouraged by the Council. The division of the classes brought into life class differences which they would like to do away with.

The amendment was defeated by 54 votes to 46, and the recommendation was thereupon agreed to.

**Advertisements on Tram Cars.**—The Council resumed consideration of the recommendation of the Highways Committee that advertisements should be allowed on the top boards, and on the inside of the ventilators over the windows of the new electrical cars to be run by the Council. The amendment before the Council was for referring the proposal back to the committee for further consideration.

After a long debate, the amendment was put and lost, and the recommendation of the committee agreed to.

**Theatres, &c.**—The following recommendations of the Theatres and Music-halls Committee were agreed to:—

Extension of stalls refreshment bar at Daly's Theatre (Mr. P. E. Pidditch).

Extension northward of Daly's Theatre (Mr. P. E. Pidditch).

Seating arrangements at the public baths, Mare-street, Hackney (Mr. N. Scorgie for the Hackney Borough Council).

Extend gallery, Whitechapel Art Gallery (Mr. C. Harrison Townsend).

**Diminution of Volume of Water in the Thames and Lea.**—The Water Committee reported as follows:—

"It is a matter of common knowledge that the volume of water in the Thames and Lea has during the past few years considerably diminished. We recently instructed the Chief Engineer to report on this subject, and to deal in such Report, as far as possible, with the question of the drying up of springs in connexion with these rivers. The Chief Engineer has prepared such a Report, the conclusions being that the causes of the decrease of the flow of water are—(1) diminution of annual rainfall; (2) diminution of the percentage of the total rainfall which reaches the river; and (3) increase in pumping to supply increase in population, &c. For the past twenty years there has been a decline in the rainfall over the Thames watershed of an annual average of nearly 2½ in. below the mean rainfall of 28.50 in., as computed by the late Mr. Symons for the forty years 1850-1889; and this diminution has become more accentuated during the last five years. This decline is reflected in the diminished flow of the river as gauged at Teddington Weir, the natural flow having fallen to an average of 1,100½ million gallons daily at the intake for the twenty years, compared with 1,350 million gallons over the 1850-1889 period, showing a loss to the river of 230½ million gallons per day. As the diminished rainfall of 2½ in. equals 105 million gallons per day (after making an allowance for evaporation, &c., of roughly 70 per cent.), and the above diminished flow of 230½ million gallons shows a difference from this of 134½ million gallons daily, it would appear that the condition of the river is becoming more acute, inasmuch as more rainfall would be required year by year to produce the long period average rate of flow; in fact, what this means is that the percentage of total rainfall which reaches the river is diminishing as well as the total rainfall itself. Against these facts has to be put the possibility of a long series of wet years, which may bring back the state of affairs which existed on the average during the long period mentioned. These observations apply equally, although perhaps with more force, to the Lea valley. With reference to auxiliary rivers, wells, and streams, the records show almost invariably a diminished flow, due, apparently, in many cases to increased pumping, in addition to diminution of rainfall, the most telling instance being the Chadwell spring, which dried up in the autumn of 1898, after giving an unfailing supply of water for over 300 years. The chalk formation, the most important source of water supply in the South of England, is shown to be not an inexhaustible reservoir, as was formerly supposed, but is essentially dependent on the annual rainfall, and this annual rainfall is not at present sufficient to maintain the requisite standard of saturation. The fact, as shown by the Royal Commission of 1893, that the water level of the chalk below London is falling from 12 in. to 18 in. per annum points to such a conclusion, although there are other relative causes tending to this result, such as increased pumping, better arterial drainage, large populated and covered areas, and an increased consumption and diversion of water. As regards London, the actual diversion represents about 200 million gallons daily in dry weather, increasing to over 400 million gallons in times of storm, which is removed from natural infiltration into the soil to an artificial outlet to the sea, by way of Barking and Crossness, and the various storm overflows. These naturally contributing causes of depletion are likely to be accentuated year by year, but the Chief Engineer suggests that, as regards increased pumping and abstraction from districts little able to bear any further drain upon their own resources, a remedy ought to be found. The report is accompanied by diagrams and maps, and we consider the information so useful that we have given instructions for a copy of the report and of the diagrams and maps to be sent to each member of the Council. The total cost will be under 50*l.*"

**The Locomotion Commission.**—Without discussion, the Council chose a Special Committee to conduct the Council's case before the Royal Commission appointed to inquire into the means of locomotion and transport in London.

The Council adjourned soon after seven o'clock.



# APPLICATIONS UNDER THE LONDON BUILDING ACT, 1894.

The London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses:—

## Lines of Frontage and Projections.

**Kennington.**—An institute building for the Beaufoy Charity, on the site of Nos. 65-71 inclusive, and of eight houses on the site of Nos. 56-64 inclusive, Princes-road, Kennington (Mr. F. A. Powell for Mr. J. C. Hatch and Mr. P. Farmer).—Consent.

**Lewisham.**—Retention of two wood and slate pents in front of a house on the north side of Brockley Park, Lewisham, westward of Ledbury House (Mr. W. Brooker for Mr. A. J. Glock).—Consent.

**Hampstead.**—Rebuilding of the White Horse Hotel, Fleet road, Hampstead, to about upon Constantine-road (Mr. A. E. Pridmore for Mr. A. T. Davies).—Consent.

**Clapham.**—An extension of the flank of a house on the south-east side of Deauville-road, Clapham, to about upon Rye-hurst-road (Mr. H. Bignold for Mr. Bilham).—Consent.

**Hampstead.**—A one-story bay window in front of a proposed house No. 11, Ferncroft-avenue, Hampstead (Mr. C. H. B. Quennell for Mr. G. W. Hart).—Consent.

**Lewisham.**—A house on the north-west side of Canonbie-road, Honor Oak, Dulwich, southward of The Mount (Mr. R. Mason).—Consent.

**Marblebone, East.**—Buildings on the western side of Albert-road, Regent's Park at the corner of High-street, on the site of Portland-terrace (Mr. F. M. Elgood for Mr. J. A. Michell).—Consent.

**Marblebone, West.**—A stone and iron balcony at the first-floor level of No. 39, Bryanston-street, St. Marblebone (Mr. E. C. W. Evans for Major S. E. Lamb).—Consent.

**Hampstead.**—The retention of a one-story building, erected in front of Daydown, Netherhall-gardens, South Hampstead (Mr. W. G. Shoebridge for Mr. L. Sinclair, M.P.).—Refused.

**Wandsworth.**—A building with a one-story addition in front, on the west side of Garratt-lane, Wandsworth, to about also upon Summerley-street (Mr. R. A. Huds for the London and South-Western Bank, Ltd.).—Refused.

## Width of Way.

**Battersea.**—A bakehouse and coal store at the rear of No. 49, High-street, Battersea, to about upon Alfred-place (Mr. H. Griffin for Mr. W. Griffin).—Consent.

## Width of Way and Line of Frontage.

**Strand.**—Buildings upon the site of Nos. 156 and 158, Regent-street, Nos. 1 to 13 (odd numbers only) inclusive, Beak-street, and Nos. 66 to 70, King-street, St. James's, Westminster (Messrs. Crickmay & Sons for Messrs. Robinson & Cleaver, Ltd.).—Consent.

**Woodwich.**—Three houses at the south-east end of Elm-grove, the Slade, Plumstead (Mr. A. E. Habershon for Mr. Stevens).—Consent.

## Space at Rear.

**Fulham.**—A modification of the provisions of Section 41 of the Act with regard to open spaces about buildings, so far as relates to the proposed erection of buildings on a site on the north side of Dawes-road, Fulham, to about also upon Hannell-road (Mr. C. Botterill for Mr. R. F. Brown).—Consent.

**Hampstead.**—A modification of the provisions of Section 41 of the Act with regard to open spaces about buildings, so far as relates to the proposed erection of two blocks of stables at the Hampstead Borough Council's store yard and depot, Lymington-road, Hampstead (Mr. O. E. Winter).—Consent.

**Lewisham.**—A modification of the provisions of Section 41 of the Act with regard to open spaces about buildings, so far as relates to the proposed erection of three stables at the rear of Nos. 383, 387, and 389, Brockley-road, Lewisham (Messrs. J. W. Heath & Sons for Messrs. Bromley, Hawkins, Mainprize, & Lord).—Consent.

**Lewisham.**—A dwelling-house on the south side of Doncombe Hill, at the junction with Brockley Rise, Forest Hill, Lewisham, with an open space at the rear (Mr. S. Frampton).—Consent.

## Formation of Streets.

**Wandsworth.**—That an order be issued to Messrs Walton & Lee, sanctioning the formation or laying-out of a new street for carriage traffic in continuation of Francisian-road, Tooting, to lead from Cowick-road to Tottersdown-street, and the widening to 40 ft. of the street on the north-western side of the estate (for Messrs. H. de Vaux Brougham, A. J. Whalley & A. T. Rickards).—Consent.

## Means of Escape at Top of High Buildings.

**Kennington, South.**—A deviation from the drawings approved on July 22, 1902, showing the means of escape proposed to be provided in pursuance of Section 63 of the Act, 1894, on the sixth and seventh

stories of Block No. 1, Iverna-court, Wright's-lane, Kennington (Messrs. Metcalf & Greig).—Agreed.

**Westminster.**—That Mr. Pawley be informed that the Council will permit the omission of the doorways between the suites E and F on the sixth and seventh stories of blocks A, B, C, of St. James's-court, Buckingham Gate, Westminster.—Agreed.

## Separation of Buildings.

**Kennington, South.**—A building, to form part of the premises of Harrod's Stores, Brompton-road, Kennington (Mr. C. W. Stephens for Harrod's Stores, Limited).—Refused.

## Buildings for the Supply of Electricity.

**Southwark, West.**—The construction on the north side of Summer-street, Southwark, of an addition to the engine-room on the eastern side of the City of London Electric Lighting Co.'s generating station, No. 64, Bankside (Mr. F. Bailey).—Consent.

\* \* \* The recommendation marked † is contrary to the views of the Local Authority.

## TRADE CATALOGUES.

Stuart's Granolithic Stone Co. send us a souvenir containing a large number of photographic views illustrating various works executed in granolithic material, and intended to bring before architects and others interested in fire-resisting construction the advantages of the system adopted by this company. One useful page in this book gives a complete set of drawings of the fire-proof flooring as carried out in a large warehouse building in Tooley-street, London, and others include details of floor arches and slabs of various spans, the safe distributed loads being stated in each case. On the last page of the volume we find, in the sectional drawing of some new manufacturing premises at Millwall, some striking particulars of a granolithic floor beam 80 ft. long by 18 in. deep, by 14 in. wide. This beam is said to be the first that has been used to carry a building without the aid of steel girders. It is supported near the middle by two granolithic columns, each 14 in. square, and near the ends by two brick piers 3 ft. square, this being the sectional area demanded in the case of brick by the London County Council regulations. The usefulness of the book would be considerably improved by the addition of an index, and we hope to see a labour-saving device of this kind in future issues.

Messrs. C. & A. Musker, of Liverpool, send us a portfolio of forty-two collotype plates illustrating various examples of hydraulic and electric machinery made by this firm for dock and railway companies, ship-builders, boiler-makers, locomotive and railway-carriage builders, and for use in mining and other industries. Some of the views representing hydraulic cranes of various designs supplied to the Mersey Docks and Harbour Board are very interesting, and others worthy of special mention are those showing a series of cranes for railway yards and goods depots. Another print gives an excellent idea of Musker's hydraulic press for making concrete flags. Electric overhead cranes, electric lift gear and generating sets are also illustrated. No descriptive matter accompanies this collection of plates, which is evidently not intended for indiscriminate distribution.

Mr. Percy Pittman, of Ledbury, sends us a price list of his "Hector" water motor, a compact and well-designed machine, embodying the principle of the Pelton wheel. This motor is made in sizes ranging from ½ h.p. to 1½ h.p. As supplied by the maker it is quite self-contained, and can be fixed in place and set to work with a minimum amount of trouble. The motor is very suitable for the silent driving of small machinery of every description, and when used for organ blowing it is supplied with a silent automatic gear, by the aid of which any desired number of strokes per minute can be obtained.

Messrs. Lockerbie & Wilkinson send us a card containing lists and prices of their decorative heads and pipes in lead and iron, with a few small illustrations. All their work of this kind is excellent, and they are wise enough to go to artists for it, as witness their rainwater heads in the Central Hall of the Arts and Crafts Exhibition, designed by Mr. C. A. Nicholson and Mr. Corlette respectively.

Messrs. Young & Marten send us a catalogue of "requisites for building construction" which includes, as they claim, and apparently with justice, everything that can be wanted in carrying out a building, so far as practical requirements are concerned, and in this sense the book forms a compendium of

things wanted which will be very useful to builders. As far as the ornamental work is concerned, such as wrought ironwork, chimney-pieces, and other things into which ornament enters, the less said the better. If the catalogue is mainly intended for builders these may do for them, but they will certainly not do for architects, and if the firm wish to attract architects by their catalogue they would find it worth their while to get such things better designed.

The same remark applies to the catalogue sent us by Messrs. R. H. & J. Pearson. The iron mantels in their catalogue are in a style that no architect of the present day would accept for a moment—at least, no architect who was an artist, as all architects ought to be. The wood mantels are considerably better, but some of them—those on p. 41 for instance; some of them—those on p. 41 for instance; in the illustrations at least, like very coarse work—they may perhaps be better in the reality than the illustrations show, especially as it is stated that the catalogue has been compiled "with the view of usefulness to the trade, not as an exhibition of printing." The grates are for the most part also disfigured by bad and quite unnecessary ornament. Compilers of catalogues who wish to introduce ornamental work should take the opportunity of visiting the Arts and Crafts Exhibition and see what kind of work in grates and mantels passes for good among artists, and get some of these artists to design things for them. They would find it would pay in the long run. It is the best kindness to point out to them that they cannot recommend themselves to the architectural profession by issuing illustrations of this kind. Some firms have long recognised this, and have employed artists to design their chimney-pieces, grates, wrought ironwork, &c., and we have no doubt that they are finding the commercial advantage of having done so. With regard to the practical work, that is another matter, and Messrs. Pearson's catalogue is very good in such matters as ranges, in stable fittings of all kinds, gutters, pipes, drain apparatus, special articles for plumbers (such as "economical stocks and dies for threading pipes"), sash lifts and handles, locks and bolts, &c. They send also a separate smaller catalogue of painters' brushes and other requisites, and priced lists of colours.

The General Electric Co. have sent us an illustrated leaflet of Ernest electric lamps. They are now ready to supply these lamps for use either on direct or alternating current circuits, and they ought to become popular. The initial price of the small 20-c.p. lamps, including the automatic heater that starts the filament, is 5s., but the filaments can easily be replaced when burnt out, and so the cost for renewals will not be greater than for ordinary glow-lamps. The light given out by the glowing filament is very pleasant to work by, and is very little affected by fluctuations of pressure. The average life of a filament is 300 or 400 hours, although we have had one that ran for over 2,000 hours. It is inadvisable, however, to run them for over 400 hours, as, like glow-lamps, their efficiency diminishes with age. Initially, their efficiency is two or three times greater than a glow-lamp, and even after 400 hours their efficiency is generally greater than four watts a candle. The larger 100-c.p. size ought to be very useful for public buildings, restaurants, &c., and also for outdoor use. The filaments can be bought separately, and so the cost for renewals as well as the meter bill will be smaller when they are used. A drawback we find with them is that the lamp often takes nearly a minute to light up.

The same company send us their "progress" leaflet for January. Amongst the novelties illustrated is a "tandem" switch for 250-volt circuits. This switch seems to us to be very scientifically designed; by breaking the circuit at four points the danger of damage to its terminals by the lengthy sparks which ensue when a high-pressure circuit is broken is reduced to a minimum. We have often wondered why manufacturers did not make multiple-break switches, and we welcome this attempt to utilise the results of recent experimental researches. Amongst other accessories described and illustrated are switches and fuses for tramway work, and ignition coils for voitures and heavy motor-cars. The "Stanley" high-grade bell ought to prove useful to those amateur electricians who keep the electric bells of a household in working order. The



electro-magnet has both a high-resistance and a low-resistance winding; as these can be used singly or connected in series or parallel, it ought to be always possible to get the bell to ring, whatever size of wire has been chosen in wiring the house. They also send us some sheets of illustrations of ornamental decorative lamps for electric lighting, not included in their current list.

"Veritys Ltd." send us a sheet of illustrations and descriptions of their patent electric radiators, which form a very neat and effective method of supplying heat by radiation. To quote from the description:—"These stoves are made with ornamental frames of iron, brass, or copper, and are provided with reflectors of a special shape. The lamps are made of ground glass in an elongated form, with straight filaments that lie parallel with the reflectors, and thereby utilise the greatest possible amount of reflective surface. The reflectors, in addition to being formed of such a shape that the light and heat is multiplied by being mirrored several times, are heavily plated with silver, as it is well known that silver forms the best reflector for radiating both light and heat. A special feature of these stoves is the provision of a heating-chamber above the lamps. This chamber serves to prevent the heat rising above the stove, where it is not required; it also receives the warmed air that is drawn up behind the reflector, and throws it forward into the room, mingling with the direct heat rays reflected off the polished metal. . . . The employment of a sheet of metal, fixed at some distance behind the reflector, insures the stove keeping cool at the back, so that it can be safely placed against a wall, or in front of a piece of furniture or any delicate fabric, without fear of scorching. Each stove is provided with two switches, so that the stove can be used at full power, or at half power if only a moderate heat is required." The only objection we have is to the word "ornamental," and to what is intended by it. If the stoves were less "ornamental" they would be more satisfactory—to artists and architects at all events.

The Electric Fittings Co. send us a beautifully got-up catalogue of their electric light fittings; which are in good taste though they hardly betray the hand of the artist, nor indeed is any designer mentioned. No doubt, as they say in the preface, all their fittings "are constructed in the best possible manner, and the finish is of the highest class," but if they had gone to one or two known artists in metalwork they might have produced works of art; whereas those shown, though good as far as they go, are rather works of manufacture than of art.

Messrs. Moffats, Ltd., of Charterhouse-square, E.C., have sent us a descriptive catalogue of their Lucas lamps. Rather more than a year has elapsed since this high power incandescent gas lamp was placed upon the English market, and noticed by us as an exhibit at the Crystal Palace Gas Exhibition. During last year the lamp was given a trial in a large number of British towns, and has now taken the foremost place among gas lamps for streets, factories and shops. Instead of increasing the efficiency of the gas by utilising an auxiliary apparatus to compress the gas under a pressure of 10 inches or 12 inches before allowing it to issue from the burner, as in high-pressure systems, a forced air-draught is obtained by connecting the burner to an unusually long chimney, the glass bulb which surrounds the mantle being almost hermetically united at its upper end to the chimney and at its lower end to the burner. It is claimed that with a consumption of 17½ cubic feet of gas per hour the lamp emits a 700 candle-power light. We are not in a position to certify to the accuracy of this statement, but we have seen the Lucas lamp in use in many places in London and the Midlands, and consider it the most formidable rival to the electric arc light yet devised.

The Limmer Asphalt Paving Co. send a small pamphlet calling attention to the usefulness of their material for flat roofs. It can be laid either upon solid concrete or on flat constructed of wood joists and boards, but in the latter case their specially prepared felt or canvas is fixed to the boards and the asphalt laid upon it. It is added that the fire insurance companies specify mineral rock asphalt as one of the materials desirable for roofs.

Messrs. James Smith & Co. (Barnsley) send us their catalogue of vitrified facing bricks, moulded bricks, &c., and also samples of

two facing bricks and a red stub paving brick; all seem to be of hard and good quality. The catalogue includes a number of moulded bricks, channels, copings, &c.

## Books.

*Stereotomy.* By ARTHUR W. FRENCH, C.E., and HOWARD C. IVES, C.E. New York: John Wiley & Sons, 1902.

STRICTLY speaking, the term "stereotomy" covers the cutting or shaping of all solids, but its application is sometimes limited to the art of shaping stone for use in masonry work.

Chapter I. of the treatise before us, is chiefly occupied with definitions of familiar character and may be passed over without comment. In Chapter II., the authors define stereotomy as consisting of cutting stones from the rough blocks so that when fitted together they will form a predetermined whole. It is evident, therefore, that the treatise deals with work that largely falls to the lot of the mason, but the authors present the subject in such a manner that the designer may be enabled to prepare cutting plans for the whole of the stonework required, or to verify the plans submitted by the contractor. As a general rule, drawings prepared for masonry structures exhibit one of the following characteristics—(1) they may show the figured dimensions of each stone; (2) they may merely give the outline and dimensions of the finished structure; or (3) they may give the general dimensions of the structure and the figured dimensions of special stones. In all ordinary cases it is wise to avoid arbitrary dimensions, or considerable unnecessary cost may be entailed owing to wasted material and labour. Reasonable latitude given to the mason clearly tends to reduce cost by permitting the economical use of stones varying little from the sizes in which they are produced at the quarry. But, admitting this, it is still desirable that the architect or engineer should acquire familiarity with all details of his work, so that he may be able to determine precise dimensions, or to check those proposed by the contractor when thought necessary.

A considerable part of Chapter II. is devoted to instructions for preparing the "directing instruments" used for cutting the blocks, and for the application of these instruments so as to obtain the best results. The student is also advised to practise the cutting of stone shapes from blocks of plaster so that he may acquire familiarity with the various operations necessary. Hence it will be seen that the authors approach the subject from a thoroughly practical standpoint. Chapter III. is devoted to the detailed consideration of methods to be followed in connexion with "Plane-sided Structures." The chapter consists entirely of examples, illustrated by folding plates, and the student is duly instructed in methods of finding the projections, of obtaining the directing instruments, and of cutting the stones required. A very interesting example is the Worcester City Hall, all the face-stones in this building being dimension stones, each marked for identification in accordance with a key plan reproduced in Plate IV. Another plate represents a good example of church masonry in broken ashlar, each stone of the entire church being a dimension stone. The drawings illustrating this chapter are most useful, and form an excellent index to the arrangement and dimensions of stones for buildings of the kind shown.

In the succeeding chapter "Structures containing Developable Surfaces" receive attention. This part of the subject is a little more complicated, as the shapes and dimensions of stones composing curved or warped surfaces must be very carefully worked out. Among the examples taken are such as arches, ovals, cylindrical arches in circular walls, cloistered and descending arches, arch culverts, and arch bridges. Methods are developed in this chapter for finding the projections, developments, shapes, and sizes of the stones, and by the aid of the accompanying plates it should be easy for the student to follow the reasoning and processes involved. In some cases the necessary calculations are comparatively simple, but in others time would probably be saved by adopting the graphic method. The chapters already mentioned furnish particulars of ordinary masonry work, but for those wishing to pursue the subject further chapters are added treating of stereotomy as applied in

the oblique arch, the recessed Marseilles gate, and the hemispherical dome. The diction of the work is clear throughout, and the treatise should prove itself to be particularly serviceable, not only because the subject has hitherto been ignored in ordinary text-books, but also because it will inevitably lead students of masonry construction to inquire more closely into the practical details of the science.

*Obstruction to Light.* By HENRY BRIDGES MOLESWORTH, M.Inst.C.E. London: E. & F. N. Spon, 1902.

THE settlement of questions affecting ancient lights usually occasions a certain amount of controversy on the part of experts, and the object of the author is to explain a graphic method for the easy solution of such problems as most frequently arise. Hitherto the only method in ordinary use for ascertaining the extent to which light is prevented from reaching one building by the interposition of another building has been to visit the premises at different periods and to take notes of the conditions observed. This method is both inconvenient and unscientific, for, as the author points out, the position of the sun varies according to the season of the year, and to obtain all the essential data it would be necessary to take observations at intervals over a period of six months. Further, the precise obstruction that would be caused to an existing building, by the erection of proposed premises in the immediate vicinity, can only be predicted by the aid of abstruse and wearisome calculations.

An advantage possessed by the graphic method devised by Mr. Molesworth is that all the necessary information can be obtained in a very simple manner, and in a very short time. For the purpose of dealing with direct sunlight, the author uses two diagrams, of which A is a planisphere showing the circles of bearing and parallels of altitude, the exterior circle representing the meridian, a horizontal line the horizon, and a vertical line through the centre the prime vertical, while latitudes are shown on one lower quadrant. The second diagram, B, is a tracing which represents the equator and the portion of the heavens inside the tropics, and comprises the path of the sun during the year. Dotted lines represent the path of the sun at intervals of 5 deg. of declination, and curved lines represent time at intervals of ten minutes. When using the diagrams, the tracing B is placed upon the diagram A with one end of the equator line over the latitude. Then the path of the sun at any date can be seen by inspection; the time and bearing of rising and setting, and the altitude and bearing at any time can be ascertained; and the duration of twilight can be determined. For the purpose of applying such information in a practical manner, essential parts of the obstructed and obstructing buildings are suitably plotted on a piece of tracing paper pinned over diagram A; the tracing B is then adjusted above the tracing paper, and the information required can be read off. The author gives approximate tables of the sun's declination, and of the equation of time for the correct interpretation of results. A somewhat similar method is described in the same book for estimating the percentage of diffused light intercepted by any building from windows and skylights. Briefly described, the above is the new method proposed by Mr. Molesworth. It may seem at first sight to be somewhat complicated, but a very short study should enable any architect or surveyor to grasp all essential points. The two diagrams first mentioned accompany the work in sheet form, that they may be convenient for use on a drawing-board.

*The Prize Essay on the Erection of a Sanatorium for the Treatment of Tuberculosis in England.* By ARTHUR LATHAM, M.A., M.D., Assistant Physician at St. George's Hospital, &c., in association with A. WILLIAM WEST, Architect. London: Baillière, Tindall, & Cox, 1903.

IN response to the advertisement issued in January, 1902, by his Majesty's Advisory Committee, 180 essays on the erection of a sanatorium for consumptives were received, and the book now under notice contains the essay to which the first prize of 500l. was awarded. The names of the judges are a sufficient guarantee that the prize essay is, from the medical point of view, a satisfactory piece of work, but we are not quite so sure that the



architectural portion is equally good. The administration block shown in figs. 8 and 9 has a number of dark corridors; in the middle of the main corridor on the ground floor there is a length of nearly 70 ft. without window, and from the middle of this another corridor is led at right angles, the first window being 40 ft. from the main corridor; on the same floor, there are two other corridors, each 35 ft. long, without any windows whatever. In figs. 15, 16 and 17, a courtyard 48 ft. square is shown in the middle of a three-storied building. The plans possess many good features, but are not of the quality which a competition of this kind might have been expected to produce. The book as a whole is, however, a valuable contribution to the literature of this subject, and will be indispensable to architects engaged in designing sanatoria for consumptives. It contains, in addition to the essay itself, twenty appendices, most of which are tabulated statements of the details of design, construction, and management of existing sanatoria. The nineteenth appendix deals with sanitation, and is a perfunctory piece of work; surely the description of the water-closets as *wash-out* is a mistake for *wash-down*.

*The Abbey and Town of Mont St. Michel.* By H. J. L. J. MASSE, M.A. London: George Bell & Sons. 1902.

AMONG the many fine architectural groups on the Continent a unique place must be given to the magnificent group of buildings that crown the island known as Mont St. Michel, standing near the Normandy coast a few miles from Avranches. The building, not only a growth of many centuries, but from the limitations of its site very complicated in its planning, is not an easy one to describe clearly. The author has succeeded, with the aid of three plans and a fine series of photographic illustrations, in giving as clear a description as possible of this most interesting place. It is to be wished that the three plans given at the end of the book could have been to a uniform scale—all three differ slightly—as it would have facilitated reference to the positions of the rooms, one over the other, in such a building as the Merveille.

From the strictly architectural point of view, the chief interest is in the planning of the numerous buildings on the summit and round the precipitous sides of the hill, and the clever way in which, keeping the great church in the centre and at the higher level, every possible advantage has been taken of the slightest irregularity in the site to build large or small buildings, and to connect them with staircases and passages one with the other. A good deal of "restoration" has been already done, the most prominent work being the rebuilding of the central tower, finished with a not altogether happily designed roof. But there is so much of interest—the early nave and transepts, the later Flamboyant work of the presbytery, the magnificent series of vaulted rooms in the three stages of the Merveille, and, in strange contrast, the grim and terrible prisons and cellars near the west end of the church—and the building has undergone so many vicissitudes, that it is fortunate, even if all the modern work is not in the best taste, that the buildings have been preserved from ruin. Much of the Medieval work has collapsed from time to time, through defective building and insufficient foundations. We may, however, express a hope that the hideous tiles on the roof of the cloister may, at no distant date, be removed; their utter unsuitability to their surroundings is only too plainly evident in the view given, p. 74.

From its lofty position a good view of the exterior of the flamboyant work of the presbytery is difficult to obtain, but its general effect is well shown in a series of general views of the Mount, and interesting photos of the interior of the apse are given, and one on p. 42, a particularly charming group of flying buttresses and pinnacles. A chapter has been devoted to the buildings of the Merveille, and each of its vaulted rooms is well illustrated—the Salle des Hôtes, facing p. 71, is particularly good, and an equally good idea is given of the gloom of the crypts and prisons in the illustrations to the chapter on the substructures. Altogether this work is one of the best of this interesting series, and the author has given in a comparatively small space a valuable account of a particularly complicated building. Chapters are added on the ramparts and the

town, and a list of Abbots is given, showing the dates of the erection of the several buildings. In addition to the three plans of the monastery, a fourth is added, showing the general planning of the fortifications and town. The intending visitor should read Mr. Masse's work before going to the Mount, and it will form an interesting souvenir afterwards.

*The Cathedral Church of Notre Dame, Paris.* By CHARLES HIATT. London: George Bell & Sons. 1902.

THIS, like the foregoing, is one of the latest additions to the series of continental churches, and is a well-illustrated account of the well-known metropolitan church of Paris. Its fine west front, apse, and transept fronts are well given in photographs (by Ed. Hauteceur), and a good general interior view facing p. 55. The lack of interest in the interior is chiefly accounted for by the absence of mediæval monuments and the destruction of the roof effect, too, of the architecture is somewhat hard and mechanical, and the grand effect of subdued light formerly given by the windows has been almost entirely ruined by the loss of the old stained glass. Notre Dame will, however, always take a high place among the cathedrals of France, and the book under notice makes a capital guide to all its points of interest.

*The Collegiate Church of Stratford-on-Avon.* By HAROLD BAKER. London: George Bell & Sons. 1902.

THIS is the latest addition to the series—uniform in size and character with the Cathedral series—dealing with churches chiefly monastic or collegiate. We have already noticed excellent books on Tewkesbury, Wimborne, Bath, Westminster, and others. Stratford-on-Avon is so well-known and has been so often illustrated that it is not surprising that nothing very novel is included in this book; but the illustrations, from photographs by the author, of the fine church so picturesquely situated by the river side, with its porch, chancel monuments, and Clopton Chapel, are excellent; also those of Shakespeare's house, the Guild Chapel, and the remains of the family mansion of the Cloptons. A description of the neighbouring house at Charlecote is also given.

*Authorised Guide to St. Paul's Cathedral.* By LEWIS GILBERTSON, M.A. London: Chiswick Press. 1902.

THIS guide is very well done and does not attempt too much. A concise history of the circumstances attending the production of the design for the present Cathedral is given; and the structure of the dome is correctly described and illustrated by a good sectional drawing. A plan and description of Old St. Paul's are given, with the deviation of line of the present building from the axis of the old one; there is however no illustration giving the exterior appearance of the old Cathedral, which might have been of interest to some visitors. Large plans of the church and crypt of the present building are given, and the various decorations, and alterations in interior arrangement, are described. The author (perhaps rightly) avoids expressing any opinion on any of these alterations; he contents himself with a brief statement of the facts. The only important omission we noted is in regard to the exterior sculpture; the tympanum sculpture is mentioned and the subject given, but not the subjects of the separate statues on the attic.

*Laxton's Price-Book for Architects, Builders, Engineers, and Contractors.* London: Simpkin, Marshall, & Co. 1903. 4s.

THE eighty-sixth annual issue of this Price-book quite sustains its reputation. So far as price-books can represent a normal and average standard, variations from which under special circumstances must always be expected and allowed for, no book of the kind can well be fuller in information or better arranged. The chapter on electrical lighting, heating, and power has been specially revised by a well-known electrical engineer. The London Building Act and other important Acts bearing on building operations are appended as usual, as also the Institute of Architects' form of building contract and their scale of professional charges. Important

decisions under the London Building Act in the Superior Courts and the Tribunal of Appeal are stated in detail, and "Heads of Cases" brought before the police-courts under the same Act are also given. No pains seem to have been spared to render the work as complete as possible.

#### THE LONDON BUILDING ACT.

A REPRESENTATIVE gathering of the electors of Aldersgate Ward met on the 18th inst., under the presidency of Alderman Sir Joseph Renals, at the Young Men's Christian Association, Aldersgate-street, for the purpose of protesting against the County Council's London Building Acts Amendment Act, 1903, which has formed the subject of discussion at several Ward meetings in the City. Sir Joseph Renals said there could be no doubt that the Bill was the outcome of the Queen Victoria-street fire; but in his opinion there could be no necessity for imposing conditions which would work most injuriously among owners and occupiers all over the City. He believed, on the other hand, that a measure could be drafted which would still further reduce the risk to human life in case of fire. During the last twenty-five years the loss of lives by fire in the City had been astonishingly small. The fires had not broken out in ordinary warehouses, offices, and shops, but in some outside business, in which chemicals were used. Mr. E. Chant observed that, if the Bill was made law, it would render many warehouses absolutely useless. He described it as an iniquitous Bill, as many of its clauses would make valuable property in London worthless. Mr. T. H. Ellis expressed himself in favour of a conference with the authorities at Spring Gardens. He objected to the machinery of the Act being in the hands of the County Council, so far as the City was concerned. Mr. Tubbs condemned the Bill as a piece of panic legislation, and complained that the City Corporation had been apathetic in the past in not opposing a previous Building Act. The County Council, he said, should have no power whatever within the City, and he believed that, if the Corporation had been up-to-date, it might now have been the authority over the Fire Brigade in the City. After some further discussion, the following motion was unanimously adopted:—"That this meeting of owners and occupiers in the Ward of Aldersgate, having heard and discussed the provisions of the proposed new London Building Acts Amendment Act, consider its requirements so unwarrantably and unnecessarily severe that they have no hesitation in forwarding this resolution to the Corporation inviting them strenuously to oppose the passing of the Bill in its present objectionable form. They do this with the firm belief that all properties and persons may be made equally safe and secure from fire without imposing alterations in the existing Acts, which would prove so costly and burdensome to all owners and occupiers. They further wish to record an indignant protest against the absence of any tribunal of appeal. This meeting respectfully suggests that the Lord Mayor be invited to call a mass meeting at the Guildhall to enable the citizens generally to express their views on the subject."—A meeting of the inhabitants and ratepayers of the Ward of Cheap was held on the 13th inst. at Graham College, Great-street, to consider the provisions of the proposed Bill. Mr. Alderman Smallman presided. The chairman explained that the Bill was promoted by the London County Council, and dealt with matters of such importance as to make it desirable, in the opinion of the members of the ward, that the inhabitants and ratepayers should be called together to discuss it. They were all agreed that adequate measures should be taken to provide for the safety of those employed in City buildings in case of an outbreak of fire. The question arose, however, whether the proposals of the Bill were the best in the circumstances. The ward representatives unanimously approved of the City Corporation being made the authority for enforcing any fresh regulations. Mr. C. A. Lang proposed, and Mr. W. F. Noakes seconded, the following resolution:—"That this meeting of the inhabitants and ratepayers of Cheap, while being keenly alive to the necessity of adequately providing for safety of life in the case of fire, is of opinion that, in reference to the City of London, the London Building Acts (Amendment) Bill is arbitrary, impracticable, and will occasion serious loss of business to the citizens, and that it ought to be opposed." In the course of a discussion which followed, Mr. E. Woodthorpe said that there was no part of London in which the enforcement of the provisions of the Bill was required more than some districts in the City. The employment of girls and young women in the upper portions of buildings had increased enormously of late years. The resolution was carried. On the motion of Mr. E. J. Trustman, seconded by Mr. Leopold Farmer, a resolution was passed in favour of the Corporation being appointed the authority for carrying out any further powers which may be authorised by Parliament in reference to buildings in the City. It was decided to forward copies of the resolutions to the Lord Mayor, and to request him to call a public meeting of the citizens to consider the Bill.



For the purpose of considering the Bill a meeting of the inhabitants of the Cordwainer Ward of the City was held in the Vestry-room of St. Mary-le-Bow, Cheap, on the 16th inst. Alderman Vaughan Morgan presided. In the course of the discussion many reasons were assigned why the measure should be strongly opposed by the citizens, while its promoters were subjected to a most severe criticism. The Council, said Mr. George Edwards, had themselves neglected to take even the most elementary precautions against fire. The reconstruction of old buildings of over 20 ft. in height and 800 ft. super in area might prove beneficial to architects and builders, but it would mean ruin to many of the owners. Mr. Bennett, C.C., expressed the opinion that the proposed regulations were entirely unnecessary, and Mr. Henry Byrne-Jones held that the Bill had been put forward more or less as a bogey. Resolutions were passed condemning the Bill as "indefinite, tyrannical, and unwarrantable," and expressing the opinion that before any new legislation was attempted there should be a conference between the various municipalities interested, and any regulations applying to the City proper should be under the control of the City Corporation. It was also resolved that the Lord Mayor be asked to convene a meeting of the members of the various wards to jointly consider the proposals of the Bill.

A special committee of the Paddington Borough Council presented to the Council on Tuesday a report on the subject of the proposed amendments of the Act. The vital question, in the opinion of the committee, is the appointment of the District Surveyors, whose duties the Bill promoted by the County Council seeks to enlarge. The committee submit that "a decision of the Council of the various councils should appoint the District Surveyors, and that as those councils are responsible for the sanitary supervision of every house in their respective districts, they should specially have the control over construction as well. The committee maintain that a system under which one authority approves the drains and another the bricks and timbers "is a bad one in principle, and not conducive to economy, public policy, or convenience." Further, it is pointed out (1) that there is no reason why the Metropolitan Borough Councils should be denied functions possessed by provincial municipalities; (2) that the London County Council, with whom the appointment and limited control of District Surveyors now rests, might still frame rules for the general guidance of those officials and continue in touch with them by—as in the case of local medical officers of health and sanitary inspectors—paying half their salaries. The town clerk of Paddington (Mr. A. W. J. Russell) was instructed by his Council to write to the other metropolitan councils asking if they were agreeable to appoint delegates to attend a conference to consider the subject of the proposed transfer of powers under the London Building Act as indicated. If a majority prove favourable a conference will be held at the Paddington Town Hall.

## TRIBUNAL OF APPEAL CASE:

### QUESTION OF A NEW ROAD.

THE Tribunal of Appeal under the London Building Act, 1894, sat at the Surveyors' Institution on Friday last week to hear an appeal by Mr. A. Cameron Corbett, M.P., against the decision of the London County Council declining to sanction under Section 19 of the Act the construction of a new road on the west side of Torrion-road, Hither Green, London, S.W. The members present were Messrs. W. Penfold (Chairman), A. A. Hudson, and E. A. Cranning.

The appellant was represented by Mr. Cunningham Glen (barrister, instructed by Messrs. West, King, & Adams), and the respondents by Mr. D. Palmer Andrews, Solicitor to the London County Council.

Mr. Cunningham Glen, in opening the case for the appellant, said that Mr. Cameron Corbett was the owner of a large estate called the St. Germans Estate, which he was laying out. He desired to construct a new road on the west side of Torrion-road, to run west as far as another new road called Muirkirk-road, which it would join at right angles. A short distance along Muirkirk-road, which runs north and south, was an existing road called Sandhurst-road, and this would make an outlet from the new road in question into Bromley-road, a main thoroughfare. Why the County Council had refused their sanction, he could not conceive, especially in view of the fact that, in October, 1901, that Tribunal allowed an exactly similar appeal in respect of a parallel road named Braidon-road, which adjoined the same estate. West, King, & Adams wrote the Council, calling their attention to that fact, and asking them their reason for rejecting their sanction. To that letter the Council's solicitor replied on February 10:—"The Building Act Committee is fully aware of the facts of the previous appeal to the Tribunal of Appeal, and the Council still declines to sanction the street or streets as proposed to be laid out will not at and from the time of forming or laying out the same afford direct communication between two streets formed and laid out for carriage traffic. I am further to add that your client is well aware

that the Council hold the view, and have in the past held the view, that it is desirable in the public interest that the streets being laid out on the St. Germans Estate should not be so designed as to form a go through means of communication to the Bromley-road. In designing the extension now proposed of Downhill-road, which is a central street, this view is not recognised, as no provision is made for extending the road in the direction of Bromley-road." He contended that the outlet afforded by Muirkirk-road and Sandhurst, although they formed an angle, did make through communication to the Bromley-road.

Mr. Robert Stewart, the appellant's agent, in reply to Mr. Andrews, said he was not willing to leave a 50-ft. opening at the end of the new road so as to form a direct communication with a new road to be made on the adjoining estate (Mr. Foster's), which lay between Muirkirk-road and the Bromley-road and south of Sandhurst-road. Mr. Foster might never make that road, and then the appellant would be prevented from building on the land. He had endeavoured to come to terms with Mr. Foster to construct a road so as to carry the new one in question straight through to the Bromley-road, but he had not succeeded. Such a straight road would benefit the St. Germans Estate. Between Muirkirk-road and the Foster estate boundary was a brickfield, which the appellant had leased for six years from September last, so that the road could not be constructed as suggested.

Mr. Andrews: This new road is a 40-ft. road, and Mr. Foster's are all 50 ft. That is the bone of contention.

Mr. Andrews said that a great point had been made about the Braidon-road appeal, but this was distinguished from that. The Council had adopted a consistent attitude in this matter, and they should be supported with the view to getting the two estates as far as reasonable to come together and make some arrangements so that they should not each be laid out without any kind of reference to the convenience of the public. Downhill-road, of which the new road was to be a continuation, was a road which evidently Mr. Cameron Corbett contemplated would be a central street through his estate, and it was common knowledge that the owner of the Foster estate contemplated that Downhill-road would eventually have to go through into Bromley-road. The plans prepared by the Foster estate provided for a road to meet Downhill-road, and carry that through into the Bromley-road, and it would be an unreasonable and impolitic thing to allow the appellant to so build as to make it impossible for Mr. Foster to carry his road into Downhill-road without buying out property. If he did not do that the Council, when he applied, would have to refuse him sanction to construct the road because it would be a case, as the Council would be no through communication. Therefore, the Council suggested that the appellant should leave a space of 50 ft. unbuilt on in continuation westward of the new road, so as to join up to the road on the Foster estate. This could not be constructed for eight years, and by then the brickfield lease would have run out.

The Chairman: Mr. Corbett would, it appears, be pleased if the new road could run through the Foster estate. Therefore, the whole matter must depend upon the Foster estate.

Mr. Andrews suggested that as the two estates could not come to terms because one wanted a 40 ft. road and the other a 50 ft., the Tribunal should refuse its consent to either road until the owners came to an agreement.

Mr. Cunningham Glen observed that the Council were not at all desirous of assisting them with the adjoining owner. The Council could have imposed the condition Mr. Andrews now asked the Tribunal to impose, and thus have saved an expensive appeal.

After some discussion the following result was arrived at and put into writing by the Court:—"We allow the appeal, the appellant by consent undertaking not to permanently build over or prevent the continuation of Downhill-road up to the boundary of the Foster Estate at a point approximately as indicated on the plan hereto annexed before September 20, 1908. The undertaking to be in such form (if not agreed between the parties) as shall be settled by us."

The Council were ordered to pay 25 guineas costs.

**DIRECTORY OF TELEGRAPHIC ADDRESSES.**—Sells's Directory of Registered Telegraphic Addresses for 1903 (167, Fleet-street, E.C.) has been brought well up to date. The work is published annually, with three quarterly editions, and the lists of registered addresses are supplied by authority of the Postmaster-General. The following are the chief sections of the work: Alphabetical list of firms (particulars are given of title, profession, postal address, telegraphic code used, telephone number, and registered telegraphic address); the national directory of telegraphic addresses; the national directory of large commercial houses; and trade marks and brands register. The directory also contains information as to telephones; telegraph tariffs from the United Kingdom to all parts of the world; and British Consular representatives in foreign countries. The present is the eighteenth year of publication of an excellent work.

## Correspondence.

### THE PATENTS ACT, 1902.

SIR,—Section 1 of the above Act provides, *inter alia*, for the making of a limited official search as to the novelty of the inventions claimed in all complete specifications deposited; it further provides for the reduction of the period of provisional protection from nine to six months.

It does not appear to be generally known that this section will not come into operation until such date as the Board of Trade may by order direct, and we are advised that there is little likelihood of such order (which will have to be laid before both Houses of Parliament) being made for a couple of years, the necessary machinery for carrying the provisions into effect being wanting at present.

E. P. ALEXANDER & SON,  
Chartered Patent Agents.

### MODERN STONEMARKING MACHINERY.

SIR,—I notice in your issue for February 7 you print an extract from my book, "Stonemasonry Machinery," which briefly summarises what could be done by machinery in the way of stone conversion. Will you permit me to say that since those lines were written substantial progress has been made, not only in improving the machines then in existence, but by the introduction of several new ones, notably the diamond circular sawing machine for stone, an improved sand blasting machine, and pneumatically driven masons' chisels.

As regards the diamond-saw, this runs at some two miles per minute, and the diamonds are electrically welded into the periphery of the saw, and "staggered" to give a clearance to the blade, which is kept cool and freed from dust by jets of water. It will cut Portland stone at 6 in. run per minute, leaving a beautifully true surface.

The sand-blast machine is used for recessing and ornamenting, lettering, &c., the sand being blown against a stencil by steam, which is instantly exhausted, leaving a beautifully true figure on the stone or marble.

Pneumatically-driven chisels, making some 1,000 strokes per minute, are considerably used in America for dressing and carving stone, but are only recently introduced into this country, and as the compressed air can be carried a considerable distance without trouble, these chisels have proved themselves very useful in carving pillars, &c., in position.

I should be pleased to show samples of work to any one interested. M. POWIS BALE.

### JOINTLESS FLOORING.

SIR,—I should be glad if any of your readers could inform me of the name and address of the manufacturers of "Papyrolith Jointless Flooring?"

ARCHITECT.

### OBITUARY.

MR. PENROSE.—We greatly regret to announce the death on February 15 at his residence, Colebyfield, Copse Hill, Wimbledon, of Mr. Francis Crammer Penrose, M.A., F.R.S., who died within a few days of the decease, on the 3rd inst., of his wife, daughter of the late Francis Gibbes, of Harewood, Yorkshire, Surgeon, whom he married in 1856. Mr. Penrose, the youngest son of the Rev. John Penrose, vicar of Bracebridge, near Lincoln, was born at Bracebridge Vicarage in October, 1817. Having passed four years at Bedford Grammar School, he was elected on to the foundation at Winchester. On quitting Winchester he became a pupil of Edward Blore. He then entered at Magdalene College, Cambridge, and as an undergraduate rowed three times (twice in the winning boat) in the University crew against Oxford. After graduating as a Senior Optima in 1842, he was elected a "Travelling Bachelor" upon the Wooten Endowment and travelled during three years in Italy and Greece. The results of his researches made in those countries at that time and upon subsequent occasions, were published by him in his monumental work upon "The Principles of Athenian Architecture," which he brought out for the Dilettanti Society in 1851. We may here mention that the Dilettanti Society had availed themselves of his offer to pursue the enquiry initiated by Wilkins and taken up by Sir James Pennethorne at Athens with the small appliances then at the disposal of the latter; they furnished Mr. Penrose with the means of going to Athens with his improved instruments, and of there testing the theories advanced by Vitruvius and Gullani in respect of the delicate curves and variations in the lines of the Parthenon. Mr. Penrose devoted much skill and considerable time and labour to investigations into the orientation of the temples in Greece and the Islands. He read a paper upon that subject to the Royal Society in February, 1891, and in the Transactions, 1893, of that Society will be found a contribution by him upon certain astronomical



facts relating to the orientation of Grecian temples. In our columns of April 13, 1901, we printed an abstract of a paper he read on February 14 of that year to the Royal Society entitled "Additional Notes on the Orientation of Greek Temples, being the Result of a Journey to Greece and Sicily in April and May, 1900."—The temples he described being those at Delos, of Apollo at Delphi, of (reputedly) Diana and (reputedly) Minerva at Syracuse, a small temple at Naxos, and the one lately discovered at Seleucia, in Sicily. In March, 1851, he communicated to a meeting of the Royal Institute of British Architects his invention, made conjointly with Mr. Bennett, of the heliograph, an instrument for geometrically describing the Ionic volutes and the scroll work found in Grecian architecture. On November 17, last year, he read a paper to the Institute upon "The Drawing and Construction of the Ionic Volute," of which we printed an abstract on the 22nd of that month. In 1869 Mr. Penrose brought out a work—of which a second edition appeared ten months ago—entitled "Method of Predicting by Graphical Construction Occultations of the Stars by the Moon and Solar Eclipses for any given place." In the summer, 1901, he and Sir J. N. Lockyer made a series of observations at Stonehenge in respect of the real, or supposed, orientation of the stones. In the result, he estimated, upon the assumption that it is a solar temple, that the stones were originally set up there about 1,680 years before the Christian era.

In 1852 Mr. Penrose was appointed architect and surveyor to the fabric of St. Paul's Cathedral. He held that appointment until 1862. During the term of office he published a "Description of a scheme for the embellishment of the interior of St. Paul's Cathedral" (1873); prepared the designs for the cast-iron lamps and standards, dated "1874," on the pavement before the west front; for the Choir School in Carter-lane, E.C., illustrated, with two plans and details of the sgraffito decorations, in the *Builder* of May 20, 1878. Lean Minerva's tomb in the Cathedral—the marble figure being by Mr. F. J. Williamson, of Esher—illustrated in our number of July 20, 1876, the works in the tower for the frame for the new peal of bells and the bellage—see our illustration of October 12, 1878, and for the re-arrangement of the interior of, with the addition of a story to, the Chapter House in St. Paul's-churchyard (1885). He made also the designs for the five tall standards in the nave for the electrical light installation. In May, 1879, Mr. Penrose discovered the remains *in situ*, of Paul's Cross, of which we published the plan and a description on August 2 of that year. Of his other constructive architectural work we may instance his improvements (1880) of the exterior, on the south and west fronts, of Magdalene College, Cambridge, for which he removed, along the south front, the houses between the college and the river Cam; the shoring and bolting-up of the north tower of the gatehouse, in Chancery-lane, of Lincoln's Inn (1890); and the restoration and enlargement of All Saint's Church at Chivers Coton, Warwickshire, in or about 1889. In conjunction with Joseph Gwilt (*obit* 1893) Mr. Penrose drew up a scheme of proposals for a new Metropolitan Building Act, 1885; he was the author of the life of Sir Christopher Wren in "The Dictionary of National Biography," and in 1895 was President of the Architects' Benevolent Society. His portrait, by Mr. Sargent, R.A., deposited at the Institute in March, 1898, was copied by Mr. C. N. Newton, at the request of the Master of Magdalene, for that College, some months since.

Mr. Penrose became an Associate of the Royal Institute of British Architects in 1846, was elected Fellow in 1848, and served as President in 1894-6, and for some while as a member of the Council. He was the Royal Gold Medalist in 1883. He was appointed the first Director (1886) of the British School at Athens shortly after its foundation; he was an LL.D. and Litt.D., Cantab.; D.C.L., Oxon.; Honorary Auditor to the Royal Academy of Arts, succeeding the late Sir A. W. Franks; a Fellow of the Royal Astronomical Society; Knight of the Order of the Saviour in Greece; a member of the Athenæum Club; and in 1895 was elected an Honorary Fellow of Magdalene College. On the occasion (June 15, 1898) of the conferment upon him of the degree, *honoris causa*, of Doctor of Laws by Cambridge University he was introduced by the Public Orator, Dr. Sandys, with the following oration in the Senate House:—

"Hodie reducem saluatum alumnus nostrum qui abhinc annos fere septem et quinquaginta Thamesis inter undas et certaminis Graeciae ad stellas nuncius misso semel tantum victis, plus quam semel victor efficit. Olim Academiæ nomine in Italiam et Graeciam missus, de Atheniensium templis opus egregium edidit, in quo Parnthenonis et columnas et epistylia et columnas in tum lineis non rectis sed leviter curvatis contineantur primum omnium ostendit, et ordinis Dorici maiestatem attulit, tum ad id adjuvare demonstravit. Idem nuper de templi Graeciae ad stellas nuncius orientes conversis ingeniose disputavit. Illud vero felicitatis conspicuae documentum Nestori nostro contigit, quod et Athenis et Londini architecturae studiis diu dedicatus, non modo Sancti Pauli ecclesiae cathedræ in culmine sed etiam Iovis Olympii columnarum in fastigio solis omnium monumentum constituit. Viro ad tantam altitudinem evecto non sine reverentia quadam in hoc nuncius honoris laudem nostram latet decernimus. Ducto ad vos Collegii Magdalene Socium, Britannorum Scholæ Archaeologicae Atheniensium et Regio Architectorum Instituto nuper praepositum, FRANCISCUM CRANMER PENROSE."

## GENERAL BUILDING NEWS.

**CATHOLIC CHURCH, PARTICK, GLASGOW.**—St. Peter's Roman Catholic Church, Partick, has just been opened. The church is situated on the east side of Hyndland-street and the south side of Wood-street, Partick. It is in the Early Decorated style. The nave, which is 102 ft. long, consists of seven bays, and the chancel, divided from the nave by a chancel arch, is 34 ft. long, making the total length of the church 138 ft. internal measurement. There are two chapels, one on the Gospel, the other on the Epistle, side. These are approached from the chancel through arches. Each chapel is lit by a rose window over the altar. In each bay of the clerestory, which is supported by a nave arcade, there is a three-light window, and there are also three-light windows in each bay of the aisle to the north side. The western facade faces Hyndland-street. The gable is pierced with three windows—one single window in centre about 27 ft. high, and a two-light window on each side, with tracery head. There are four doors to Hyndland-street, and a gallery is provided at the west end for the organ and choir. The confessionals are placed on the south of the aisle, and are entered through doors in the aisle walls. The dimensions of the church are as follows:—internal length, 138 ft.; width of nave, 28 ft.; total width from aisle wall to aisle wall, 60 ft.; and height from floor to apex of roof, 62 ft. The sacristy is on the south; one entrance to it being from Clarendon-street, and it is also connected to the presbytery by a cloister which runs south of the confessionals. The presbytery, which is situated at the corner of Hyndland and Clarendon-streets, has two floors, and has been built to accommodate five priests. Red stone has been used throughout the buildings, which were designed by Messrs. Pugin & Pugin, London. The church is lighted with electricity. The following were the contractors:—stonemasonry, Messrs. Millar and Parkhill; Alexander Muir & Son, Eglinton-street, Glasgow; carpenter, joiner, and ironmongery—Allan & Baxter; slater work—William & D. Mailer; plumber work—Colin Turner; lath and plaster—William Donnelly & Sons, Partick; glazier work—McColloch & Co.; painter work—George W. Sellars; clerical work—Mr. Thomas Todd, Partick.

**CONGREGATIONAL CHURCH, LOCK'S HEATH.**—A new Congregational church at Lock's Heath, near Swanwick, has just been opened. The style is Gothic, and the walls are of red brick, with Bathstone dressings. The roof is open-timbered and close-boarded. The glazing is in cathedral glass in three tints, blue, gold, and purple, in leaded lights. The seating is in pitch-pine and deal, lightly stained and varnished. The lighting is effected by means of "the American patent incandescent vapour gas lamps." The building is heated by hot-water pipes. Mr. R. Lowe, C.E., of Gosport, was the architect, and Mr. C. M. DASH was the builder. The church will accommodate about 250 persons. The cost was 1,000 gns., including furniture, but not the site, which was given.

**CHURCH, BURNISLAND, FIFESHIRE.**—A new church for the Eriksie United Free Congregation of Burnisland is now approaching completion. The church, surrounded by a tower, with a cost of about 6,000, and is seated for over 400, with hall accommodation at the back for about 300 persons. The architect is Mr. J. B. Wilson, Glasgow.

**THE ACTON LIBRARY, CAMBRIDGE UNIVERSITY.**—The University Library Syndicate have issued their Report upon the housing of the library which Mr. Morley, to whom the books were bequeathed by Lord Acton, has recently presented to the University. They estimate that a total outlay should be incurred of 7,300l., including 400l. for removal of the books from Aldenham Park, Shropshire, 2,300l. for structural alterations and provision of bookcases, 2,500l. for a cataloguing staff, 1,000l. for printing, and 1,000l. for binding. Plans and specifications have been made by Mr. W. C. Marshall for carrying out certain structural alterations in the rooms on the ground floor of Scott's Building (adjoining the old Law School on the east side) and for furnishing them with bookcases, those rooms having recently been restored to the University Library, whilst their use for Mr. Morley's gift will enable the Syndicate to observe the donor's request "that the books should be preserved together and in some degree apart."

**TOWN HALL, SKEPTON.**—Messrs. Butler Wilson & Oglesby, architects, of Leeds, have been commissioned to prepare designs for the enlargement of the Town Hall and Council Offices at Skepton, Yorkshire. The scheme comprises additions to the hall, with a new supper-room, the remodeling of the Council offices, and the provision of a new Court-house for the magistrates.

**WORKMEN'S CLUB AND INSTITUTE, USHAW MOOR.**—Club and institute premises are to be erected in Ushaw Moor, Leeds. The building will be extensive collage in the basement. The ground floor will consist of entrance hall, and vestibule buffet, 34 ft. by 10 ft. 6 in.; smokeroom, 34 ft. by 10 ft. 6 in.; recreation-room, 24 ft. by 10 ft. 6 in.; billiard-room, 46 ft. by 20 ft.; library and reading-room, 10 ft. 6 in. by 14 ft.; and parlour, 15 ft. 6 in. by 8 ft. 6 in.; secretary's office, storeroom, and kitchen and culinary offices in steward's house. The principal feature of the first floor will be a recreation-room, 76 ft. by 40 ft., and the committee-

room. The hall, which is approached from the entrance lobby by a fireproof staircase, will be 23 ft. high, and will have a panelled ceiling. Provision has also been made for gallery and stage at either end of the hall. A separate public entrance and fireproof staircase is also provided. Lavatories are provided on each floor, and slipper and showers baths are to be added. The heating throughout will be by means of a low-pressure hot-water system from a heating chamber in the basement. The contractors for the whole of the work are Messrs. Walton Bros. of Crook. The total cost will be about 3,000l. Mr. G. Ord, Durham, is the architect, under whose superintendence the work is being carried out.

**NEW THEATRE, COLCHESTER.**—A new theatre, to seat 1,488, is about to be erected in the High-street, Colchester, to be known as the "Grand." Operations are to commence as soon as possible, as it is to be opened next Boxing Day; the plans have been approved by the Council. Mr. J. W. Start, of Colchester, is the architect.

**SCIENCE BUILDINGS, DONCASTER GRAMMAR SCHOOL.**—On the 13th inst. the new science buildings in connexion with the Doncaster Grammar School were opened by the Mayor (Councillor Robinson). The buildings were erected by Messrs. Dennis Gill & Son from plans prepared by Mr. F. Rowntree at a cost of about 3,000l. The buildings include a lecture hall, physical and chemical laboratory, a master's room, &c., and adjoin the school.

**NEW BUILDINGS IN ABERDEEN.**—The Plans Committee of the Aberdeen Town Council have sanctioned the following plans of new buildings:—Alterations and additions in connexion with No. 28, Albany-place, Mr. A. M. Mackenzie, architect; two dwelling-houses on the west side of Forest-road, for Mr. John Morgan, builder, per Mr. Arthur Clyne, architect; alterations and additions in connexion with premises, No. 34, St. Andrew-street, for Mr. William Ross, per Messrs. Cameron & Watt, architects; rebuilding of premises, Nos. 7-11, James-street, for Mr. James Urquhart, per Messrs. Cameron & Watt, architects; granite-dressing shed on the south side of Fullerton-road, for Mr. Nicholas Reilly, granite merchant, per Mr. Duncan Hodge, architect; dwelling-house and shop at Poora Quay, for Mr. Robert Smith, per Mr. George B. Mitchell, architect; dwelling-house on the west side of Holburn-street, for Dr. C. M. MacQuibban, per Mr. William E. Gauld, architect; alterations in connexion with premises, No. 158, Crown-street, for Mr. William Sutherland, per Mr. R. G. Wilson, architect.

## FOREIGN.

**FRANCE.**—The Société Centrale des Architectes has decided to found an annual prize of 2,500 fr., with the proceeds of the Dejean legacy, and to be called the "Prix Dejean." The prize will be awarded to a French architect for studies or researches in connexion with architecture.—The "Ouest" Railway Co. is about to establish two new lines of rail between the Gare St. Lazare and Asnières, a place of which the population is rapidly increasing. The new lines will start under the bridge of the Pont de l'Europe, and pass through a tunnel under the Rue de Rome, coming out at the Batignolles station, which will be rebuilt and enlarged. They will then be taken parallel with the existing lines of rail to Asnières.—The Société has been elected President of the *Région* of the Pont de l'Europe, and President of the Société Architecturale de l'Oise.—A municipal casino is to be built at Dinan.—The Paris, Lyons, and Mediterranean Railway Co. are about to build a large and important terminus hotel at Lyons.—The Municipality of Bordeaux intend to devote 3,000,000 fr. to important works in connexion with public instruction, including the enlargement of the Faculté de Médecine, the Lycée de Longchamps, and the Lycée de Jeunes Filles.—The bishop's palace at Nantes is to be rebuilt.—M. Olivier Merson, the painter, is executing a series of twenty-four pictures representing important scenes in the history of France, which are to be reproduced in colour to serve for the instruction of children in primary schools.—M. Didot, the architect, is to commence shortly the works for the new Impératrice Nationale, the central block of which, facing the Rue de la Convention, will be decorated with sculpture. In the rear of the portion will be immense hall containing the printing-machines. The new buildings will cover an acre of 20,000 square metres.—A Paris architect, M. Roux, has left 800,000 francs to the Académie de Beaux-Arts to found a prize for painters, sculptors, architects, and engravers, which will be awarded in accordance with conditions drawn up by the testator.—M. Duplessis, the architect, has been appointed the late curator of engravings at the Bibliothèque Nationale, has presented to the Institut of France the art library which he had collected.—The Municipality of Coulommiers has opened a competition for a new theatre.—The improvement, through its whole length, of the Rhône Canal, is shortly to be undertaken at a cost of 4,200,000 francs.—The Louvre Museum has received from the French Institute of Oriental Archaeology at Cairo an important consignment of objects of Coptic art.—M. Etienne



Gautier, the painter, has died at Paris, at the age of sixty. He was a native of Marseilles, and was an exhibitor at the Old Salon, where he obtained a "second" medal in 1875 and a "first" in 1878.

**CELEBRITY.**—The death is announced from Rome of the German sculptor, Joseph von Kopff, who has executed many works by command of the Czar, and other Royal personages.

**INDIA.**—The Government of India has sanctioned the erection of a station between Malwa and Bindki on the East Indian Railway.—The Government has also sanctioned the construction of a siding for the central gun-carriage factory at Jabalpur at a cost of 50,000 rupees.—The Ghaziabad station on the East Indian Railway is to be remodelled, and the Government has consented to the necessary expenditure.—New carriage and wagon shops are to be erected at Lilloah on the East Indian Railway.

**BRISBANE CATHEDRAL, QUEENSLAND.**—An appeal is made for an immediate sum of 5,000*l.* in order that building operations may be speedily begun in view of the fact that the present cathedral, erected in 1850, must be demolished in next December, and its site surrendered. The plans and designs were made by the late J. L. Pearson, R.A., and will be carried out, it is stated, by his son, Mr. F. L. Pearson, conjointly with Mr. W. D. Caros, at an estimated cost of 100,000*l.* for the congregation of 3,000. The Prince of Wales (then Duke of York) laid the foundation-stone in May, 1901; the choir and transepts, with a capacity for about 1,200 worshippers, will first be proceeded with, at an outlay of 45,000*l.*

#### MISCELLANEOUS.

**PROFESSIONAL AND BUSINESS ANNOUNCEMENT.**—The business of Mr. H. R. Allen, of the Glazed Brick Works, Halifax, has been transformed into a private company under the style of "Allen & Son." Mr. Allen having taken his son into partnership.

**COURT OF COMMONS COUNCIL.**—At the Court of Common Council held on Thursday last week at the Guildhall, it was decided, on the recommendation of the Streets Committee, to carry out the following paving works during the current year:—Taking up and relaying the existing granite cubes, making good any deficiency in new stone, of the carriage-ways of Arthur-street West and Lower Thames-street (Water-lane to Fish Market with bitumen joints), at an estimated cost of 1,685*l.*; relaying with new Aberdeen granite cubes the carriage-way of Cousin-lane, estimated cost 400*l.*; relaying with creosoted wood blocks the carriage-ways of Pilgrim-street and New-street Hill, estimated cost 635*l.*; relaying with wood the carriage-way of Fleet-street (Dover-street to Temple Bar), estimated cost 3,465*l.*; relaying with Australian hard wood the carriage-ways of West-street (Finsbury Circus) and Bride-lane, Fleet-street, estimated cost 770*l.*; and the relaying, partly with new and partly with existing York stone, at an estimated cost of 680*l.*, the footways of Coleman-street and St. Mary-at-Hill. It was decided also to lay with asphalt the carriage-ways of nine streets at an estimated cost of 2,570*l.*, and the footways of twenty-three streets, the estimated cost being 3,473*l.*—Mr. Moonen moved that it be referred to the Police and County Purposes Committee to consider and report as to the desirability of organising a brigade for the protection of life and property in the City, and to consider with the City Police Commissioner as to the methods adopted in Liverpool. The motion was seconded by Mr. McCarthy. Mr. John Lobb said that if the proposal were adopted it would lead to great expense, and would interfere with the present Fire Brigade. After some discussion the motion was defeated by a large majority.

**OLD HOUSE, STRATFORD-ON-AVON.**—The *Illustrated London News* publishes an illustration of an interesting example of sixteenth-century timber-work which has been discovered on removing the stucco facing from an old house in High-street, Stratford-on-Avon. There are some carved story posts, of one of which a sketch is given. The details seem to indicate a mingling of Late Gothic with Renaissance; Ionic capitals, with Tudor-looking flowers under them. It is a curious instance of the utter absence of any feeling for ancient decorative work during one period in England that the covering up of this carved wood-work with stucco was evidently carried out as an improvement on the condition of the building, the old work going for absolutely nothing.

**MANCHESTER SHIP CANAL.**—The Engineer's half-yearly Report states that the depth of the water in the ship canal and docks has been fully maintained by means of the dredging plant throughout the entire length of the waterway. A slight diminution in the quantities of silt and sludge deposited in the upper reaches of the canal and docks seems to have occurred during the half-year. The progress made with special dredging operations for the deepening of the channel in the estuary of the Mersey which forms the access to the canal at Eastham has been satisfactory. Nearly two-thirds of the quantity of the rock which is to be removed has been blasted and dredged in the length immediately below Eastham Locks. The deepening operations in the lower portion of the channel have also been successfully prosecuted. The caps of the sluices at Latchford Locks have been raised in accord-

ance with the terms of a mandamus issued by the Court of King's Bench on the application of the Commissioners for the Conservancy of the Mersey. The coal basin at Partington being extended and the accommodation thereof increased, for the purpose of rendering the basin more suitable for berthing the large steamers which now navigate the canal. On December 10, 1902, a serious accident occurred at Barton Locks. The ss. *Winfield*, while proceeding outward from Manchester, collided with and carried away the lower gates of the 65 ft. lock, destroying those gates and also causing serious injury to the upper gates and other portions of the lock. Spare gates were at once affixed, and new gates have been ordered for the lock. Some structural additions have been and are being made to the sheds in different parts of the dock estate, in order to comply with the requirements of the insurance companies.

**ST. PETER'S AND ST. OLAVE'S AND ST. SAVIOUR'S SCHOOLS, SOUTHWARK.**—New schools for St. Peter's Church in Summer-street, Southwark, were opened last week. The school buildings and the master's house were originally built of brick with stone dressings, in 1830, from designs after the domestic Elizabethan style, by Christopher Edmonds, upon a site of some 8,000 super ft., adjoining the church of St. Peter, which had been given by Dr. Charles Sumner, Bishop of Winchester. Having been used during more than sixty years for the purposes of St. Saviour's Grammar School, the premises were sold last year by the Governors of the St. Olave's, Tooley-street, and St. Saviour's Grammar School Foundation for 4,000*l.* under a scheme made by the Charity Commissioners, and were then altered so as to meet the requirements of the Board of Education at a total cost of more than 7,000*l.*, the accommodation being increased to a capacity for 600 children, and the master's house will be converted into a vicarage. Plans and designs have been prepared by Mr. W. Campbell Jones for the new girls' schools belonging to the amalgamated, Foundation of St. Olave's and St. Saviour's, upon a site on the north side of New Kent-road, near Buckingham-square. A scheme of the Court of Chancery drawn up in 1850 recast the statutes, and extended the benefit to non-parishioners, of the foundation of Queen Elizabeth's Free Grammar School of St. Saviour's, Southwark, which received a charter of incorporation dated June 4, 1502, having been first established by Thomas Core, the Queen's squire (obit 1588), and William Emerson (obit 1575), with "some other discreet and more ad inhabitants of St. Saviour's," for thirty boys of both poor and rich parishioners. For the original school, standing on the south side of St. Saviour's churchyard, was bought in May, 1562, a part of the Green Dragon, formerly Cobham's inn, a town house of Lord Cobham of Sierborough—see Mrs. Roger's "Bygone Southwark," 1895. Those old buildings were blown up with gunpowder for arresting the course of the disastrous fire which consumed a great portion of that quarter of the Borough in May, 1676. Wilkinson's "Londonia," and the *Mirror* of April 18, 1840, contain illustrations of the later schoolhouse which, in its turn made way, 1839, for an enlargement of the Borough Market.

**A MEMORIAL TO DR. MARTINEAU.**—There has just been unveiled in Little Portland-street Chapel, Regent-street, by Miss Henrietta Busk on behalf of the subscribers, a memorial to the late James Martineau, who was minister there during the interval 1858-1872, and died on January 11, 1900. The memorial, executed in white marble and designed by Mr. Hope Pinder, embodies a bas-relief with a profile view of part of that sculptor's seated statue of Dr. Martineau which he carved for the library of Manchester College, Oxford, and which was exhibited in the Royal Academy rooms in 1808.

**WESTON-SUPER-MARE MASTER BUILDERS.**—The master builders of Weston-super-Mare held their annual dinner at Glass's Restaurant recently. Mr. C. Addicot, President, presided, and gave the loyal toasts. Mr. W. M. Dubin proposed the toast of the "Architects and Surveyors," and Mr. S. J. Wilde, Mr. W. Jane, Mr. H. Drey Baryn, and Mr. H. Nettleton, the Town Surveyor, replied. Mr. T. W. Warry proposed the toast of "The President and Vice-President," and congratulated the chairman on his third year of office. He also congratulated Mr. Stradling on occupying the office of Vice-President. The President expressed his gratification at being present that evening, as nothing, he said, gave him greater pleasure than when he realised he was with his friends. The object of the Association in keeping together and maintaining its membership was that they might try and help each other to the best of their ability. The building trade was so bad that at the present time he could assure them it was hardly worth wasting their time in competing for. Some few years since when there was a job up to be tendered for, the architects would get perhaps four or five tenders. But to-day, when work was put up for competition, they found it was a job of anything like 1,000*l.*, they got something like a dozen tenders. Mr. E. S. Stradling having also replied, Mr. Stokes proposed the toast of "The Hon. Members and Visitors," coupling with it the names of Mr. A. G. Pitts and Mr. Hy. Butt.

**AGITATION AGAINST MANCHESTER BUILDING BY-LAWS.**—At the last meeting of the Manchester City Council, it will be remembered, approval was

given to plans for a certain number of houses to be erected at Blackley in connexion with the housing scheme of the Sanitary Committee. It was alleged that the plans contravened the building by-laws of the Corporation, which specify that no bedroom which is not an attic shall have a lesser height than 9 ft. from floor to ceiling over any portion of its floor space. It was argued that for purely economical reasons the Sanitary Committee had altered their plans in a way which would give some of the bedrooms on the first floor at Blackley as low a height as 5 ft. over a portion of their floor space. A first-floor room, it was contended, could not be regarded as an attic, as the word was always accepted as meaning something upon a third or higher story. On the other hand, the Council was informed that the Deputy Town Clerk had given an interpretation of the meaning of the word attic which quite justified the alteration of the plans. We understand that the subject is not to be allowed to rest where it is. It was raised again informally before the Improvement Committee, to whom a request was made for a meeting of the Building By-laws Sub-Committee, which has not of late been called together. It was given as an opinion that an alleged breach of their own by-laws by the Corporation would altogether destroy the efforts which the Improvement Committee have been making in order to compel private builders to put bedrooms of proper sanitary dimensions into houses intended for working-class tenants. It is probable that the sub-committee will be called together to consider the point. Failing that, the Improvement Committee will again be asked to take steps to obtain a different interpretation of the particular by-law.—*Manchester Courier.*

**BRITISH SCHOOL AT ROME.**—Mr. Henry Stuart Jones, Fellow and Tutor of Trinity College, Oxford, has been appointed Director of the British School at Rome for two years from Michaelmas, 1903.

**NEWCASTLE AND DISTRICT BUILDING TRADE EMPLOYERS' ASSOCIATION.**—On the 10th inst. the annual meeting of this Association was held at the Building Trades' Exchange. The President, Mr. Walter Lowry, presided. The secretary, Mr. Wilton A. Rycroft, presented the report for the past year, which showed the Association to be in a more satisfactory condition than it had ever been since its incorporation. The chief item on the agenda was the election of officers for the ensuing year. Mr. W. T. Weir proposed the re-election of Mr. Walter Lowry as President. Mr. S. F. Davidson seconded the proposal. The President said before they went any further in the matter he would like to say a few words. It was now some eight years since they honoured him by electing him to that important position, and he felt that he should no longer stand in the way of others. He thanked them for the great and willing support he had always received from them, and assured them that he would continue to take that interest in the affairs of the Association which he had previously taken, and do everything in his power to further the interests of the building trade. After a lengthy discussion Mr. W. T. Weir was, on the motion of Mr. Lowry, seconded by Mr. J. C. Hope, elected President. Mr. Weir thanked the members for the honour they had conferred upon him. Mr. Alex. Pringle and Mr. Stephen Easton were elected Vice-Presidents. The election of the other officers and the transaction of general business was proceeded with.

**INTERNATIONAL FIRE PREVENTION CONGRESS, JULY, 1903.**—The invitations to the International Fire Prevention Congress—issued by the British Fire Prevention Committee—having been largely and favourably responded to, it has been decided to open the Congress on July 7 with a general meeting, followed by sectional meetings on July 8 and 9. Several of the great Government Departments, such as the Local Government Board, H.M. Office of Works, and the Board of Education, have notified their intention of being represented by delegates, as have also some thirty municipalities, including cities like Edinburgh, Birmingham, &c. Further, the Metropolitan Asylums Board, several similar institutions, some of the City Companies, such as the Joiners' Company, the Tylers and Bricklayers' Company, and a number of the principal technical and scientific societies, have decided to send delegates. The National Fire Brigades' Union, the new Association of Professional Fire Chiefs and the Private Fire Brigades' Association will naturally be strongly represented. Further, nearly all the great American and Continental organisations interested in the subject have already decided to send deputations, foremost among them being the National Fire Protection Association of America and the International Association of Fire Engineers of America, while the great central authority, the International Council of Fire Brigades, will be sending almost all its officers. The Congress officers will be at 1, Waterloo Place, London, S.W., where particulars can be obtained from the Hon. Secretary. Those desiring to participate in the discussion or present papers should make their applications before the end of March.

**SANITARY ASSURANCE ASSOCIATION.**—The twenty-second annual meeting of the members of this Association was held on Monday last, at the offices, 5, Argyll-place, W., Mr. Andrew Shirling, President, in the chair. In the annual report the Council



expressed regret that the principle of sanitary registration of dwellings and other buildings, as first embodied in the Sanitary Registration Bill promoted by the Association, has not yet received the sanction of Parliament. The income of the year was 235l., which, after meeting all liabilities, left a balance in hand. The Report was adopted, and the retiring members of the Council, Professor T. Roger Smith and Mr. Mark H. Judge, were re-elected.

**LIVERPOOL CATHEDRAL SCHEME AND ST. JAMES'S MOUNT.**—The conveyance of the St. James's Mount site for the cathedral from the Corporation to the Cathedral Committee has been completed, and the purchase money (11,300l.) paid over by the treasurer of the Cathedral Fund.

**EXAMINATION OF WATER.**—At the meeting of the London County Council on Tuesday, the Water Committee reported as follows:—"As the Council is aware, analyses are made by the chemist of water drawn from the water companies' mains, and of samples taken from the Rivers Thames and Lea above the metropolitan water companies' intakes. We have had before us a report by the chemist on the result of the analysis and microscopical and bacteriological examination of the samples, 572 in number, collected during December, 1902, and January, 1903, and we consider it well to let the Council know the purport of this report in view of what is therein stated with regard to the organic matter present in the water of the Thames-derived supplies. From the report it appears that the oxidisable organic matter present during December, 1902, in the water supplied by the six companies taking water from the Thames was larger than that present during December, 1901, and that, in the water taken from the mains of two of the companies, the average quantity of oxygen absorbed by the organic matter was about 50 per cent. more than that absorbed during the previous 12 months. The average quantity of organic matter present during January, 1903, in the water supplied by five of the companies taking water from the Thames was larger in quantity than that present during January, 1902. In the water taken from the mains of one of the companies the average quantity present was 21 per cent. larger than that present in January last year. Although the organic matter in the water was very largely of vegetable origin, there was on a number of occasions an increase of albuminoid ammonia, this being a measure of the nitrogenous organic matter present. Although the quantities are small, it appears that in the water supplied by several of the companies the average quantity of albuminoid ammonia present during the past two months was double that found during December, 1901, and January, 1902. On a few occasions the quantity present was more than double. As regards the unfiltered river water from above the intakes of the companies, the chemist reports that there was a considerable increase in the quantity of albuminoid ammonia found, as compared with the previous December and January, but not to the same extent as that found in the water drawn from the mains of the six companies. He also states that, during the past two months, the water supplied by some of the companies on several days has been bacteriologically of an unsatisfactory character. We think it well to draw attention to the following paragraph in the Report made by the Water Examiner appointed under the Metropolitan Water Act, 1871, on the condition of the metropolitan water supply during the month of December, 1902: 'The results of the full analysis show that all the Thames-derived waters contained considerably larger amounts of organic matter than were found in the November samples. The Grand Junction and Lambeth Co.'s supplies were the worst in this respect, and the samples drawn from the mains of these companies on December 8 were of indifferent quality; the Southwark Co.'s water, collected on the same date, contained slightly less organic impurity, but was of unsatisfactory quality owing to marked turbidity. The Chelsea and West Middlesex Co.'s supplies, taken on December 8, were of good quality, and all the remaining samples were of fair quality for the time of year. With the exception of the Southwark Co.'s water, mentioned above, all the samples were clear.'

**APPOINTMENT OF SANITARY INSPECTORS.**—The Local Government Board has sanctioned the appointment of Messrs. E. G. Holmes and R. E. James as additional Sanitary Inspectors in St. Pancras.

**THE LONDON MASTER BUILDERS' ASSOCIATION HANDBOOK.**—The "Diary and Handbook for 1903" of the London Master Builders' Association contains much information of interest to master builders and others engaged in the trade. The book is published by the Association, 33, Bedford-street, W.C., with the object of providing useful information to those actively engaged in building operations in the metropolitan area, and it includes lists of the officers, a glossary of electrical terms, a short history of the Association, written by Col. Stanley G. Bird, C.B., a summary of working rules for the building trades of London, the Institute of Builders' Form of Contract, a comparative statement showing the hours worked per week and the rate of wages per hour in various branches of the trade in certain towns, an index to the London Building Act, 1894, Conciliation Board decisions,

and information as to Local Government (including lists of District Surveyors), and a mass of other information and tables. The work, which is clearly printed and arranged and is well edited, is published at 2s. 6d.

**NOTTINGHAM MASTER BUILDERS' ASSOCIATION.**—The annual dinner arranged under the auspices of the Nottingham Master Builders' Association was held on the 13th inst. at the Victoria Station Hotel, Nottingham. Mr. Henry Vickers (President) occupied the chair. The loyal toast having been honoured, Mr. W. Edgar submitted "The Mayor, Magistrates, and Corporation of Nottingham," and Councillor Jno. Wright replied. Mr. J. H. Vickers proposed "The Architects," observing that at the present time, and for a considerable time past, there had been absolute peace, harmony, and concord existing between the architects and builders, and he expressed the hope that that condition of things might long continue. The names of Mr. W. D. Pratt and Mr. E. R. Sutton were associated with the toast. Mr. Pratt, in reply, emphasised the importance of co-operation between the architect and builder, and suggested that the master builder ought to be most careful in the selection of his foremen and operatives, upon whom so much depended. Mr. E. R. Sutton also responded, and mentioned the great improvement made in the forms of agreement between architects and builders, and the satisfaction which the almost universal inclusion of the arbitration clause in contracts had given. In the past, Nottingham had experienced considerable difficulty in obtaining good timber, and at one time Nottingham was supplied with worst timber from any other town, but he believed it was all a question of price. He hoped the matter would be remedied. Mr. Sutton also alluded to the question of costing. Mr. Thomas Flewitt next submitted "Success to the National Federation and the Nottingham Master Builders' Association," observing that the builders were to be congratulated upon the absence of any trade dispute during the year. In the past the Association had probably been looked upon with a certain amount of suspicion, an idea having prevailed that its operation would lead to an increase of lock-outs and strikes, but, as a matter of fact, its influence had been in the contrary direction. Mr. Flewitt raised a protest against the Corporation undertaking work that could be more economically done by contractors. They might, however, easily clear away some of the slum property, and leave it to speculative builders to erect suitable houses in their place. It was to the interest of the Association to see that good work was done, and for that reason it deserved the hearty support of all engaged in the building trade. Mr. Chambers (Leicester) responded, and referred to the National Federation as an organisation established on good grounds with the object of benefiting the building trade throughout the country. He regarded the federation as the House of Lords and the Midland and other centres as being the House of Commons. The brunt of the work would have to be undertaken by the various centres. The representatives upon that body had but one object before them, and that was to elevate one of the foremost and oldest trades in the country, and one which distributed an enormous amount of money. Mr. Chambers spoke of the value of organisation. They had been working some time for a national form of contract, and he hoped it would become an accomplished fact before long, because the varieties of agreement adopted now led to very great difficulty. Mr. A. E. Tallis also replied. Other toasts included "The Visitors," submitted by Mr. James Wright, and "The Chairman."

**WATER SUPPLY, COLWYN BAY.**—On the 11th inst., Mr. A. A. G. Malet, M.P. for C.E., an inspector of the Local Government Board, held an inquiry at Colwyn Bay touching an application by the Colwyn Bay and Colwyn Urban District Council for sanction to borrow a sum of 1,332l. for works of water supply and 1,120l. for street improvement purposes. Mr. William Jones, the Board's Surveyor, gave evidence as to the necessity for the proposed works of water supply, in the course of which he pointed out that in certain parts of the district on the occasion of a fire it had been found impossible to get sufficient water for the emergency.

## LEGAL.

### ACTION AGAINST A DISTRICT COUNCIL.

The case of the Finchley Electric Light Co. Ltd., v. the Finchley Urban District Council came before the Court of Appeal, composed of the Master of the Rolls and Lords Justices Romer and Cozens-Hardy on the 18th inst., on the appeal of the plaintiffs from a judgment of Mr. Justice Joyce in the Chancery Division. (The case was reported in our issue of April 5, 1902.) In this case the plaintiffs claimed—1. An injunction to restrain the defendants from erecting or continuing the erection of any building upon, and from laying out any new street intended for use as a carriage-road upon or in connexion with the defendants' building estate known as "Great Three Corners" without having previously delivered to the plaintiffs, in accordance with the Corporation's by-laws, and obtained their approval to, proper plans and sections of such building and street, respectively, and from laying out or constructing any such street, as aforesaid, so that the width thereof shall be less than 36 ft., or being a street exceeding 300 ft. in length, and intended to form the principal approach to the means of access to any building, whether public building, or building of the warehouse class with a carriage road of less than 24 ft. in width or without a footway on each side thereof of a width not less than one-sixth of the entire width of such street, or otherwise in

of electricity for lighting and other purposes to persons in the district, and for the construction of the necessary works in connexion therewith. In 1880 defendants obtained a provisional order which gave them the power to supply electricity to the inhabitants of the district. Both plaintiffs and defendants carried on business over the same area, and the plaintiffs alleged that the defendants had done everything they could to hinder and obstruct them in their undertaking. In September, 1901, whilst plaintiffs were, under an agreement, connecting their mains with the house of a customer in Hendon-lane, Finchley, they carried for this purpose their wires across the Regent's Park-road at a height more than 30 ft. above the roadway. The defendants, in October, 1901, cut the wire, and threatened, if it were put up again, to repeat the act. On October 16, 1901, plaintiffs obtained an interlocutory injunction restraining defendants until the trial, or further order, from cutting or interfering with their wires or cables over or across the Regent's Park-road, or any other road or street in the district, which was at a height not less than was required by the Board of Trade regulations. At the trial, however, Mr. Justice Farwell refused to make that injunction perpetual, and dismissed the action. Hence the present appeal of the plaintiffs.

At the conclusion of the arguments of counsel, their Lordships held that that which was vested in the Local Authority was the street, with so much of the area above and below as was necessary for its ordinary use as a street. They held that the wires in question were clearly outside the Council's area of use, and allowed the appeal granting a perpetual injunction restraining defendants from cutting or interfering with the plaintiffs' wires, if carried at a height not less than that permitted by the Board of Trade regulations.

The defendants were ordered to pay the costs both of the appeal and in the Court below.

Mr. Buckmaster, K.C., and Mr. Mackenzie appeared for the appellants, and Mr. Upjohn, K.C., and Mr. L. Chubb for the respondents.

## CITY ANCIEN LIGHT DISPUTE.

THE case of Mullins Hotel Co., Ltd. v. Ingram came before Mr. Justice Swinfen Eady in the Chancery Division, on the 13th inst., an action by the plaintiffs against the defendant, the Rev. Prebendary Ingram, for a mandatory injunction to restrain him from erecting, or suffering to remain erected, a wooden or other fence which obstructed the access of light and air to the ancient windows in the plaintiffs' premises. The facts were, shortly, these:—The defendant, the Vicar of St. Margaret's, Lothbury, with the consent of the Ecclesiastical Commissioners, had the main body of the old Church of St. Olave Jewry pulled down, and had erected on the site a building known as St. Margaret's Vicarage. The tower of the old church formed part of the vicarage. A portion of what was formerly the churchyard of St. Olave Jewry formed the garden of the vicarage. The windows of which the plaintiffs complained as being obstructed were situated in the southern wall of their premises, and in the basement and ground floor. What the defendant had done was to erect near the top of the retaining wall of the churchyard, which was only about 2 ft. away from the basement window of the plaintiffs' premises, a wooden fence, and this the plaintiffs complained obstructed the access of light and air to the windows in question.

In the result, Mr. Justice Swinfen Eady, after hearing evidence, held that the plaintiffs had clearly proved their case. He accordingly granted the plaintiffs a mandatory order as asked for, and directed that the defendant should pay the costs of the action.

Mr. Eve, K.C., and Mr. John Chester appeared for the plaintiffs; and Mr. Macnaghten, K.C., and Mr. G. Lawrence for the defendant.

## A CORPORATION'S BY-LAWS.

THE case of the Corporation of Devonport v. Tozer & Sons came before the Court of Appeal, composed of the Master of the Rolls and Lords Justices Romer and Cozens-Hardy on the 18th inst., on the appeal of the plaintiffs from a judgment of Mr. Justice Joyce in the Chancery Division. (The case was reported in our issue of April 5, 1902.)

In this case the plaintiffs claimed—1. An injunction to restrain the defendants from erecting or continuing the erection of any building upon, and from laying out any new street intended for use as a carriage-road upon or in connexion with the defendants' building estate known as "Great Three Corners" without having previously delivered to the plaintiffs, in accordance with the Corporation's by-laws, and obtained their approval to, proper plans and sections of such building and street, respectively, and from laying out or constructing any such street, as aforesaid, so that the width thereof shall be less than 36 ft., or being a street exceeding 300 ft. in length, and intended to form the principal approach to the means of access to any building, whether public building, or building of the warehouse class with a carriage road of less than 24 ft. in width or without a footway on each side thereof of a width not less than one-sixth of the entire width of such street, or otherwise in



contravention of any of the provisions of the said by-laws: 2. an order on the defendants to remove, alter, or pull down all works begun or done by the defendants as aforesaid contrary to the said by-laws or any of them; and 3. alternatively a declaration that the plaintiffs were entitled to remove, alter, pull down, or otherwise deal with any works begun or done by the defendants as aforesaid contrary to the provisions of the by-laws or any of them.

The facts were as follows.—The piece of land in question contained a little more than three acres, and was in the shape of a triangle, one side abutting upon a public highway for all kinds of traffic, known as Ham-lane, and another side upon a similar public highway, known as Tavistock-road, which road was, prior and down to November, 1900, a main road leading from Devonport to Tavistock, and, as such, vested in the County Council. The roadway of Ham-lane was within the Borough of Devonport, the fence of the defendants' land being down to November, 1900, the boundary of the borough there. But the defendants' land, together with the portion of Tavistock-road upon which the defendants' land abutted, was within the rural district of Plymouth St. Mary, the land on the opposite side up to the fence of the road being in the borough of Plymouth. Within the rural district of Plymouth St. Mary there were and are certain by-laws with respect to new streets framed under Section 157 of the Public Health Act, 1875. Such by-laws provide *inter alia*:—1. "Width applied to a new street, means the whole extent of space intended to be used, or laid out so as to admit of being used as a public way." "With respect to the level of new streets:—3. Every person who shall lay out a new street shall lay out such street at such level as will afford the easiest practicable gradients throughout the entire length of such street for the purpose of securing easy and convenient means of communication with any other street or intended street up to which such new street may be connected or may be intended to be connected, and as will allow of compliance with the provisions of any statute or by-law in force within district for the regulation of new streets and buildings." "With respect to the width and construction of new streets:—4. Every person who shall lay out a new street which shall be intended for use as a carriage-road shall lay out such street that the width thereof shall be 36 ft. at the least." "5. Every person who shall construct a new street which shall exceed 100 ft. in length shall construct such street for use as a carriage-road, and shall, as regards such street, comply with the requirements of every by-law relating to a new street intended for use as a carriage-road." "6. Every person who shall construct a new street for use as a carriage-road shall comply with the following requirements,"—then follow specifications as to the mode of construction, levels, and so on. Then By-law 90 provides that every person who shall intend to lay out a street shall give to the Sanitary Authority certain notices and deliver plans and sections of such intended street, and By-law 97 provides that "Every person who shall offend against any of the foregoing by-laws shall be liable for every such offence to a penalty of 5s., and in the case of a continuing offence to a further penalty of 40s. for each day after written notice of the offence from the Sanitary Authority. Provided, nevertheless, that the justices or court before whom any complaint may be made or any proceedings may be taken in respect of any such offence may, if they think fit, adjudge the payment as a penalty of any sum less than the full amount of the penalty imposed by this by-law." And 98: "If any work to which any of the by-laws relating to new streets and buildings may apply be begun or done in contravention of any such by-law, the person by whom such work shall be so begun or done, by a notice in writing, which shall be signed by the clerk of the sanitary authority, and shall be duly served upon or delivered to such person, shall be required on or before such day as shall be specified in such notice by a statement in writing under his hand or under the hand of an agent duly authorised in that behalf and addressed to and duly served upon the sanitary authority to show sufficient cause why such work shall not be removed, altered, or pulled down; or shall be required on such day and at such time and place as shall be specified in such notice to attend personally or by an agent duly authorised in that behalf before the sanitary authority and show sufficient cause why such work shall not be removed, altered, or pulled down. If such person shall fail to show sufficient cause why such work shall not be removed, altered, or pulled down, the sanitary authority shall be empowered, subject to any statutory provision in that behalf, to remove, alter, or pull down such work." The statutory provision referred to being Section 158 of the Public Health Act, 1875. By Part 5 of the Devonport Corporation Act, 1900, it was enacted that, as from November 9, 1900, the boundaries of the borough should be extended so as to comprise the defendants' land and the portion of Tavistock-road adjoining thereto, the land on the opposite side of that part remaining in the Borough of Plymouth. The defendants' land, though now within the Borough of Devonport, was at a considerable distance from any town. The by-laws of the Borough of Devonport were for all practical

purposes to the same effect as the by-laws of Plymouth. It was alleged that the defendants, prior to November 9, 1900, had commenced to lay out and construct, Ham-lane and Tavistock-road as "new streets" in a manner which contravened the by-laws of Plymouth and also of the borough of Devonport. What the defendants had done and were doing, was to erect certain houses upon their own land without removing the fence on either side, but making the necessary openings here and there so as to provide means of entrance to and exit from the houses that were being built. They had done nothing more than this. In particular, they had not attempted to alter or interfere with the roadway either of Ham-lane or Tavistock-road. With reference to the erection of the defendants' houses, proper plans had been deposited with, and all necessary notices given to, the Rural Authority under the by-laws relating thereto. Such Authority, in fact, did not formally either approve or disapprove the plans nor instituted proceedings for penalties under the by-laws, nor did they do anything under the 98th By-law and Section 158 of the Public Health Act. The present action was, however, instituted. Mr. Justice Joyce held that there had not been any laying out or constructing by the defendants of a new street in the ordinary, popular, and natural sense of the words, and that the defendants never intended to do anything of the kind. They had simply begun to build within their own boundary. He was further of opinion that the defendants had not been shown to have contravened any by-law, and that the action could not have been maintained by the Urban Authority even if it had been right on the merits, the action for an injunction not being the proper remedy. His Lordship considered the action misconceived, and dismissed it with costs. Hence the present appeal of the plaintiffs.

Mr. Macmorran, K.C., Mr. Hughes, K.C., and Mr. R. J. Parker appeared for the appellants; and Mr. Danckwerts, K.C., and Mr. A. Glen for the respondents.

At the conclusion of the arguments the Master of the Rolls, in giving judgment, said he was of opinion that the plaintiffs could not maintain the action without the presence of the Attorney-General, and on that ground alone the appeal must fail. On the other part of the case he saw no reason to differ from the conclusion of fact arrived at by Mr. Justice Joyce, viz.—that the acts of the defendants of which the plaintiffs complained did not constitute the making or laying-out, or the threat to make or lay out, a new street, and that the defendants had not been shown to have contravened any by-law. However, on the first point alone the appeal failed, and must be dismissed.

The Lords Justices concurred, and the appeal was accordingly dismissed with costs.

#### BUILDERS' PERQUISITES.

BEFORE Judge Gye, at Alton County Court on the 16th inst., Miss Emily Rose Morris, of Bentworth, sued Messrs. W. J. Drowley & Co., of Woking, for the return of a pump, or its value 4l. 10s., and 10s. damages. The defendants put in a counterclaim for 3l. for material retained by plaintiff. It appeared that the defendants had carried out certain alterations to a house for plaintiff, and in accordance with what they alleged to be a well-known custom a pump was taken away and sold. Evidence was called to show that unless a special clause was inserted in the contract a builder was entitled to anything which might be taken out of a house in the course of alterations, no matter what the value of the material might be. His Honour, in giving judgment for plaintiff on the claim and counterclaim, said that no conclusive evidence had been put in to show the existence of this supposed custom, while if it did exist it was a most unjustifiable one. He refused to grant leave to appeal.

#### PATENTS OF THE WEEK.

##### APPLICATIONS PUBLISHED.\*

3,420 of 1902.—T. P. FIMISTER: *Water Waste Preventing Devices for Flushing Cisterns.*

This invention has reference to water waste preventing devices for flushing cisterns. According to the invention, the auxiliary reservoir may be formed of annular or equivalent section having its central hole or core so disposed to, and communicating with, the top of the flush pipe which forms the siphon head or bend, that a complementary annular or like bucket in such reservoir, when lifted by the lever or pull or other convenient known device, discharges its contents into the downward member of the siphon, and so starts the flush. Waste is prevented by the necessity for first again filling the auxiliary reservoir and bucket.

No. 3,577 of 1902.—SHARPE, BROTHER, & CO., LTD., and N. E. COOKE: *Water-closet Basin.*

This consists, in a water inlet aperture of a water-closet basin, of the employment of a metal nozzle or outlet piece made separate from the basin and so

shaped and arranged as to govern the flushing water and divide it into two side streams which flow under the lip of the pan to the front, and a third stream which flows down the back of the pan.

No. 3,760 of 1902.—G. S. JONES: *Block for Flooring Purposes.*

The block consists of wood or other suitable material, having at either or both ends and on the under side one or more bevelled or T-shaped slots, so that when the block is laid in the cement, plastic, or other suitable material, which enters the above-mentioned slot or slots or apertures, will form a perfect lock.

5,307 of 1902.—T. WHITWELL: *Steam Heating Apparatus.*

Steam heating apparatus, wherein the valve for controlling communication between the interior of the steam-piping and the water to be heated is connected with two rods or bodies which are arranged so that one will be in contact with the steam in the piping and the other in contact with the water to be heated, in such a manner that the valve will be opened by the expansion of the rod or body in contact with the steam in relation to the other rod or body, and will be closed by the expansion of the latter rod or body in relation to the former.

6,113 of 1902.—R. LESLIE: *Lavatory Press Cocks or Valves.*

This consists in the construction of lavatory press cocks or valves so that the valve and its seating can be detached from the valve casing without unfixing this casing from the marble or other support to which it is fixed.

7,358 of 1902.—F. G. OLDENBURG: *Window Frames.*

A window frame of shaped iron with space for the insertion of an elastic packing strip, the said frame being characterised by the fact that the casement or frame receives a strip of flexible material, which is bent together in such a manner as to form a roll, the adjacent sides of which present a spring action owing to the S-shaped formation, so that when the window is closed a weak pressure is always exerted by the roll upon the closing surface.

14,589 of 1902.—L. MEYER: *Door-closing Mechanism.*

Door-closing mechanism with automatic friction brake, comprising a spring brake-roller surrounding the brake-roller, a brake-lever which presses the brake-roller when the door is closed on to the brake-roller, and a device for loosening the brake-roller and before fully closing, so that the door is closed quietly and certainly.

17,743 of 1902.—H. BAUM: *Veneer Presses.*

A veneer press, having the distinctive feature that one or both of the press beams is or are slightly bulged and provided at each end with a clamping or tightening device.

24,885 of 1902.—F. MÜNKENMÖLLER: *Pipe bending Machine.*

A pipe-bending machine, in which the supports or bending members for acting on the pipes to be bent consist of rollers adapted in shape to the form of the pipes, and pivotally suspended so that the distance between them, as well as their positions, can be altered according to the work to be done.

3,698 of 1902.—J. PERCIVAL: *Dry Closet and Ash-pit.*

A combined ash-pit and closet, forming a well to retain fluid matter as well as ashes, &c., and a removable door or seal therefor.

3,731 of 1902.—R. HENNEDBERG: *Apparatus for the Preparation of Drinking Water.*

Apparatus for the preparation of drinking water, comprising of a sterilising boiler provided with a tubular coil or worm, and of which the convolutions are arranged in the transverse water tubes of the fire box or close below the level of the boiling water and the upper open end of which receives water from the surface, a filter communicating with the outlet extremity of the coil by the intermediary of a cooling device. Within said filter a nozzle or rose arranged above the filtering layer and communicating with the cooling device, and an air valve combined with an air filter, arranged above said rose, the whole being so combined that the water entering the sterilising boiler at the lower portion of same, passing up in the boiler and then circulating through the coil, is submitted for a considerable time to a boiling heat without interruption of its flow, and then sprayed into the filter in a cooled condition so as to create a partial vacuum, and to cause thereby the inflow of air with which it becomes saturated.

No. 4,432 of 1902.—J. BINDER: *Leaded Ligh's.*

This consists in the employment of cross-shaped stiffening frames or supports at the joints.

No. 4,773 of 1902.—A. PYE-SMITH: *Stair Treads Landings, and Foot Pavings.*

This invention relates to the construction of treads, landings, foot pavings, and the like, of material presenting a surface of such a character that persons treading on it are not liable to slip. For this purpose, carefully graded small fragments of two different materials are mixed together, one of which is harder than the other, such, for instance, as flint or glass for the harder material, and limestone or sandstone for the soft. The mixed materials are

\* All these applications are in the stage in which opposition to the grant of a Patent upon them can be made.



made up into a paste with cement, and the mixture is moulded in slabs or pieces of the shapes and sizes suited to the purpose for which they are to be employed. The softer material wears somewhat before the harder, so that there is a surface of alternately high and low spots which is always self-renewing. Also in some cases lead is used as an additional material of high frictional value, in which case small pieces of lead are placed at intervals in the mould, and are covered with the mixture of the cement and the hard and soft materials to the thickness required for the moulded slab or piece.

4,014 of 1902.—E. SCHWON: *Colouring of Stones to Imitate Marble*.

A process for colouring stones for the purpose of imitating natural marble, consisting in applying to the prepared stone on those parts where no colour is to appear a preparation that repels the colours, then applying the colours, and afterwards coating with a mixture which gives the colours.

5,441 of 1902.—W. MILROY: *Pipe Joins*.

This consists in forming the face of the flange or flanges with concentric rings, or serrations, corrugations or grooves.

15,360 of 1902.—O. H. SCHWAB: *Floor Bricks or Slabs for Building Purposes and Apparatus for Manufacturing the Same*.

A floating block or slab having a great pressure body with which are connected longitudinal or transverse ribs carrying the ceiling plate, the said arch plate having in sectional shape parallel upper and under surfaces, vertical surfaces extending respectively from near the under surface upwardly on one side, and from the upper surface downwardly on the other side severally to lines in a plane substantially parallel to those of the upper and under surfaces, and oblique surfaces in continuation from said vertical surfaces to the upper surface and under surface respectively, and angular recesses at the edge or edges of the under surface and of the adjacent vertical surfaces, for reception of a board or boards.

23,559 of 1902.—W. P. THOMPSON (The Enamel Steel Tile Co.): *Metallic Tiling*.

Metallic tiling for walls and ceilings comprising integral pieces of metal formed to simulate tiles and provided with end strengthening portions formed by bending the tile ends of the piece of metal, and with integral nether fastening means formed by bending the sides of the metal beyond the side lines of the tile face downwardly and then upwardly into locking grooves or wings under the body of the tile proper, in combination with rails or strips provided with projecting shoulders arranged and spaced just far enough apart to engage and co-operate with said locking grooves or wings, and hold the tile in place.

24,549 of 1902.—C. AMENDT: *Plates or Blocks for Parquet Floors*.

A parquet floor composed of plates covered on the back with a thin coating of asphalt before being laid, characterised in that the single slab composing the plates or blocks, and the blocks themselves, are joined together by means of grooves and tongues in a manner that the whole floor forms, as it were, one single plaque or covering, thereby preventing a sinking of parts of the same and reducing the cost of manufacture by dispensing with a foundation of beton.

25,222 of 1902.—F. FURCHINA: *Manufacture of Artificial Stone*.

A process of manufacturing artificial stone for ornaments, figures, and the like from sand or powdered stone, silicate of soda (soluble glass), and a substance of the nature of clay, the main feature of such process being that an adequate quantity of cement is added to the mixture, the resulting substance being packed into elastic moulds, and being, after solidifying to a rigid mass, dried and fired.

25,732 of 1902.—J. JAFFE: *Manufacture of Artificial Stone*.

Manufacture of artificial stone of Sorel or like cement, consisting in subjecting the stone while in the mould to a current of cooling water passing under and around, and, in the case of a closed mould, over the moulding box.

26,758 of 1902.—G. HARRISON (W. Black and H. S. Richards): *Artificial Stone*.

The process of producing a natural finish on artificial stone composed of cement and particles of natural stone which consists in removing the cement from around the superficial ingredient particles of the composition.

26,787 of 1902.—S. TURTON and W. POULTON: *Brickwork for Boiler Setting and other Similar Purposes*.

This consists, in brickwork for boiler setting and for other similar purposes, of the provision of insulating air spaces.

21,492 of 1902.—M. J. ADAMS: *Closets and Latrines*. Multiple closets or latrines, in which an upward branch or feed-pipe formed as part of the closet itself, a horizontal connexion from closet to closet, and a pipe feeding the same whether formed on the connecting pipe or separate from the same, are used.

23,678 of 1902.—M. J. ADAMS: *Lavatories for School*.

Lavatory with a channel or trough having one or more openings for the purpose of washing

## MEETINGS.

FRIDAY, FEBRUARY 20.

*Architectural Association*.—Mr. Silvester Sparrow on "The Stained Glass of the Future." 7.30 p.m.  
*Royal Institution*.—Principal E. H. Griffiths, F.R.S., on "The Measurement of Energy." 8 p.m.  
*Surveyors' Institution*.—Annual dinner, Empire Hall, Trocadero Restaurant, Piccadilly-circus. 7 p.m.  
*Institution of Mechanical Engineers*.—Fifty-sixth annual general meeting. Papers to be read and discussed together:—"Hydraulic Experiments on a Plunger Pump," by Professor John Goodman, and "Experiments on the Efficiency of Centrifugal Pumps," by Mr. Thomas E. Stanton, D.Sc. 8 p.m.  
*Birmingham Architectural Association*.—Mr. Edgar Wood on "Experiences."

SATURDAY, FEBRUARY 21.

*Architectural Association*.—Second spring visit, to the new post office and savings bank buildings, Addison-road, 2.30 p.m. Annual supper of the Camera and Cycling Club, Holborn Restaurant. 7 p.m.  
*Imperial British Institute of Certified Carpenters*.—Visit to the Works Department of the London County Council, Belvedere-road, S.E. 3 p.m.

MONDAY, FEBRUARY 23.

*Surveyors' Institution*.—Mr. Henry Lovegrove on "Regulations for Protection from Fire." 8 p.m.  
*Society of Arts (Cantor Lectures)*.—Mr. Julius Hubner on "Paper Manufacture."—IV. 8 p.m.  
*Royal Philosophical Society of Glasgow (Architectural Section)*.—Mr. A. Gardner on "The City Churches of Glasgow," with time-light illustrations. 8 p.m.

TUESDAY, FEBRUARY 24.

*Royal Institution*.—Sir William Abney, D.Sc., F.R.S., on "Recent Advances in Photographic Science." 1.30 p.m.  
*Institution of Civil Engineers*.—Mr. G. F. Zimmer on "Mechanical Handling of Material." 8 p.m.

WEDNESDAY, FEBRUARY 25.

*Architectural Association Discussion Section*.—Mr. W. L. Trant Brown on "Valuations." 7.30 p.m.  
*Northern Architectural Association*.—Mr. G. S. Aitken, F.S.A.Scot., on "Architecture and the Age." 7.30 p.m.  
*Institution of Electrical Engineers (Birmingham Section)*.—Mr. A. M. Taylor on "Central Stations Tests."  
*Edinburgh Architectural Association*.—Mr. D. Macfie on "Artificial Lighting in the Nineteenth Century." Illustrated. 8 p.m.

THURSDAY, FEBRUARY 26.

*Carpenters' Hall, London* (at 10 o'clock). *Lectures on Matters Connected with Building*.—Dr. G. V. Poole, F.R.C.P., on "Where Town and Country Meet." 8 p.m.  
*Institution of Electrical Engineers*.—(1) Mr. J. Smitton on "The Nernst Lamp;" (2, if time permit, "Distribution Losses in Electric Supply Systems," by Messrs. A. D. Constable and E. Foxworth; (3) abstract of a paper read before the Glasgow Section on "A Study of the Phenomenon of Resonance in Electric Circuit by the Aid of Oscillograms," by Mr. M. B. Field. 8 p.m.  
*Leeds and Yorkshire Architectural Association*.—Mr. F. Musson on "Street Improvements in Leeds and elsewhere." 6.30 p.m.

*Architectural Association of Ireland*.—Demonstration on limes, gypsum, latting, plastering, &c., at the works of Messrs. G. Kime & Co., Lombard-street, Westland-row, Dublin. 4 p.m.

FRIDAY, FEBRUARY 27.

*Institution of Civil Engineers (Students' Meeting)*.—Mr. E. Falk on "The Relative Advantages of Single Screws, Twin Screws, and Triple Screws for Marine Propulsion." 8 p.m.

SATURDAY, FEBRUARY 28.

*Builders' Foremen and Clerks of Works' Institution*.—Annual Dinner, King's Hall, Holborn Restaurant. 6 p.m.

*Royal Institution*.—Rt. Hon. Lord Rayleigh, M.A., F.R.S., on "Light, its Origin and Nature." 1.30 p.m.  
*Builders' Foremen's Association (Memorial Hall, Farringdon-street)*.—Mr. A. S. E. Ackermann on "Sanitary Arrangements and Testing." 8.15 p.m.

*Edinburgh Architectural Association*.—Visit to the Usher Institute of Public Health.

## SOME RECENT SALES OF PROPERTY.

ESTATE EXCHANGE REPORT.

February 5.—By GANLY, SONS, & Co. (at Dublin).

Castletown, co. Meath.—Farm and land, including the Hill of Tara, area 239 a. 3 r. 15 p., 43,700

February 9.—By GEO. HEAD & Co.

Soho.—10, Broad-st. (S.) area 1,167 ft. l. p. 3,400

Twickenham.—Strawberry Hill-rd., Bower Cottage and Grove Cottage, c., y.r. 40l. 10s.

February 10.—By FLEISHER, SONS, & ADAMS.

Luton, Beds.—Waller-st., The Grand Theatre, with goodwill; also 16, John-st., (including mortgage) 11,500

Tottenham. 50, Stanmore-rd., u.t. 91 yrs., g.r. 6l., e.t. 32l. 240

February 10.—By FLEISHER, SONS, & ADAMS.

Camden Town.—28, Camden-rd., and 77, Camden-mews, u.t. 35 yrs., g.r. 10l., e.t. 130l. 3,000

55, Osney-cres., u.t. 41 yrs., g.r. 9l. 9s., e.t. 10l. 425

Holloway.—65, Isledon-rd., u.t. 48 yrs., g.r. 9l. 425

72, Huddleston-rd., u.t. 64 yrs., g.r. 6l. 10s., e.t. 45l. 4,480

By STEPHENSON & ALEXANDER (at Cardiff).

Cardiff, Glamorgan.—68 and 101, Queen-st. (S), u.t. 17 yrs., g.r. 10l. 10s., e.t. 130l. 1,360

102, Queen-st. (S), u.t. 17 yrs., g.r. 10l. 10s., e.t. 130l. 1,170

By FRANKLIN & SON (at Suffolk Walden).

Thaxted, Essex.—Claypits Farm, 91 a. 0 r. 20 p., f. 1,100

Lower Spellmans, &c., Fields, 18 a. 1 r. 0 p., f. 240

Enclosure of pasture, 2 a. 0 r. 15 p., f. 275

Part of Worthen's Pasture, 2 a. 1 r. 25 p., f. 150

Waste's Field, 7 a. 1 r. 9 p., c. 115

Green Field, &c., 20 a. 3 r. 30 p., f. 245

Blue Barn Farm, 24 a. 5 r. 13 p., f. 780

Bluegates Farm, 14 a. 0 r. 12 p., f. 315

Lower and Mudhall Fields, &c., 19 a. 2 r. 31 p., f. 270

The Dovehouse Farm, 11 a. 2 r. 3 p., f. 340

Various Enclosures, 9 a. 2 r. 32 p., f. 258

Hammer Mill Farm, 48 a. 3 r. 8 p., f. 720

Four enclosures of land, 1 a. 0 r. 9 p., f. 110

February 11.—By BRADSHAW BROWN & Co.

Millwall.—10, 12, 14, and 16, West Ferry-rd., f. 1,520

West Ferry-rd., The Companies' Arms bldg., f. 800

By DOUGLAS YOUNG & Co.

Kennington.—1 to 10 (odd), Brixton-rd., 2 to 48 (even), Camberwell New, 10 to 12, f. 29,120

By HENRY HOLMES & Co.

Marylebone.—52 and 54, Paddington-st., u.t. 20 yrs., g.r. 10l., y.r. 360l. 2,275

Soho.—40, Fitzroy-st., and 7, Hertford-pl., f. y.r. 2,350

St. John's Wood.—40, St. John's Wood-rd., u.t. 16 yrs., g.r. 12l., y.r. 90l. 540

Hamstead.—42, Hemstead-rd., f. y.r. 45l. 640

By MAY & KIDGLEY.

Hanoversquare.—14, George-st., f. 14,500

By WYATT & SON (at Chichester).

Old Fishbourne, Sussex.—Seven cophold cottages, 590

Selsey, Sussex.—East-st., two freehold cottages, w.r. 10l. 200

By J. H. BRADWELL & SON (at Nottingham).

Car Colston, Notts.—Toll Bar Farm, 96 a. 2 r. 13 p., w.r. 91l. 4,450

By HENRY HOLMES & Co.

Camden Town.—90, Park-st. (S), u.t. 164 yrs., g.r. 7l., w.r. 91l. 275

4, 5, and 6, Stanmore-pl., u.t. 20 yrs., g.r. 12l. 380

1, Bonny-st., u.t. 7 yrs., g.r. 10l., w.r. 57l. 160

Kentish Town.—5, Leverton-st., u.t. 39 yrs., g.r. 6l. 280

February 12.—By C. C. & T. MOORE.

Spitalfields.—6, Princelet-st., f. y.r. 43l. 1,410

1, Mile End.—472, Mile End-rd. (S), y.r. 40l. 760

30 and 31, Harford-st., u.t. 14 yrs., g.r. 3l. 27s. 6d., y.r. 64l. 8s. 260

By STIMSON & SONS.

King's Cross.—17, Albion-st. (S), f. y.r. 42l. 600

Peckham.—Tilsbury-rd., 16 l., version in 53 yrs. 275

Islington.—37, Northampton-st., u.t. 154 yrs., g.r. 4l., e.t. 63l. 160

13 and 17, Denmark-st., u.t. 16 yrs., g.r. 12l. 380

New Cross.—49 and 51, Pagnell-st., u.t. 63 yrs., g.r. 6l. 6d., w.r. 102l. 10s. 350

Brixton.—52, Brailford-rd., u.t. 714 yrs., g.r. 8l. 15l. 15

Greenwich.—14, 16, 20 to 30 (even), Collierston-rd., u.t. 53 yrs., g.r. 8d., w.r. 25l. 8s. 1,490

10 to 11 (odd), Selcor-rd., u.t. 534 yrs., g.r. 18l., w.r. 189l. 10s. 1,000

February 13.—By R. A. & J. C. BAKER.

Barnsbury.—23 and 25, Crossley-st., u.t. 80 yrs., g.r. 14l. 14s., y.r. 80l. 800

By RYDER & SONS.

Notting Hill.—15 and 254, Cromwell-rd., u.t. 544 yrs., g.r. 20l., w.r. 127l. 670

9 and 10, Baradon-st., u.t. 614 yrs., g.r. 17l., y.r. 80l. 620

10 to 32 (even), Talbot-rd., u.t. 47 yrs., g.r. 49l. 10s., w.r. 352l. 12s. 2,000

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for cophold; l. for leasehold; p. for possession; e.t. for estimated rental; w.r. for weekly rental; q. for quarterly rental; y.r. for yearly rental; u. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beer-house; p.h. for public-house; o. for offices; s. for shops.

## PRICES CURRENT OF MATERIALS.

\* Our aim in this list is to give, as far as possible, the average prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

## BRICKS, &amp;c.

£ s. d.

Hard Stocks . . . . . 1 14 0 per 1,000 alongside, in river.

Rough Stocks . . . . . 1 11 0 " " " "

Crucibles . . . . . 2 12 0 " " " "

Facing Stones . . . . . 2 5 0 " " " "

Shippers . . . . . 1 7 6 " " " "

Firebricks . . . . . 1 7 6 " " " "

Red Wire Cuts . . . . . 1 12 0 " " " "

Best Firebricks . . . . . 1 12 0 " " " "

Best Red Pressed . . . . . 5 0 0 " " " "

Rushton Facing . . . . . 5 0 0 " " " "

Best Blue Pressed . . . . . 4 10 0 " " " "

Staffordshire . . . . . 4 5 0 " " " "

Do, Bulstone . . . . . 4 10 0 " " " "



## PRICES CURRENT (Continued).

## BRICKS, &amp;c.

£ s. d.

Best Stourbridge	4	8	0	per 1,000 at railway depot.
GLAZED BRICKS.				
Best White and Ivory Glazed	13	0	0	"
Stretchers	12	0	0	"
Quoins, Bullnose, and Flats	17	0	0	"
Double Stretchers	10	0	0	"
Double Headers	16	0	0	"
One Side and two Ends	19	0	0	"
Two Sides and one End	20	0	0	"
Splays, Chamfered, Squints	20	0	0	"
Best Dipped Salt Glazed Stretchers and Headers	12	0	0	"
Quoins, Bullnose, and Flats	14	0	0	"
Double Stretchers	15	0	0	"
Double Headers	14	0	0	"
One Side and two Ends	15	0	0	"
Two Sides and one End	15	0	0	"
Splays Chamfered, Squints	14	0	0	"
Second Quality White-dipped	2	0	0	less than best.
Salt Glazed	7	0	0	per yard, delivered.
Thames and Pit Sand	7	0	0	per ton, delivered.
Best Portland Cement	30	0	0	per ton, delivered.
Best Ground Blue Lime	25	0	0	"

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... res. 6d. per yard, delivered.  
Stourbridge Fire-clay in sacks 27s. 6d. per ton at rly. dep't.

## STONE.

s. d.

Ancestor in blocks	1	1	per ft. cube, deld. rly. dep't.
Bath	7	8	"
Warleigh Down Bath	7	8	"
Beer in blocks	1	5	"
Crimhill	2	10	"
Brown Portland in blocks	2	10	"
Darley Dale in blocks	2	4	"
Red Corshill	9	5	"
Clareville in Red Freestone	9	5	"
Red Mansfield	2	4	"

## YORK STONE—Robin Hood Quality.

s. d.

Scrapped random blocks	2	10	per ft. cube, deld. rly. dep't.
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	3	per foot super.
6 in. Rubbed two sides	2	6	"
Ditto	2	6	"
6 in. sawn two sides slabs (random sizes)	0	11 1/2	"
6 in. to 2 1/2 in. Sawen one side slabs (random sizes)	0	7 1/2	"
6 in. to 2 in. ditto	0	6	"
BEST HARD YORK			
Scrapped random blocks	3	0	per ft. cube
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	8	per ft. super.
6 in. Rubbed two sides	2	6	"
Ditto	2	6	"
6 in. sawn two sides slabs (random sizes)	2	2	"
6 in. self-faced random	0	5	"
Hopton Wood (Hard Bed) in blocks	2	3	per ft. cube.
" " " " 6 in. sawn both sides landings	2	7	deld. rly. dep't.
" " " " 3 in. do.	2	2 1/2	deld. rly. dep't.

## SLATES.

£ s. d.

10 x 10 best blue Bangor	13	6	per 1000 of 1200 at rly. dep't.
20 x 12 " "	13	6	"
20 x 10 best seconds	12	15	0
20 x 12 " "	13	10	0
16 x 8 best	7	0	0
20 x 10 best blue Portman	12	5	0
16 x 8 best blue Portman	9	0	0
20 x 10 best Eureka	15	0	0
fading green	15	0	0
20 x 12 " "	10	10	0
20 x 12 " "	11	10	0
20 x 8 " "	7	6	0
20 x 10 permanent green	10	10	0
18 x 10 " "	0	0	0
16 x 8 " "	6	5	0

## TILES.

s. d.

Best plain red roofing tiles	40	0	per 1,000, at rly. dep't.
Hip and valley tiles	3	7	per doz.
Best Broseley tiles	50	0	per 1,000
Do. Ornamental	52	6	0
Hip and valley tiles	4	0	per doz.
Best Ruabon Red, brown or brindled Do. (Edwards)	57	6	per 1,000
Do. Ornamental Do.	60	0	per doz.
Valley tiles	3	0	"
Best Red or Mottled Staffordshire Do. (Peaks)	51	0	per 1,000
Do. Ornamental Do.	54	5	0
Hip tiles	4	1	per doz.
Valley tiles	3	8	"
Best "Rosemary" plain tiles	48	0	per 1,000
Do. Ornamental Do.	50	0	per doz.
Hip tiles	4	0	per doz.
Valley tiles	3	8	"

## PRICES CURRENT (Continued).

## WOOD.

	At per standard.	£ s. d.	£ s. d.
Deals: best 7 in. by 11 in. and 4 in. by 9 in. and 11 in.	15	0	16 10 0
Deals: best 8 in. by 11 in. and 4 in. by 9 in. and 11 in.	14	10	15 10 0
Battens: best 2 1/2 in. by 7 in. and 8 in. and 3 in. by 7 in. and 8 in.	11	10	12 10 0
Battens: best 2 1/2 in. by 6 in. and 3 in. by 6 in.	0	10	0
Deals: seconds	1	0	less than best
Battens: seconds	0	10	0
2 in. by 4 in. and 2 in. by 6 in.	9	0	9 10 0
2 in. by 4 in. and 2 in. by 6 in.	8	10	9 10 0
Foreign Sawn Boards—1 in. and 1 1/2 in. by 7 in.	0	10	more than battens.
2 in.	1	0	0
Fir timber: Best middling Danzig or Memel (average specification)	4	10	0
Seconds	4	5	0
Small timber (6 in. to 8 in.)	3	12	6
Small timber (6 in. to 8 in.)	3	0	10 0
Swedish balks	2	15	0
Pitch-pine timber (30 ft. average)	3	5	0
JOINERS' WOOD.	At per standard.	£ s. d.	£ s. d.
White Sea: First yellow deals, 3 in. by 11 in. and 3 in. by 7 in.	23	0	24 0 0
3 in. by 9 in.	21	0	22 10 0
Battens 2 1/2 in. and 3 in. by 7 in.	17	0	18 0 0
Second yellow deals, 3 in. by 11 in.	18	10	20 0 0
3 in. by 9 in.	17	10	19 0 0
Battens 2 1/2 in. and 3 in. by 7 in.	13	10	14 10 0
Third yellow deals, 3 in. by 11 in.	15	10	16 10 0
and 9 in.	11	10	12 10 0
Battens 2 1/2 in. and 3 in. by 7 in.	11	10	12 10 0
Petersburg: first yellow deals, 3 in. by 11 in.	21	0	22 10 0
Do. 3 in. by 9 in.	18	0	19 10 0
Battens	13	10	15 0 0
Second yellow deals, 3 in. by 11 in.	16	0	17 0 0
Do. 3 in. by 9 in.	14	10	16 0 0
Battens	13	10	14 10 0
Third yellow deals, 3 in. by 11 in.	13	10	14 0 0
Do. 3 in. by 9 in.	13	0	14 0 0
Battens	10	0	11 0 0
White Sea and Petersburg—First white deals, 3 in. by 11 in.	14	10	15 10 0
3 in. by 9 in.	13	10	14 10 0
Battens	11	0	12 0 0
Second white deals, 3 in. by 11 in.	13	10	14 10 0
3 in. by 9 in.	12	10	13 10 0
Battens	9	10	10 10 0
Pitch-pine: deals	16	0	18 0 0
Under 3 in. thick extra	0	10	1
Yellow Pine—First, regular sizes	33	0	upwards.
Oddments	22	0	24 0 0
Seconds, regular sizes	24	10	26 10 0
Yellow Pine Oddments	20	0	22 0 0
Kauri Pine—Planks, per ft. cube	0	3	6
Danzig and Stettin Oak Logs—Large, per ft. cube	0	2	6
Small	0	2	6
Wainscot Oak Logs, per ft. cube	0	5	0
Dry Wainscot Oak, per ft. sup. as inch	0	0	7
do. do.	0	0	6 1/2
Dry Mahogany—Honduras, Tabasco, per ft. sup. as inch	0	0	9
Selected, Figury, per ft. sup. as inch	0	1	6
American Whitewood Planks—Per ft. cube	0	4	0
Prepared Flooring—Per square	0	13	6
1 in. by 7 in. yellow, planed and shot	0	13	6
1 in. by 7 in. yellow, planed and matched	0	14	0
1 in. by 7 in. yellow, planed and shot	0	16	0
1 in. by 7 in. white, planed and matched	0	12	6
1 in. by 7 in. white, planed and shot	0	14	0
2 in. by 7 in. yellow, planed and beaded or V-jointed boards	0	14	0
1 in. by 7 in. do. do.	0	14	0
2 in. by 7 in. white do. do.	0	10	0
1 in. by 7 in. do. do.	0	11	6
6 in. at 6d. to 9d. per square less than 7 in.	0	13	6

## JOISTS, GIRDERS, &amp;c.

In London, or delivered.

	£ s. d.	£ s. d.
Railway Vans, per ton.	6	5
Folled Steel Joists, ordinary sections	6	5
Compound Girders	8	2
Angles, Tees and Channels, ordinary sections	7	17
Fitch Plates	8	5
Cast Iron Columns and Stanchions, including ordinary patterns	7	2

## METALS.

Per ton, in London.

	£ s. d.	£ s. d.
IRON—Common Bars	7	15
Staffordshire Crown Bars, good merchant quality	8	5
Staffordshire "Marked Bars"	10	10
Mild Steel Bars	9	0
Hoop Iron, basis price	9	5
" galvanised	16	0
(* And upwards, according to size and gauge.)		
Sheet Iron, Black—Ordinary sizes to 20 g.	10	0
" " 20 to 24 g.	11	0
" " 24 to 26 g.	12	0
Sheet Iron, Galvanised, flat, ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	12	15
" " 22 g. and 24 g.	13	5
" " 26 g.	14	5

## PRICES CURRENT (Continued).

## METALS.

Per ton, in London

	£ s. d.	£ s. d.
Sheet Iron, Galvanised, flat, best quality—Ordinary sizes to 20 g.	12	0
" " 22 g. and 24 g.	16	0
" " 26 g.	18	0
Galvanised Corrugated Sheets—Ordinary sizes, 6 ft. to 8 ft. 20 g.	12	15
" " 22 g. and 24 g.	13	5
" " 26 g.	14	5
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 2 ft. and thicker	12	0
" " 22 g. and 24 g.	13	0
" " 26 g.	14	0
Cut nails, 3 in. to 6 in.	9	5
(Under 3 in. usual trade extras.)	9	15

## LEAD, &amp;c.

Per ton, in London.

	£ s. d.	£ s. d.
LEAD—Sheet, English, 3 lbs. & up.	14	5
Pipe in coils	14	15
Soil pipe	17	5
Compo Pipe	17	5
ZINC—Sheet—Vielite Montagne	25	0
Silesian	24	15
COPPER—Strong Sheet	0	10
Thin	0	11
Copper nails	0	11
BRASS—Strong Sheet	0	10
Thin	0	11
Tin—English Ingots	0	1
SOLDER—Plumbers'	0	0
11 men's	0	8
Blowpipe	0	0

## ENGLISH SHEET GLASS IN CRATES.

	2 1/2 d. per ft. delivered.	1 d. " "
15 oz. thirds	14d.	"
" fourths	14d.	"
21 oz. thirds	14d.	"
" fourths	14d.	"
26 oz. thirds	14d.	"
" fourths	14d.	"
32 oz. thirds	14d.	"
" fourths	14d.	"
Fluted sheet, 15 oz.	14d.	"
2 Hartley's Rolled Plate	14d.	"
" " "	14d.	"
" " "	14d.	"

## OILS, &amp;c.

£ s. d.

	per gallon	£ s. d.
Raw Linseed Oil in pipes or barrels	0	2
" " in drums	0	2
Boiled " in pipes or barrels	0	2
" " in drums	0	2
Turpentine, in barrels	0	3
" " in drums	0	3
Genuine Ground English White Lead	30	0
Red Lead, Dry	30	0
Best Linseed Oil Putty	per cwt.	0
Stockholm Tar	per barrel	1

## VARNISHES, &amp;c.

Per gallon.

Fine Pale Oak Varnish	0	8
Pale Copal Oak	0	10
Superfine Pale Elastic Oak	0	12
Fine Extra Hard Church Oak	0	10
Superfine Hard-drying Oak	0	10
Churches	0	24
Fine Elastic Carriage	0	12
Superfine Pale Elastic Carriage	0	16
Fine Pale Maple	0	16
Finest Pale Durable Copal	0	18
Extra Pale French Oil	0	1
Eggshell Flattening Varnish	0	18
White Copal Enamel	0	4
Extra Pale Paper	0	12
Best Japan Gold Size	0	10
Best Black Japan	0	16
Oak and Mahogany Stain	0	9
Brunswick Black	0	6
Berlin Black	0	10
Knottling	0	10
French and Brush Polish	0	10

## TO CORRESPONDENTS.

J. B. (Amounts should have been stated).

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.



(For some Comments, see, still open, but not included in this list, see previous issues.)

[See also next page.]



## PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
* Clerk of Works .....	Lyons Road Borough Council	Not stated	Feb. 28
* Clerk of Works .....	Dawlish F.D.C.	37.3s. per week	do.
* Quantity Surveyor .....	Manchester Corporation	220l.	Mar. 2
* Clerk of Works .....	Southwark Union	34.15s. 6d. per week	Mar. 3
* Surveyor, Inspector of Nuisances, &c.	Ashford F.D.C.	170l.	do.
* Clerk of Works .....	Southampton County Council	47. 0s. 6d. per week	Mar. 10
* Architectural Assistant .....	do.	250l. &c.	do.
* Clerk of Works .....	Hearts of Oak Benefit Society	Not stated	do.
* Assistant Examiner in H.M. Office of Works	Civil Service Commissioners	Not stated	Mar. 12

Those marked with an asterisk (\*) are advertised in this Number.

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Contracts, iv. vi. viii. x. &amp; xxi.

Public Appointments, xlv.

## TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us not later than 10 a.m. on Thursdays, N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under 1000, unless in some exceptional cases and for special reasons.]

\* Denotes accepted. † Denotes provisionally accepted.

ASHBY WOULD (Leicestershire).—For the extension of water mains for the Urban District Council. Mr. J. W. Rowley, surveyor, High-street, Woodville.—  
Stacey & Warren ..... £202 6 9  
A. Harvey, Burton-on-Trent ..... 285 14 6

CARDIFF.—For rebuilding the Cross Inn, Rumney. Mr. E. H. Bruton, architect, 170, Queen-street, Cardiff:—  
Sattley & Co. .... £1,638 4 8  
Williams & Furey ..... 1,610 0 0  
Haris ..... 1,520 0 0  
Cough Bros. .... 1,520 0 0  
Allen & Son ..... 1,400 0 0  
Shepton & Son ..... 1,390 0 0  
Miles Bros. .... 1,354 3 5

GILFACH GOCH (Wales).—For the erection of two shops, Evanston, near Bridgend, for Messrs. Griffiths & Thomas. Mr. J. Morris Williams, architect, Blackmill, near Bridgend:—  
C. H. Cookley .... £2,220  
Philip Gavlar, J. Cox ..... 1,518  
Bridgend ..... £1,422

GUILDFORD.—For additions to bandstand in the Castle pleasure grounds, for the Town Council. Mr. C. G. Mason, C.E., Tinsgate, Guildford:—  
Filmer & Mason, Guildford ..... 100 10 0

HINDLEY (Lancashire).—For the erection of public offices, Wigan-road, for the Urban District Council. Messrs. Heaton, Ralph, & Heaton, architects, Wigan:—  
D. A. Ablett, Wigan ..... £5,370 0 0

LONDON.—For the Grove Vale Housing Scheme, for the Borough of Camberwell. Mr. Wm. Oxtbody, Borough Engineer:

	BLOCK 1. 18 houses on West side of Copleston-road.	BLOCK 2. 9 houses on East side of Copleston-road.	BLOCK 3. 17 houses — 13 on South Side of Oxford-street, and 4 on North-West Side of Olgander-road.	BLOCK 4. 11 houses on South-East Side of Olgander-road.	BLOCK 5. 15 houses on North-East Side of Oxford-street.	BLOCK 6. 14 houses — 7 on the West Side of Bellenden-road, and 7 houses on the East Side of Copleston-road.	Total.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
C. Ansell .....	11,664 0 0	6,254 0 0	11,612 0 0	7,183 0 0	11,816 0 0	9,821 0 0	58,154 0 0
W. E. Blake .....	12,135 0 0	6,340 0 0	11,580 0 0	7,153 0 0	12,050 0 0	10,950 0 0	59,708 0 0
Balaam Bros. ....	12,074 0 0	6,777 0 0	12,616 0 0	7,810 0 0	12,366 0 0	10,437 0 0	62,679 0 0
Barker & Co. ....	11,500 0 0	6,085 0 0	11,070 0 0	7,050 0 0	10,510 0 0	9,410 0 0	56,105 0 0
J. & E. Bowyer .....	11,007 0 0	6,054 0 0	11,595 0 0	7,37 0 0	11,154 0 0	9,721 0 0	57,900 0 0
Courtney & Fairbairn .....	12,310 0 0	6,144 0 0	12,037 0 0	7,813 0 0	11,701 0 0	10,036 0 0	59,958 0 0
Coles & Sons .....	9,217 1 8	4,822 11 8	9,425 11 8	6,715 10 6	8,928 11 5	7,477 9 2	44,608 8 1
W. Downs .....	11,780 0 0	5,991 0 0	11,219 0 0	6,054 0 0	11,053 0 0	9,407 0 0	58,479 0 0
R. & L. Evans .....	14,760 0 0	7,475 0 0	14,210 0 0	9,175 0 0	13,860 0 0	12,000 0 0	71,620 0 0
J. Frampton, Dulwich .....							41,000 0 0
W. Goddard .....	8,310 12 1	4,446 2 6	8,337 8 9	5,492 9 5	7,806 12 4	6,908 12 10	41,911 0 0
A. T. Haines .....	11,882 12 1	6,053 4 0	11,779 7 1	7,211 13 5	11,207 18 4	9,511 10 10	55,612 0 0
J. Ham .....	12,255 0 0	6,165 0 0	12,817 0 0	8,208 0 0	12,266 0 0	10,278 0 0	61,010 0 0
Hardy Bros. ....	13,174 0 0	6,311 0 0	12,643 0 0	8,143 0 0	12,072 0 0	10,363 0 0	61,100 0 0
F. & H. F. Higgs .....	13,210 0 0	6,770 0 0	14,840 0 0	8,080 0 0	12,540 0 0	11,010 0 0	61,500 0 0
Holliday & Greenwood .....	13,140 0 0	6,570 0 0	14,410 0 0	8,030 0 0	11,050 0 0	10,920 0 0	62,000 0 0
H. L. Holloway .....	11,480 0 0	6,204 0 0	11,210 0 0	7,770 0 0	11,254 0 0	9,381 0 0	58,981 0 0
G. J. Kick .....	12,613 0 0	6,472 0 0	11,763 0 0	7,401 0 0	11,450 0 0	9,806 0 0	58,200 0 0
King & Son .....	13,315 0 0	6,844 0 0	12,953 0 0	8,109 0 0	12,644 0 0	10,939 0 0	61,942 0 0
Wm. Johnson .....	11,211 0 0	6,018 0 0	11,495 0 0	8,035 0 0	11,763 0 0	10,380 0 0	61,475 0 0
Jones & Son .....	11,002 0 0	6,071 0 0	11,115 0 0	7,671 0 0	11,625 0 0	9,539 0 0	60,124 0 0
Leather & Son .....	12,314 0 0	6,377 0 0	12,005 0 0	7,625 0 0	11,810 0 0	10,124 0 0	60,000 0 0
Leslie & Co. ....	14,750 0 0	6,635 0 0	12,515 0 0	8,100 0 0	11,780 0 0	10,390 0 0	61,000 0 0
H. Lovatt .....	13,000 0 0	6,709 0 0	12,700 0 0	8,000 0 0	12,400 0 0	10,600 0 0	60,379 0 0
F. C. Minter .....	12,793 0 0	6,516 0 0	12,492 0 0	7,770 0 0	12,163 0 0	10,333 0 0	59,066 0 0
Myall & Upson .....	11,457 0 0	6,180 0 0	11,436 0 0	7,267 0 0	11,185 0 0	9,539 0 0	57,066 0 0
G. Newton .....	12,100 0 0	6,225 0 0	11,800 0 0	7,400 0 0	11,300 0 0	10,175 0 0	58,535 0 0
G. Parker .....	12,000 0 0	6,175 0 0	11,650 0 0	7,375 0 0	11,485 0 0	9,810 0 0	58,535 0 0
Perry & Co. ....	12,583 0 0	6,424 0 0	12,216 0 0	7,677 0 0	11,979 0 0	10,235 0 0	61,114 0 0
J. G. Richardson .....	13,133 0 0	6,810 0 0	12,884 0 0	8,130 0 0	12,622 0 0	10,701 0 0	64,572 0 0
Shelbourne & Co. ....	11,804 0 0	6,033 0 0	11,473 0 0	7,227 0 0	11,211 0 0	9,860 0 0	57,534 0 0
Sims & Wood .....	12,644 6 6	6,538 9 0	12,417 11 4	8,291 9 11	12,312 2 0	10,418 10 6	62,666 9 3
Smith & Co. ....	12,715 0 0	6,793 0 0	12,803 0 0	8,114 0 0	12,731 0 0	10,728 0 0	63,975 0 0
Treasure & Son .....	13,560 0 0	6,575 0 0	12,092 0 0	8,165 0 0	12,740 0 0	10,992 0 0	65,047 0 0
J. Watt .....			Unable to submit tender in time				
F. C. Wheeler .....	12,280 0 0	6,235 0 0	11,976 0 0	7,588 0 0	11,792 0 0	10,115 0 0	59,995 0 0
White & Co. ....	12,800 0 0	6,560 0 0	12,700 0 0	7,937 0 0	12,477 0 0	10,616 0 0	63,100 0 0

[Borough Engineer's estimate £43,500.]

[See also next page.]

MARSDEN (Works).—For the erection of three houses, Wood Bottom, for the Urban District Council. Mr. J. E. Lunn, architect, Milsbridge. Quantities by architect:—

England & Sons, Slaughtwaite ..... £705 6 0

France Lawton, Marsden ..... 215 0 0

Thomas Firth, Marsden ..... 60 0 0

Pickles Bros., Huddersfield ..... 63 0 0

J. & J. Bottomley, Marsden ..... 114 0 0

Wright & Son, Hull ..... 32 19 6

SLEAFORD (Lincs).—For the supply of 1,000 tons broken X and XX granite road metal and 500 tons slag, for the Urban District Council. Mr. Jesse Clare, Sleaford:—

Pattinson & Co., (agents for Groby), Sleaford ..... 10s. 4d.

Pattinson & Co., Sleaford ..... 10s. 10d.

Pattinson & Co., Sleaford ..... 7s. 2d.

Stanton Ironworks, Stanton ..... 50s. 2d.

STAMFORD (Lincs).—For making footpaths, kerbing, &c., Cemetery and Ryhall roads, for the Corporation. Mr. J. Richardson, Borough Surveyor, 75, Barn Hill, Stamford:—

F. G. Sheppard, Southend-on-Sea ..... 80 0 0

W. Shephard, Rochdale ..... 80 0 0

Goddard & Co., London ..... 73 13 9

Scudamore & Co., Northampton ..... 69 10 0

Grimley & Co., Sutton Bridge ..... 69 10 0

North of England Asphaltic Co., Manchester ..... 67 14 0

J. M. Rouse, Stamford ..... 67 0 0

Hinson & Co., Stamford ..... 51 11 0

J. Woolston, Stamford ..... 50 0 0



UPPER CWMITWRCH (Wales).—For the erection of schools, Rhilwafar, Cwmllynfell, for the Llanguicke School Board. Mr. J. D. Rees, architect, Ystalyfera, Wales:—  
 Evans & Davies ..... £3,075 10  
 J. R. Williams ..... 2,065 0  
 Roberts & Evans, Brynamman, R.S.O.\* 1,970 0  
 [Architect's estimate, £3,000.]

WEST HAM.—For making up Queen's-road and other streets, for the Town Council. Mr. J. G. Morley, Borough Engineer, Town Hall, West Ham:—  
 D. H. Porter £5,687 0 0 Peters & Co. £7,116 0 10  
 Griffiths & Co., D. T. Jackson 6,710 4 11  
 Ltd. .... 7,774 15 10 T. Adams ... 6,572 2 1  
 J. Jackson... 7,316 8 6 W. Manders... 6,431 0 0  
 Parsons & Par- G. J. Ander-  
 sons ..... 7,170 16 10 son, Poplar\* 5,765 7 2

#### LONDON SCHOOL BOARD TENDERS.

At the last meeting of the London School Board the Works Committee submitted the following lists of tenders. Mr. T. J. Bailey is the Board's architect:—

\* Recommended for acceptance.

CRAMPTON-STREET (Girls).—Providing and fixing a small high-pressure apparatus for additional heating in classrooms A, B, G, and H, including independent boiler:—  
 Vaughan & Brown, Ltd. .... £165 17 6  
 Werner, Philander, & Perkins, Ltd. .... 134 0 0  
 Wentner-Smith, Gray, & Co.\* ..... 112 10 0

SOUTH-GROVE.—New school. Accommodation: boys, 360; girls, 360; infants, 360; total, 1,080. (Loss of 22 places.) Graded school on three stories. Halls: boys, 55 ft. by 32 ft.; girls, 54 ft. by 31 ft.; infants, 54 ft. by 31 ft. Classrooms: boys, 56, 56, 56, 56, 56, 48, 48, 40; girls, 56, 56, 56, 56, 48, 48, 40; infants, 56, 56, 56, 56, 50, 48, 40. Drawing class and science rooms, 1,550 ft. area. Heating by low-pressure hot-water apparatus and open fires. An existing house adjoining the site will be retained for the use of the schoolkeeper:—

Longley & Co. ....	£25,610 0	+ £343
Kilby & Gayford .....	25,270 0	+ 350
Shurnam & Sons, Ltd. ....	25,455 0	+ 370
Grover & Son .....	24,477 0	+ 383
Holloway Bros., Ltd., London .....	23,936 0	+ 475
F. & F. J. Wood .....	23,593 0	+ 510
Chester & Sons .....	23,864 15	+ 348
W. M. Dabbs .....	23,844 0	+ 470
Johnson & Co., Ltd. ....	23,842 0	+ 590
Clarke & Bracey .....	23,772 0	+ 450
C. Cox .....	23,913 0	+ 533
Perry & Co. ....	23,603 0	+ 590
Gregar & Son .....	23,280 0	+ 350
Lawrance & Co. ....	23,465 0	+ 442
McCormick & Sons .....	22,687 0	+ 363
J. & M. Patrick .....	22,838 0	+ 324
Marsland & Sons .....	22,728 0	+ 310
Stimpson & Co. ....	22,540 0	+ 480
Treasure & Son .....	21,889 0	+ 219
J. Greenwood, Ltd.* .....	21,519 0	+ 342

† If walls of class-rooms and halls are plastered *ad id.*

SYDENHAM HILL-ROAD. Providing and planting shrubs, &c.:—  
 Cutbush & Son. £18 10 0 R. Neal ..... £12 2 6  
 H. Welch ..... 15 0 0 W. C. Durrant ..... 15 0 0  
 A. Durrant ..... 17 12 6 G. Footer\* ..... 9 19 0

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(c) Mounting tracings, larger than double elephant, on stout calico, with proper stretchers, complete.

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Reeves & Sons, Ltd. ....	1 0	0 4	0 9
C. Bell .....	(1s. 3d. with gilt slip)	1 0	0 2½
	(double elephant)		
Müller & Co. ....	(larger than double elephant)	0 9½	0 2
Wolf & Co.* .....	(3½d. per ft. run)	0 10	0 2

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H. E. Burnett ..... 28	0 6	45 0 8 6
C. T. Brock & Co. .... 22	6 3 9	20 0 3 4
Joseph Wells* ..... 21	0 4	15 0 3 0
City of London Fire-works and Public Decoration Co., Ltd. 19	6 3 9	17 11 3 6

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## ILLUSTRATIONS.

Design for a Stone Dome over a Porte Cochère to a large Public Hall (Grissell Medal, R.I.B.A., 1903) ..... By Mr. J. B. Fulton.  
Aldershot Council Offices ..... Mr. C. E. Hutchinson, A.R.I.B.A., Architect.  
Some Furniture at the Arts and Crafts Exhibition ..... From Photographs.

## Blocks in Text.

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## The Housing Problem.



THE recent debates in the House of Commons on the Address with reference to the Housing Question have been of singularly little value. On the one hand,

various Members of Parliament have enunciated views on the Housing Question which have over and over again been repeated in different forms in the public Press. On the other hand, the President of the Local Government Board obliged the House to listen to a large number of well-intentioned platitudes. The net result, therefore, of these discussions is that things will remain in their present state. So much is now heard of what is called Municipal Trading that public attention is being somewhat more directed to the question of municipal ownership of working men's dwellings. As we have often said, it is impossible to form a true judgment upon the profit or loss of these undertakings in the hands of Municipalities without an impartial investigation by a Royal Commission. One thing, however, is pretty clear, the Legislature has sanctioned the erection of buildings for artisans by Municipalities, and it is therefore wholly improbable that they will ever be prohibited from carrying out such works. At the same time, Municipalities are under the control of the ratepayers, and if the latter in large numbers object to the Municipal ownership of working-men's dwellings, Local Authorities can in this manner be prevented from building them.

It is pretty clear, however, that even if municipalities do continue to erect these structures, they can scarcely be said to be competing with private enterprise, because, after all, as far as London is concerned, the work done by the County Council is very small in comparison with that executed by private persons. In a useful work\* recently

published and which examines the figures of the last census, it appears that in Greater London additional houseroom was provided during the ten years 1891-1901 for 1,014,000 persons, and that at a capital expenditure of 250*l.* a family, that is reckoning the family at 4.4 persons, the sum expended exceeded 57,000,000*l.* The County Council, however, has only provided accommodation for 15,000 of this number of persons, and has spent, to the end of 1901, 1,281,000*l.* Reckoning, says Mr. Parsons, the family at the above average, the Council has spent in housing each family 374*l.*, which is higher than the cost of the voluntary builders.

In the same work we are presented with some figures which seem to show that the housing question is in a more satisfactory condition than is often supposed. The general public are more sympathetic than they were fifty years ago, or one might even say a quarter of a century ago, and although there is much improvement needed, it must not be supposed that England, whether in the rural or urban districts, has been standing still. The total number of separate tenements in the County of London in 1891 was 937,006, and in ten years it has risen to 1,019,546, such increase being equal to 8.7 per cent. The rate of increase of population during the same time was 7.3 per cent. The increase in the tenements containing five or more rooms was equal to 13.2 per cent, while the increase in those with less than five rooms did not exceed 6.6 per cent. "The rate of increase in the larger tenements was, therefore, double that shown in smaller tenements." Again, there is a decline in the number of single-room tenements in which more than three persons were enumerated. All these figures, and others which space will not permit us to quote, show that, however bad overcrowding may be in many parts of the Metropolis, the general condition of the people during the last ten years has, with regard to habitations, distinctly improved.

The same characteristic is, as we have said, visible in the country. Thus, if we take the county of Buckingham, which may very well be regarded as a typical rural district, we find from the census figures which

have recently been issued, that whilst in 1891 there were 18,916 tenements of less than five rooms, in 1900 the number had declined to 16,077. In the same way the proportion of persons per tenement had declined. Thus, whilst in 1891 there were 153 tenements with ten persons for each, in 1901 there were only 102, and this, although the total number of tenements had increased from 41,000 odd to 44,000 odd.

As we are upon the subject of the rural districts, we may say at once, from what transpired in the debate and from what is general knowledge, that there is great disinclination on the part of the local authorities to take any public action towards improving the dwellings of the working-classes, and it would appear that such improvements can only take place from two causes. The first is an increase in the rate of wages of agricultural labourers and kindred persons, so that they can afford to pay a rent for cottages which will give the cottage owner a reasonable percentage on his outlay. The second is the prevention of restrictions on cheap yet serviceable buildings. There is no reason whatever why well built wooden cottages should not be just as sanitary and desirable residences as badly built brick ones, and it is the vexatious restrictions of local authorities to which is largely due the difficulty of finding house accommodation in the country districts. Of course, could there be greater facilities for the purchase of small plots of land, and for the borrowing of money by agricultural labourers, the problem would in this way be to some extent solved. In the great towns the demand for dwellings must, it is clear, be generally met by voluntary enterprise, and the more that the wage-earner is given facilities for purchasing and building his own dwelling-house, the more rapid will be the increase in the town habitations; but in the cities the problem is also intermingled with that of communication. But even with all these difficulties ahead, it is pretty clear that the state of the dwellings of the working classes will improve within the next ten years as it has during the past decade.

\* "Housing by Voluntary Enterprise." By James Parsons. London: P. S. King & Son. 1903.



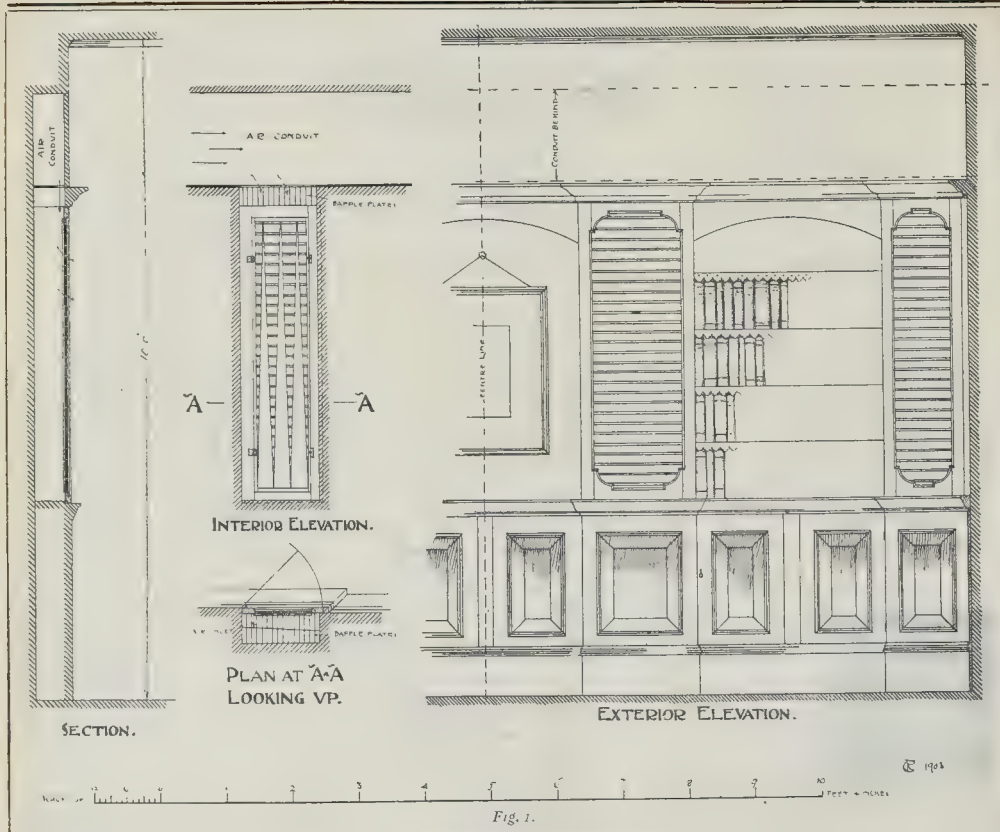


Fig. 1.

## PURE AIR WITHOUT DRAUGHTS.

**R**EFERENCE has already been made in these columns to a lecture on the above subject given by Dr. T. Glover Lyon at the Camera Club Rooms, Charing Cross-road, on January 12. We are now able to publish some illustrations which will serve to show more clearly the method of ventilation he has invented, and which in the practical demonstration given to the Camera Club appeared to be most successful.

Dr. Lyon has pointed out that the most serious effects of bad ventilation are caused by the appearance of exhaled substances of unknown constitution which "are virulent poisons resembling ptomaines and leucomaines, and act especially as depressants upon the nervous system." "They possess an offensive odour, and it is generally assumed that air can be breathed without ill effects so long as this odour is not perceptible, and no longer." To these he gives the name of "spiro-toxines." These exhalations are always present, and the production of them is greater the higher the temperature. It is well to emphasise this point, for it means that the vitiated atmosphere of a crowded room practically acts as a slow poison. The removal of these "spiro-toxines" is difficult on account of their small diffusive power, and therefore "to effect good ventilation we must convey good air *en masse* to all persons occupying a room, and must place no reliance upon diffusion. This is the cardinal principle of ventilation for crowded rooms." A stream of air enter-

ing a room through some shaft or small aperture may well be likened to a stream of water under pressure coming through a tap, the smaller the opening the faster the flow and the less likelihood there is, therefore, of adequate diffusion.

It is stated that if 3,000 cubic ft. of air per hour, or about 1 cubic ft. a second, is supplied to each person the air remains free from the odour of "spiro-toxines," but when properly distributed, a much smaller quantity suffices. To supply this amount without causing a draught has been the difficulty. A draught may be said to be a current of air passing with some velocity through air of a higher temperature, and, as a general rule in a room, discomfort will be caused if the temperature of the current is below 60 deg., though different persons are differently affected by various conditions of atmosphere.

Dr. Lyon's method is to so diffuse the air, and diminish its velocity before its admission, that draught is avoided, and the means employed to do this are certainly most ingenious. The illustrations show the system as fitted up in Dr. Lyon's own dining-room, and will serve to explain the principle, which is equally applicable on a far larger scale.

The method of diminishing the velocity and producing diffusion is shown by the upright panels in fig. 1, which form the front of a shallow vertical shaft. The panel consists of a series of cross bars arranged in a frame, similar to a louvred shutter, only the louvres are vertical instead of sloping, the space between the bars being varied to suit the size of the panel and the

amount of air forced in. Placed longitudinally across these louvres are strips of wood tapered from a broad base to a narrow apex. The air spaces are thus diminished proportionally, the greater space being nearer the point where air is admitted from a trunk or conduit above, at which point its speed is greatest and pressure least. As the air passes down the shaft its speed diminishes, but its pressure increases on account of the tendency to heap up at the closed end of the shaft, and as it impinges upon the cross louvres, which are square in section, it is projected into the room in a horizontal direction; owing to the diminishing of the apertures and the low speed but increased pressure towards the bottom, where the apertures are least, the volume and velocity of the air admitted into the room is practically constant over the whole area of the panel. That this really is the case is easily seen by opening the panel and feeling the strong draught inside the shaft, and then closing the panel and placing the hand or a lighted match at any point a few inches away from it. At the installation in question about 6 in. from the panel it was difficult to detect any current of air.

The air from the trunk is deflected into the vertical shaft by bafflers, on the same principle, by means of which the air coming down the shaft is equally distributed over its cross section and is given a downward vertical direction.

Having explained the means of diffusion, the general system can now be described.





Fig. 2.

Fresh air is drawn in from outside the building by means of a fan, and is first purified and warmed, and then driven along the trunk above the vertical shafts, the number of which would, of course, be regulated by the size of the building to be ventilated. The fan and trunk are so arranged that the least possible pressure is produced, the aim being to, as it were, bowl the air along the trunk. The method of purification is a simple one, devised by Mr. Kenneth Teale. The air passes over a series of trays filled with oil, and the oil therefore always presents a pure surface to the air. The heating can be effected in various ways—either by steam, hot water, or electric radiators.

The general appearance of a room fitted with ventilators on this system is shown in the perspective sketch, fig. 2. A somewhat similar arrangement of extract openings is necessary. These, however, need not be of equal area to the inlets, but must be well placed and well distributed at opposite positions in the room to the inlets.

The obvious objection that dust will collect in the trunk and shafts is not so great as may be imagined. The air passing through the trunk is of such volume that in practice it is found that it keeps it and the shafts and panels sweet. The collection of dust in these is far less than might be expected.

It must be mentioned that open fires can be used, and windows kept shut or open as desired—a very considerable point in favour of the system.

At the Camera Club demonstration Dr. Lyon fitted up a conduit in a temporary manner along one side of the room, immediately below the ceiling, the conduit being arranged on the same form and principle as the vertical shaft illustrated above, and from which the air therefore was diffused throughout the whole length of the room, vertical shafts being impracticable in this instance. The cross section of the conduit was 2 sq. ft.,

and air was drawn in by means of a 30-in. electric fan, and was warmed by passing over five electric radiators. On the opposite side of the room three extract fans were fitted up in the upper parts of the windows. These were closed and the room allowed to become foul and full of smoke, some seventy members being present.

The apparatus was then put in motion, and in a short time the room was completely cleared, and for the remainder of the evening a temperature of 64 deg. was maintained, the air being fresh and the room wonderfully free of smoke. The temperature of the incoming air was 62 deg.

No perceptible draught was felt, except to the feet, but the floor temperature was also 64 deg., and this draught was probably caused by the open fire and cold air blowing in at the door. The members of the club who afterwards joined in the discussion all testified to the fact that the purity of the atmosphere was in marked contrast to the usual experience at ordinary meetings. It must not be forgotten that the arrangements made were of an entirely temporary character, and therefore the success was the more striking.

Dr. Lyon illustrated the complete way in which the atmosphere of the entire room was changed by the simple method of impregnating the incoming air by means of a bottle of lavender water, the odour of which quickly penetrated to every part of the room, and then again soon disappeared, showing that every portion of the room was equally diffused with the pure air, which was again equally extracted.

The cost of the system is probably not greater than any other method of mechanical ventilation, by which air is purified and heated; and heating is obviously necessary in large assemblies, if the air is introduced in sufficient volume to be effective. The panels would lend themselves to sensible architectural treatment, and many cheap and simple expedients could be adopted to carry out the main trunk or conduit.

The supply of electricity for purposes other than lighting is now so cheap in most

large towns that the question of fans and motors ought not to be a serious one; but nothing can be so costly or serious as the deleterious effects of breathing poisoned air, though how dangerous such effects are few people yet realise.

It can hardly be too strongly insisted on that the ventilation of almost every public place of assembly is at present very deficient; it is universally recognised that some means of mechanical ventilation is imperative in such buildings, and yet ventilation is a subject much neglected by architects as a rule. Pure air is absolutely vital to the well-being and health of the community, and the "open air movement" in relation to the cure of tuberculosis clearly demonstrates that the remedy for the disease is also the means of preventing its being contracted in the first instance. The seeds of our national disease, consumption, are certainly often first sown in the foul and contagious atmosphere of some ill-ventilated place of public assembly, and any method which appears to possess intrinsic advantages is worthy of careful consideration and trial.

## NOTES.

Asylum Accommodation.  
THE Report of the Asylums Committee of the London County Council on the Colney

Hatch fire, as published in the daily Press, appears to us an extremely deficient one, and entirely to beg the question raised by the verdict of the coroner's jury. The coroner's jury found that the plan and construction of the building, as well as the materials used in its construction, were unsuited even for temporary buildings, and condemned it as unsafe. Yet there is no finding in the Report on this question, the Committee apparently confining themselves to minor matters, such as water supply and internal management in the conduct of the establishment, and a statement of the so-called difficulties the Council has had to contend with. Those difficulties do not, however, appear to us as very stupendous. When the County asylums, by virtue of the Local Government Act, 1888, were transferred to the London County Council in 1890, it appears that accommodation had to be provided for 10,104 lunatics. This number has now increased to 16,961, by an average annual increase of 517. But the provision of permanent accommodation for the above number of lunatics would not seem an impossible task for a body with such energy as the London County Council to have accomplished in thirteen years. From this Report it would appear that a sum of nearly 2,000,000*l.* has been expended on asylum accommodation, and that temporary buildings are in use at three of the asylums at least. Further information on this subject will be read by the public with interest, for with a Council so desirous of extending its sphere of operations, the reflection will occur to many that with a little more energy expended on this matter, specially entrusted to them by Act of Parliament fourteen years ago, the housing of some 17,000 lunatics in permanent buildings might easily have been accomplished ere this.

Railway Management.  
THE climax of the railway shareholders' "revolt" may be said to have been reached on Thursday last week, at the half-yearly meeting



of the London and North-Western Company. The Reform Committee were backed by 3,000 shareholders—a conclusive proof that the movement had assumed far greater proportions than that of an ordinary agitation. "We are all reformers" was the burden of the speeches on both sides, the practicability or otherwise of the suggested remedies being in dispute. Everyone seemed agreed as to the necessity for combination—the advantages of which we indicated some time since—though the *Times*, in a recent article, warns the public that, in this respect, the shareholders' gain may prove their loss. There was much more difference of opinion as to statistics, and it may be remarked that it is not only in this country that more statistics are being called for. The Inter-State Commerce Commission is pressing for more details of American railway working, and the railway companies are offering a vigorous opposition to the proposals, as being of no practical value, while involving great expense. Precisely the same arguments are being used with regard to our own railways. The large waggon question has been thoroughly discussed already, but as illustrating the difficulty of instituting reliable comparisons between English and American methods, the following statistics, from a paper given before the Western Railway Club, may be quoted. In 1891 the average net tonnage per car of western roads was about 12 tons, and in 1902, 16 tons. The writer was confident that the net tons per car could be increased to an average of from 20 to 25 net tons per car. We never need fear any comparisons as to safety and speed, which may reconcile the public to many shortcomings; and Sir Alexander Henderson recently pointed out another feature in connexion with American railways which should tend to reconcile shareholders, viz., the large proportion of undertakings which get into the receivers' hands. Truly, we are not so badly off in the old country as we might be.

CONTINUING his lectures on metallic architecture at the Royal Academy last Thursday week, Professor Aitchison cited instances of the use of metal in building, and dwelt on the probability of its still further use and development. We do not think the Professor's illustrations of its constructive value likely to increase the advocates of its open use in architecture, though we agree that if used at all it should be an evident factor in the treatment of the design. Concealed ironwork is so commonly employed to deceive the eye of the uninitiated that sinning in this respect is particularly easy, but one can remember the sense of disappointment on first learning that Brunelleschi's great dome at Florence was dependent on a massive iron chain embracing its base. That feeling we believe to be healthy, and it illustrates a certain difference of sentiment inspired by the Renaissance builders on the one hand, and the Greek and Gothic builders on the other. The improper use of iron is certainly not the least of the errors of present-day city architecture. The professor did not sufficiently emphasise the fact that the right use of metal by the ancients was in decorative work, such as that used by the Peruvians in the Temple of the Sun, by King Solomon in the first Temple, and the like use of precious metals

where they were to be obtained in quantities. This is the natural use to put them to; it cannot, however, entitle the buildings so adorned to be described as metallic architecture, any more than glass mosaic can be called glass architecture. The problem is still to be solved; in no sense can concealed iron work be called architecture. In his instances the professor did not allude to the iron spire of Rouen Cathedral or to the British Pavilion at the recent Paris Exhibition, both interesting as illustrations of what ought not to be done. Neither did he allude to the little front in George-street, Westminster, by Mr. Halsey Ricardo, which in our opinion is the best piece of exposed ironwork construction that has been done. On Tuesday the lecturer spoke upon colour in architecture in an interesting way. He reminded his hearers that the Romans were the first people to leave their architecture uncoloured. He said that Greek sculpture was mostly coloured, and the brother of Phidias was by calling a sculptural colourist. Speaking of the lessons to be learnt from the past, he pointed out the crudeness of the few strong primary colours that were used externally compared with the softer and more subdued tints employed within. That colour is not more largely used nowadays is a matter of regret; but, as the Professor said, it takes very rich people to use it effectively, and rich people fear the caprice of fashion in taste for styles of decoration, as well as for the neighbourhood in which to live. The East is, after all, the home of colour; as a superficial decoration it will always, we fear, remain an exotic in this comparatively sunless, smoke-stained country. In Persia, where you pay extra if your house is coloured with an original design instead of with one from the pattern book, colour in architecture must be a very practical subject to discuss.

THE return of the municipal indebtedness of London for the year 1901-1902 has just been made to the London County Council, and an increased charge on the rates is shown of 161,891*l.*, although this sum is reduced by 62,262*l.*, which represents a return made for income tax paid in the past seven years. The rate in the pound, leaving this sum out of account, would be 19*40d.*, as compared with 19*54d.* in 1901-1902, the rateable value having increased, but the total debt outstanding has increased from 49,910,029*l.* to 54,257,005*l.*, and the percentage of debt outstanding to rateable value has increased from 133*12* to 136*43*. The so-called "remunerative debt" shows an increase of 26 per cent. In another Report of the Finance Committee it appears that the money obtained by the Act of 1902 is insufficient, and that further powers must be sought to raise an additional sum of 116,000*l.* The greater part of this sum seems to be required for street improvement and housing schemes.

REFORM in railway matters is rolling on foot, and there are signs that it is even spreading to the Southern lines. We would therefore urge those who are interested in the progress of this movement to lose no time in visiting the Chatham branch of the South-Eastern Railway, where the old-fashioned carriages

our forefathers contentedly travelled in can still be seen, and a comparison can be made with the modern railway coach. The first-class carriages compare unfavourably with the third-class carriages now in general use, and although the antiquary may regret the Philistinism of the directors which has defaced a few of these relics of bygone days by fitting them with electric light, it only requires a small effort of the imagination for the traveller still to picture himself back once again in the early sixties. Possibly it is owing to the fact that much of the Continental traffic passes over this line that many of our foreign neighbours imagine themselves to be far ahead of us in the matter of railway management.

THE sixth annual Report of the Hampstead Heath Protection Society refers to their opposition to the Tube Railway scheme, and notes that, though the preamble of the Bill has been declared to be proved, the clauses for the protection of the surface of the Heath have been strengthened, and it is understood that no generating station will be erected at Golden's Green. In regard to a point already commented on in our columns viz.: the recommendation that the London County Council should purchase some of the Eton College fields, to prevent building close to the Heath after the making of the railway-station, though nothing decisive can be reported as yet, it is stated that the suggestion has the approval and support of the Commons and Footpaths Preservation Society, the National Trust for Places of Historic Interest, the Metropolitan Public Gardens Association, and the Society for Checking the Abuses of Public Advertising. The Committee are pleased to announce that the London County Council have acceded to their request that the grazing of sheep should not be allowed on the upper part of the East Heath, which is already too bare of natural growths. The Committee have opposed the application to the County Council to make a horse-ride on the Heath, and with success, as the consent has not been granted.

THE thirty-ninth exhibition of the Dudley Gallery Art Society (watercolours) is more interesting for some of the smaller works than for the larger and more prominent ones. Miss Gilchrist's large drawing "The Heart of the Forest" (137), at the top of the room, is indeed a careful and highly finished work, but rather tame in style. The lady artists are, however, among some of the best contributors in this Exhibition. Among their works may be mentioned Miss Sylvia Drew's "A Sussex Village" (3) and "Drinking Pool on the Downs" (14), the latter a powerful sketch, for it is a sketch rather than a finished drawing; Miss Rose Hake's "Old Christ's Hospital" (61); Miss Margaret Bernard's "Corfe Castle on a Wet Day" (101)—it should surely have been "Corfe" for it shows the village street, not the castle; Miss Jex-Blake's "Evening on the River" (121); Mrs. Heathcote's "New Forest" (127) by moonrise; and Miss Mildmay's "Marsh Meadows" (186), with a very fine sky. Miss Gertrude Martineau's "Cairngorm Mountains in October" (10) seems to us rather to fail in conveying the scale of the scene, her other mountain picture, "A Lonely Glen near

Royal Academy Lectures.

Municipal Debt.

Chatham Railway Rolling on foot.



## HOW TO ESTIMATE.

THERE are few subjects wherein less reliance can be placed upon what may be termed "book knowledge" than builders' estimating. So many elements combine to render it one that must always be considered anything but a definite science. Therefore, experience must take the place of the formulae that form the basis of most calculations in other departments of business life.

The multiplicity of items, the constantly changing prices of materials and, one can almost add, of labour also, and the varying conditions under which the work has to be executed, all have to be taken into consideration as well as the important item of carriage and cartage. In these latter items, the distance from a railway station and the state of the roads must tend to vary the price. Again, the price of labour in the locality in which the work is being executed and the question as to whether the supply will equal the demand, as, if this is not the case there will be a still greater difference between the price of local and imported labour, as in the latter case railway fares and "lodging money" will have to be reckoned with.

Consideration of the points just mentioned—and these constitute a few only of a very large number—will show that any author who takes up the subject with a view to giving general instruction, may well be appalled by the magnitude of the task he has set himself. Praise, then, is all the more due to Mr. Rea for the painstaking way he has dealt with the items contained in his book\* which, notwithstanding sundry imperfections, is certainly one of the most complete works of its kind that has appeared for some years. The author appears, however, to place rather an undue reliance upon "constants of labour," which, however, most men engaged in pricing, or at any rate who have an opportunity of judging, will say are anything but constant. In fact, the author himself, on page 72, gives a good example of the fallacy of relying upon constants, where he states in effect that the number of bricks laid by a bricklayer, supplied with materials by his labourer, vary from 1,500 down to an average—given him by "a large builder"—of 400. On the next page, in calculating the price of brickwork, he bases his price upon the supposition of the bricklayer laying nearly 1,000 per day; thus arriving at a price which is obviously too low with bricks at 35s. per thousand, as he would find upon looking at any reputable builder's competitive priced bill. He would find that the 3l. per rod for labour would have to be increased by something like 50 per cent. He starts with the erroneous assumption that the price of labour generally is 10d. per hour, and labourer 6d.; whereas the standard price of the former is 10s. 6d., and the latter 7d. This, however, does not materially affect the price of brickwork before mentioned, as he reckons the day as ten hours instead of nine. Few builders would be content to accept 15s. per rod as a sufficient price for the extra cost of cement over lime mortar—twice this would be nearer the mark. On page 77 he takes this low price as a basis for half-brick trimmer arch in cement (with no allowance for extra labour in building an arch, in half-brick thickness and in small quantities), which works out at 4½d. per foot; little more than half the real value. We do not understand why the author also includes the rough cutting (evidently for the skewback) in the item. The price for levelling up with concrete is also a low one, as it is in small quantities, apart from the fact that it is based upon a somewhat low quotation for concrete (10s. 5d., page 55) in the first instance.

In arriving at the price per foot super for facing, Mr. Rea is again led into an inconsistency, for, although in the second item on page 75 he notes that there is "extra for a better joint," i.e., than the struck joint of the first item, he prices both at the same rate: 10s. 8d. for 272 ft. of struck joint and 3d. per foot for "raking out and pointing." In the latter case the joint is not only "better," but the price includes raking out also. Then, again, on page 81 we come to another item of "pointing new work, flat struck joint in lime mortar, including raking out the joints," which is priced at a fraction over 1s. 7d. per yard, while the same item in *fine* mortar (second item on page 75) works out to something

under 10d., i.e., 9d. + 10 per cent. We have no account taken of the note to the end of the item on page 75, just mentioned, representing a value of 2d. per foot for "pointing and rubbing facing bricks," and therefore do not know whether this or at least a portion, i.e., the "rubbing," should be added to the price or not. While acknowledging a certain difference in the value of pointing to outside and inside work, that difference, in our experience, is not in the proportion of 15 to 40 as given in the first and third items on page 75.

In the item of air-bricks on page 86 the author, after taking the trouble to measure the rendering inside, arriving at an area of 1 ft. 6 in., prices it at 1d., i.e., 9d. per yard. We are afraid he would find few builders who would be willing to accept this price for rendering in a 9 in. by 3 in. hole.

We have dealt rather severely possibly with the chapter on bricklayer's work, but it is only by such comparisons as we have given that the fallacy of the constants and the pedantic dissection of items when carried to the extreme, as Mr. Rea is inclined to do, can be clearly shown; and painstaking as the work shows his labours to have been, these comparisons and results will make it clear how easy it would be for any one relying upon this method of pricing to be led astray with disastrous results. In the examples given we think it probable that the builder employing them would generally find himself decidedly at the bottom of the list of cases, but how long this would remain the case would depend upon the amount of capital at his disposal. The same objection applies, more or less, to the whole of the examples given. We do not think, for example, that many estimators would work out the price of screws for fixing a 6-in. barrel bolt or a sash-fastener on the lines given on page 216—"Six brass screws ½ in. No. 8 gauge at 2s. 3d. per gross, less discount—4d." The author himself evidently feels the weakness of this system, *c.g.*, on pages 255 and 256 we get items of "labour and profits," "labour and solder and wall hooks," "labour fixing including solder, &c.," which in some of these examples is the larger portion of the price, also in the prices for ironwork—even small items, such as gratings, hinges, and such like, the price of fixing is added at per lb. or per cwt. which, to say the least, is a somewhat rough and ready method, especially in the midst of such detailed pricing as we have quoted.

As we presume this is not to be an annual volume, we doubt the advisability of giving the prices in the form of a price-book, apart from the fact that it is rather in contradiction to the general instructions given for making-up prices.

Notwithstanding the various weaknesses we have pointed out, the book must be considered an interesting attempt to put builders' pricing upon a definite basis, and we have therefore dealt with it in a detailed and analytical manner, such as the importance of the subject demands. This consideration only tends to emphasise our opinion that builders' pricing is—and probably always will be—a subject that demands practical experience before anything. In fact, without this experience it would be useless to attempt it with any degree of success. Given this, the perusal of a work such as this will be of assistance in formulating some ideas to enable us to place the experience before mentioned upon a more business-like footing. Far be it from our intention to suggest that rule-of-thumb should take the place of anything more definite, but it requires a good deal more than an academic dissection of items to arrive at the cost of the various works, taking into account the many elements of variation mentioned in the earlier part of this article.

To revert to the book. Some of the points open to criticism appear to arise from the author's association with Irish building work, which possibly accounts for the errors with regard to labour before mentioned. There are various little slips that should be corrected. *c.g.*, rolled steel joists are given at 6l. 15s. per ton, while lower on the same page the price is quoted as the same as "B. E. Staffordshire bar iron," i.e., 8l. per ton. There is also a note under the price of lead to say that "the price is lower than when the book was written." A note such as this should be avoided, as it is only a matter of correction. We should strongly advise the author to revise the work thoroughly and to deal with the items on consistently broader lines.

\* "How to Estimate." Being the Analysis of Builders' Prices. By John T. Rea, M.R.I.A. (Ire'an'), F.S.I., &c. London: B. T. Patsford, 1902.

The Ridley Art Club.

We do not remember to have heard before of the Ridley Art Club, which is holding its seventeenth exhibition at the Grafton Galleries. We should gather that it is essentially an amateur society, though the names of a few known artists appear in the catalogue—Mr. Melton Fisher, Mr. Padget, Mr. Ayerst Ingram, &c. The collection is a large one, not all of it very interesting but containing some good things; Mr. Lentest's "Solitude" (40), a wild moorland scene; Mr. Padget's "Wild Weather" (55) and "A Marsh Dyke" (58); Mr. Haite's sketch of "A Venetian Fruit Stall" (60); and Mr. Melton Fisher's portrait of "Mrs. Melton Fisher" (80), the face seen through a veil. Among the works by names not familiar to us we were most struck with two bas-relief sketches by Miss Ruby Levick, "Sledge-hammerers" (140) a vigorous subject from actual life, and "Sketch for Memorial Tablet" (197), which is interesting in sentiment as well as decorative in design.

THE EDINBURGH BUILDING TRADES EXCHANGE, LIMITED.—A meeting of the members of the Building Trades Exchange, Limited, was held on the 19th inst. in the rooms at 26, George-street, Edinburgh. Sir Thomas D. Gibson Carmichael, Bart., presiding. A lecture was delivered by Mr. Henry F. Kerr, his subject being "A Glimpse of some of the Great Medieval Churches of Britain." To the course of his lecture, which was illustrated by limelight views, Mr. Kerr referred to the current of architecture from Egypt to Rome. For the greater part the lecturer dealt with the plan of our great medieval churches founded upon the Roman basilica, and afterwards he described in some detail the various churches of Great Britain, such as Durham, Salisbury, Peterborough, Elgin, Canterbury, York, and Melrose.



Notwithstanding our criticisms, we can heartily commend the work as a painstaking attempt to deal with a very difficult and—we may almost add, owing to its unstable nature—a very unsatisfactory subject.

#### THE ARCHITECTURAL ASSOCIATION.

An ordinary fortnightly meeting of the Architectural Association was held on Friday evening last week in the Meeting-room of the Royal Institute of British Architects, No. 9, Conduit-street, Regent-street, W., Mr. H. T. Hare, President, in the chair.

The following gentlemen were elected members of the Association, *i.e.*, Messrs. W. Hart Gregson, G. P. Bankhart, C. L. Wright, and C. F. Cargill.

Mr. H. P. G. Maule, Hon. Secretary, proposed a vote of thanks to Mr. Aston Webb, A.R.A., for kindly conducting a party of members over the Victoria and Albert Museum and Royal College of Science on the 7th inst.\*

This having been agreed to,

The Chairman announced the following additional donations to the New Premises Fund, *i.e.*, Mr. Andrew Oliver, 21. 2s. 6d. and Mr. R. H. Weymouth (second donation) 2l. 2s.

The Chairman proposed a vote of condolence to the relatives of the late Mr. F. C. Penrose, which was agreed to in silence.

#### Stained Glass of the Future.

Mr. Silvester Sparrow then read the following paper:—

This title has been adopted in imitation of Richard Wagner's "Art-work of the Future." That, which was scoffed at as an idle dream, and parodied as "The Music of the Future," has become a present actuality. May the omen be propitious!

There is scarcely any subject about which more ignorance prevails than in Stained-glass. Quite a number of people still think that the glass-stainer paints the colours on the window. I am not sure whether the idea still survives that a window is leaded up before it is put in the kiln. Even among architects how few there are who can tell one material from another, the good from the bad, or who know which is the best for a particular purpose. One of my objects, therefore, is to place you in a position to judge for yourselves whether the best material has been given to you, and if the best use has been made of it, not only with the view of enhancing the beauty of your own works, but also to protect your clients, who doubtless rely upon you to see that they are not palmed off with shoddy or base metal. I will preface the few thoughts which it is my privilege to offer you with the sweeping assertion that no one has any right to speak about Stained-glass who has not worked in the best material. When I have reached the end, you will probably grasp the point of view from which I make this assertion. For the present, suffice it to say that the critic can only deal with what he knows; therefore, in judging a window he can only compare it with other windows, either ancient or modern. He can never say, like the worker in the best material, that this subject should have been treated in such a manner to produce such and such a tone, or that this or that part would have been better if such and such a material had been employed. In a word, he can never look into the future, and say what ought to be. The very title of this address would seem to disclose a certain dissatisfaction with Stained-glass as it is. It will, therefore, be our first task to find the cause of our dissatisfaction; to diagnose the disease, in fact, before we talk of remedies. Imitation is the disease! And why is imitation the disease? Because it has been said, and repeated on all sides, "There is no glass like the old glass, and there will never be any windows like the old windows." Both these assertions I deny, since they are based on ignorance of the best material procurable to-day, and of the use that might be made of it. Take, first of all, the effect of those assertions on the producer of stained-glass. He has been content to imitate a cheap period, *viz.*, Perpendicular or fifteenth century work, and imitations of that imitation. When I say a cheap period, I mean as regards the material. It is well known that from the thirteenth to the fifteenth and sixteenth centuries the material deteriorated, becoming

thinner and poorer in quality and colour. Whether this decline, which was concurrent with a natural development in the technique of painting, was due to a demand of the painters for a material that would better display their painting, cannot now be known. I am inclined to think it was, but it is not a fact of much importance. If so, it simply proves that they had lost the idea of the essential qualities of glass and gave tone; that it must look like glass and give tone. They had chosen the wrong material for the display of their painting powers. I must protest against glass being used as a material for excessive painting. If you must paint, paint on wood, on canvas, or wall; but leave to glass its essential qualities of brilliance and translucency. If therefore, one would make a passable imitation of that period, one would have to ignore the best and most expensive glass made now, and use the cheapest and worst. Why that period should have been chosen for imitation rather than another I cannot imagine, unless it be on account of its comparatively cheap production—where so much of a window is given up to canopy and base in whites, which do not require, or at least do not receive, much thought; where the whites of the drapery and of the flesh run into the canopy and base (being usually cut out of the same tint), and the little bit of rich colour in the drapery, rich only by contrast with the white, stands absolutely alone, a shapeless mass. We will give these people the benefit of the doubt, and admit that this period is said to be that in which the highest point in the technique of painting on glass was reached. It is fortunate for them that it is also the period of the poorest glass, if we except the frightful colours of a generation or two ago.

One shudders to think what their fate would have been if the style of their choice had been the most expensive to reproduce. Would there have been as many imitators? Another plea that will doubtless be put forward by the Imitators is that if you have to put windows in a thirteenth or fifteenth century church you must imitate the glass of those periods. But the very existence of different styles, almost coincident with the centuries, so that we speak of a thirteenth, a fourteenth, or a fifteenth century style, proves that the old men did not imitate their predecessors. There is another theory, that the old men adapted their glass to the varying styles of architecture. It may be that architects of the fifteenth and sixteenth centuries called for a lighter glass, which would show up the more elaborate carvings they indulged in. Those who hold this theory may say that the glass-stainer of to-day should adapt his glass to the architectural style of the nineteenth century. But there is a nineteenth century style? Perhaps I am treading on delicate ground, and had better leave you architects to settle the question amongst yourselves. The imitators, however, by no means rigidly follow their own rule; for instance, the imitators of Perpendicular can rarely do anything else, but put it with little or no variation, into every style of church. Let us leave the question of *why* the early glass-stainers did this or that, and assume that if they were alive to-day they would have sufficient honesty to use the best material, and sufficient talent to make the best use of it. What, then, is to be our own course with regard to this crucial point? This is the fundamental and unalterable guide for our conduct:—*One has no right to put bad glass into a window under any pretext whatever.* I have already pointed out that, to imitate, one would have to ignore the best glass. The highest qualities of a stained-glass window are mystery and rich and appropriate colour in harmony with the subject. Do not tell me, therefore, that an imitation fifteenth-century window is appropriate when it lacks mystery and richness of colour. If a window is full of mystery and devotional feeling, a living symbolism, rich and harmonious colour, a simple and dignified design, strengthened by a bold use of the lead, and an expressive tracing and painting, it is worthy to be placed in any church that was ever built. Before describing the process of making a stained-glass window, by which you will be enabled to know what to look for in a window, and thus to protect yourselves at all points, I must attempt to give you some idea of what I have called the best material. The best material is undoubtedly Prior's Early English glass and Powell's Antique. Early English is a comparatively recent invention, having been

in existence only some few years. One would gather from its name that it is an attempt to restore the old English glass; but, in my opinion, in the quality of brilliance, in its variety and richness of colour, this far surpasses its original, and I have no hesitation in saying that this is the finest glass that has ever been made for our purpose. There are three sorts of coloured glass used in the stained-glass window. Tints, which go under the generic term of "Whites"; Pot-metals, in which the colour goes right through the sheet; and the flashed glasses—that is, the rubies, some blue, and other varieties. The method of manufacture is somewhat like this:—A piece of metal, as the molten glass is called, is taken on the end of a blowpipe, and blown into a square bottle shape. This contact with the mould gives the glass a certain roughness and inequality, while the inside of the bottle retains a very smooth blown surface. It is this combination which is the characteristic of this kind of glass—brilliance united with body, a faculty of holding the light, while "Antique" is more or less transparent. It also varies considerably in thickness, some pieces being quite half an inch thick or more. All this helps its rich and jewel-like quality. The bottles are then cut at the edges of the sides and bottom; which gives us four sides or slabs 6 in. by 4 in. and one bottom 4 in. by 4 in. This is the most general size. Other sizes are 7 in. by 5 in. and 8 in. by 6 in. the largest. It has been found that this size cannot be exceeded without losing the jewel-like quality of the glass. In fuses or accidents, which are the best things in the manufacture of material for stained-glass, it is particularly rich. When the heavier chemicals sink to the bottom of the pot, the last few bottles that are made from it are streaked and varied in colour in a most wonderful and beautiful way. The colour of these bottles may be quite different from those made from the top of the pot. This quality of unexpectedness is most valuable, and a window largely carried out in this material is unique, absolutely inimitable. It must be said, however, that the scale of colour is not exhaustive, and that some of the colours are very crude (although these have their uses occasionally), so that one has to fall back upon Powell's "Antique" by far the best of the so-called "Antique" glass. Although Powell's "Antique" is not so fine as "Early English," it has qualities of its own to which, in the present state of the manufacture of "Early English," it may be regarded as complementary; thus I include it in the term "best material." Although it has not the brilliance and body of "Early English" it has those qualities in a much higher degree than other makes of "Antique," which I need not specify. I should mention that there is an imitation of "Early English" called "Norman," which bears a relation to its original similar to that which the common "Antiques" bear to Powell's, and which I need therefore warn you, when you specify Prior's "Early English," to see that "Norman" is not substituted. When I mention that you can get "Norman" for 3d. per slab, and the lowest price of "Early English" is 6d. per slab, the reason for the substitution is obvious. Broadly speaking, "Early English" has more light, Powell's "Antique" more tone; so that one would use "Early English" for effects of light and brilliant objects, and Powell's "Antique" for the parts requiring tone. It is also good to plate a crude piece of "Early English" with, to gain variety of colour and tone. The process of manufacture in Powell's Antique is quite different from the other. It is made in what is called a "Muff"—that is, the metal is blown into a cylindrical form (but not into a mould) about 7 in. in diameter and about 13 in. or 14 in. high. It is then cut down the height, and placed in a flattening kiln, to come out a flat sheet about 21 in. to 23 in. long. It is in the process of flattening that the glass loses some of its brilliance. In this manufacture there are also gold pink on Venetian opal, blue on Venetian opal, and gold pink and blue on Venetian opal. The Venetian effect is a ripple or indentation in the glass, which gives it greater brilliance than the flat Antique possesses. The opal is the base, and when a thin skin of blue is flashed upon it it produces a varied cool green tint, with streaks of blue. The gold-pink is a thin skin of gold flashed on the opal base, the warm tone of the opal softening the sharpness of the pink; the colour produced by the gold. The streaks of blue and gold-pink on

\* See our issue of the 14th inst. for an account of the visit.



the opal produce beautiful combinations, often with markings of a feather-like character. This is very good to work away from the gold-pink with. All these are very valuable for special effects. Powell's also make their glass into circles of about 12 in. to 14 in. diameter. These are much richer than the flat sheets, of which they seem to be a concentrated form. Before leaving the subject of the quality of the material, it will be well to devote a little attention to one colour, the most important in a stained-glass window, viz., ruby. Indeed, it may be called the touchstone of a window, so far as the quality of the material is concerned. There are two metals which produce the red colours we call the Rubies: gold and copper. Ruby is one of the flashed glasses: that is, a base of white, amber, green tint, pale blue, or purple is flashed over with a thin skim of either of those metals. Gold ruby is confined almost entirely to "Early English," in which it reaches a price calculated to freeze your young blood, and make each particular hair stand on end. You will easily understand that there must be a considerable difference in the cost of these two kinds of ruby; nor will you have much difficulty in guessing which kind is so fondly embraced by the commercial and imitation people. It will be difficult to give you much idea of the enormous difference between the two. Gold ruby is the most distinguished colour, an aristocrat among colours, whereas Copper ruby is common and vulgar. Gold ruby is one of the triumphs of Prior's "Early English" glass, in which it provides an infinite variety of Rubies, from the richest wine colour to the most delicate and ethereal tints. This variety is partly due to the varying thickness of the gold flash, and partly to the different kinds of base, which also varies in thickness. Spoilt ruby is also another fruitful source of variety, that is, overfired, or when the metal in the pot, decreasing in quantity, becomes too hot. Spoilt in the sense that the maker has missed his aim, but invaluable to those who seek after unique effects. Not that Copper ruby is to be entirely ignored. The darkest tones of Copper ruby on blue may be used as a subsidiary red, but it can never take the place of Gold ruby as the chief mass of red. Powell's brown ruby; a little gold (generally too little gold) mixed with the brown flash, leads to very varied reds, generally of a sombre sort, which may be used in a similar subsidiary sense. Having shown you which are the best materials, I must say that architects are extremely lax in the matter of seeing that they get them in stained glass. If it were a matter of drain-pipes, they would study all the different kinds and specify those of a particular maker; they have a dim sort of idea that if they did not do that, some cheap and inferior quality would be foisted on them. Ah! you will say, but stained-glass is a sacred art; its makers could not do such things: why, therefore, take such precautions? If such be your touching faith, there is nothing more to be said; yet would it not be worth while to inquire where all the rubbishy glass goes to, and why there is so little good glass made, that one is absolutely forced to plate (a technical term which means to lead two or three layers of glass together) a great deal more than one would? I do not see why architects should not specify Prior's "Early English" glass and Powell's "Antique." Let us admit it as conceivable that what I call the worst glass these people may consider the best only permit me to remark that, if so, what they consider the best is invariably cheaper, much cheaper than that which I consider the best. If it is good to see that you get the best material, if it is better to see that proper use is made of it, it is best not to go to any designer whose highest effort has been a public-house window. When I speak of the improper use of "Early English," I think of that church built by a prominent architect who has abjured figure work in stained-glass, and who resolved to have the best glass in plain glazing. One can hardly blame the man for refusing to have a lot of rubbish shot into his church; although, to ignore it, is not to develop the art. It must be grappled with—taken in hand. If you cannot afford good stained-glass, I would always recommend ornamental glazing, however simple, in the best glass, rather than cheap stained-glass. Unfortunately, however, these windows have been done in almost pure white, consequently there is an utter absence of tone. To enter the church is like going into an ice-house. Even in ornamental glazing, tone and

variety are essential. Let me here make another assertion. Some of you may be under the impression that we put windows in to give light. That is not so with stained-glass: a stained-glass window should be put in to give tone. You may deny this, but I say that however much you may strive, you will never get mystery or poetry into your buildings otherwise. The Catholic Cathedral at Westminster is a glaring instance. The architect's ideal of stained-glass was a gin bottle. He has tried to get as near to that as possible with roundels and Norman glass, that cheap imitation of Early English. The windows have no relation to the building, nor have they any tone. Plaster the walls as thickly as you please with gold, mosaic, and marbles, there will never be any mystery or poetry about the place. Before beginning a description of the making of a stained-glass window, I am reminded of a lecture by a distinguished man in the Pottery line, which I was once taken to hear. The lecture was supposed to deal with certain difficulties in the firing of pottery: difficulties which confronted the Greeks of Homer's time, who immortalised them in a song. Well, we heard all about that, but as to the Lecturer's methods of overcoming those difficulties, not a word. And there the poor pottery men sat, with open mouths, waiting for the crumbs which did not fall from the rich man's table. If speech is the art of concealing thought, then was this lecture a masterpiece. I do not intend to follow this artful craftsman's example but to describe everything with the utmost frankness; and if I should inadvertently leave anything obscure, I shall be only too pleased to supplement these remarks at the close of my address. The first thing, then, is the design, the coloured germ of the future window. This should be made to scale. I recommend  $\frac{1}{4}$  in. to the foot. This is convenient for making the cartoon, one-eighth being equal to one inch, and one can put in a fair amount of detail and suggest variety of colour. The artist is first to conceive the light and tone that will be in harmony with his subject. By "tone" in this connexion I mean that which is a partial deprivation of a particular light, and must not be confounded with light and shade. To give the most familiar instance, moonlight and tone. We see objects that the moon does not shine on cooler in tone than they are in daylight, because the light of the moon is cold. In the same way, whatever light the subject demands (and it is not necessarily confined to sunlight or moonlight, it can be that "Light, which never was on sea or land"; the tone must correspond. Every colour in the window, therefore, must be influenced by either the light or the tone. Colour, which is our next consideration, has hitherto been said to be the chief thing in stained-glass. But that is not so: there is a higher aim: mystery, the result of effects of light and tone: the absolutely indispensable quality in a stained-glass window. In a window we are dealing directly with light; there is therefore no need to conventionalise it, and as there can be no colour without light, we will call light the soul, animating the body, colour. The quality of your window is therefore determined by the amount of light in it. It is in this quality of dealing with light, that the genius of stained-glass lies. It is this which differentiates it from every other medium. The colour must have a definite keynote, also in harmony with the subject. There must be a controlling sense of key, so that one may say, this is a red window, that a blue one. Let me illustrate this in the simplest way. Suppose one had to do the four elements. The Fire subject would demand a red window, Earth a brown window, Air a blue window, and Water a green window. This does not mean that the red window would be nothing but red, but that the keynote and the predominating mass would be red, and the colours of the other subjects would be worked in to enhance its effect, and to form a connecting link with them. Hitherto, windows have been a hopeless jumble of colours, every one for itself, and the Devil take the window. People seem to have started colouring a design at one end, without having had the least idea what the other end would be like. Not that there is any restriction on colours so long as they are subordinated to the key colour. Indeed, let us have as much variety as possible, so long as the unity and harmony of the whole are not impaired. This variety will lead you into the most subtle effects, which will always add charm to a work, and charm is a

very essential quality. Strength and subtlety should be the character of the colour scheme, strength, of course, being derived from a bold treatment of the primaries. The primaries must be as rich and full as possible, and in bold masses, if your window is to have the necessary vigour and grip. So-called æsthetic colouring is unpardonable weakness in a stained-glass window. With regard to the treatment of a light window, that end is not to be attained by filling the window with light colours of the same value. That simply results in a washy window, which looks as if all the colour had been bleached out of it. No, use as much "tint" as you like, but there must be some rich colour to show that it is intentionally a light window. The same remark applies to an ornamental window in tints. There should be a little rich colour to give it grip, and a little pure white, by which we may define the strength of the tint. Naturalistic colouring is not essential. Indeed, the most beautiful and glassy effects result from the unexpected. But it must have the appearance of inevitability; one must feel that to replace it with anything else would result in weakness,—"and her hair shall be of what colour it please the glass-stainer." The traditional and symbolical colour of the draperies of Our Lord, the Virgin, the Apostles and others, together with their types, must be preserved (the colour scheme must be adapted to them and not the reverse); so that one may see at a glance who is being represented, or, should I say, one ought to be able to see. The Church window is primarily to appeal to the eye of faith, and one must not assume that the eye of faith is practically non-existent, even though one have to explain to many a learned pastor (that is, shepherd), what would have been perfectly clear to the flock (that is, the sheep) of the Middle, or so-called, Dark Ages. This leads me to say that the Symbolical is to be preferred to a literal treatment. At the same time, the symbolism is not to be a mechanical repetition of old forms, but a vivid personal insight into the heart of things. The lead scheme should be considered, as it emphasizes the rhythm of line and controls the masses of colour. Leads of various widths should be used, in proportion to the size of the window. The lead is not to be considered simply for its use in holding the glass together, but as the most important factor in the design. It is the skeleton of the window. It is not unusual for firms to employ outside people to make designs, who have no practical knowledge whatever, but who can turn out an attractive design or a pretty piece of colour, calculated to deceive the unwariness. These designs are to be known by the utter absence of any lead scheme, of the use of which the designer is profoundly ignorant. The result is that the window, usually carried out in the commonest glass, is not a bit like the design. There is one fatal error that must be avoided in putting in the lead lines. I allude to that pernicious practice of putting in curved lead lines when a round object like an arm, or a rounded fold of drapery, has to be cut on account of its length, or to obtain variety of colour. In the case of an arm the curved leads look like brackets, and in long, straight drapery folds the curved lead lines used in alternate folds give the drapery the appearance of corrugated iron. One must never forget that a window is a plane surface, and that round objects must be contradicted by straight leads. Before the cartoon can be made, sizes and templates of the window must be taken. The height from point to sill and the width, with laths. The templates are the shapes of the heads of lights from the spring line, and of the tracery, cut out of brown paper. These will be sight size, to which about  $\frac{3}{8}$  in. must be added all round to go into the groove. Is it necessary to say that a cartoon should be a fresh inspiration for every window? I am afraid it is, as some firms have no objection to using a cartoon a dozen times over. It would not be a bad plan for architects to insist on seeing the cartoons for every window they order. The cartoon should be made in sépia, as more nearly approaching the tracing and painting of the window, with the leads in black, and their proper widths. It should have a bold significant outline, even for the features, with a little shading, and not washy lines simply as a guide for the painter. The outline is a characteristic of stained-glass of any virile sort. The outline from which the glass is cut and afterwards leaded on, must now be made from the cartoon. The cartoon is laid on a bench and semi-transparent ammu-



tion paper laid over it. One then traces over the centre of the lead line with pencil, afterwards going over this with a brush in black ink. This gives one the heart of the lead—the skeleton of the window. Nearly every piece is now cut in sheet glass, to be used first as a “pounce” and afterwards to be painted on and fired. The exceptions are those pieces of “tint” or light colour that one can see the lines of the cutline through, and consequently can be cut from the cutline, and they will also be painted on. The method of using the “pounce” is to hold a sheet of coloured glass, which is generally varied in tone, up to the light, move the “pounce” over it until the exact place that you want cutting out has been found, then mark round it with a piece of French chalk. Hand this over to the cutter, who breathes on it and pounces round the shape with a pounce bag containing powdered whiting. Still holding the “pounce” firmly, he marks round it with a pointed piece of hard wood, and removing it its shape is found outlined on the coloured glass. The other use to which the sheet glass is put, is to paint on it instead of the coloured glass. It is a rule that the better the glass, the less it will stand the fire. Besides the general loss of brilliancy, all streaks or other variations have a tendency to go darker. Gold ruby is an impossible colour to fire; besides the aforesaid loss it actually changes colour, becoming a hideous pink or magenta. Venetian opal, too, is an impossibility. No glass improves by going into the kiln, but sheet-glass suffers least, as it is harder than coloured glass generally is. In glazing, the coloured glass is kept in front of the painted piece, so that, besides preserving the paint from the action of the atmosphere, it has something of the effect of varnish on a picture, adding to the transparency of the shadows. We have now reached a most important section of the work: the selection of the glass. This I hold to be the artist's most individual task, which he cannot delegate to any one. The usual way in firms, is to have the different colours in numbered racks; then the master numbers the cutline, and the cutter goes to the corresponding rack, and chooses any sheet and part of a sheet he likes. What idea can the cutter have of the relation of each piece to the whole, or how one colour will affect another—a matter of the utmost difficulty in stained-glass? Colours and tones affect each other enormously, and demand the greatest care and experience. In selecting, every lead must be taken advantage of to vary the adjoining pieces. Of course, the master makes alterations when the glass is on the easel being painted, or even after it is leaded up. One hears of quite heroic attempts in that direction—of one master who had a figure cut over three or four times before he was satisfied. It was very good of him to take so much trouble, but what bungling not to know what he wanted at first. How can that warmed-up colouring give one the exquisite thrill of the tingling grip of the artist's hand, where every piece, however varied or unexpected, seems inevitable? We will urge this reform in the interests of the masters themselves. We will tell them that in denying themselves the pleasure of selecting every piece of glass they miss the highest rapture in the production of a stained-glass window; even at the cost of a smaller output, and consequent diminution of profits. We must save them from themselves. That pernicious method also favours a great fallacy—that the light and dark of a sheet of coloured glass should be utilised to give the light and shade of a drapery. This is to make a window pictorial, and leads to general flabbiness of colour. Now, the principle of colour in stained-glass is contrast, one piece throwing up another. Only by this means can one display the jewel-like character of the material. This principle of contrast applies not only to the light and dark of a colour, but to a mixture of contrasting colours or tints, enhancing the beauty of one. Take a yellow drapery, for instance: there should be a dominant note of rich, pure yellow; then the colour branches out on each side, as it were, on the one side to the greens, and on the other to the reds. These are not to be gradual changes, but sudden contrasts, a greenish yellow against a reddish yellow, for instance, and there must be contrast in values as well. There is no end to the variety that may be imported into a colour, so long as the impression of the one colour that has given the keynote remains. This method, besides preserving the essential glassiness of the

material, gives a grip and subtly to the colour which can never be attained by the light and dark of one colour. For the necessary breadth of effect, large masses of colour with the utmost variety within each are essential. White draperies should be treated in the same way, a mixture of warm and cold tints, the warm or cold predominating as is found necessary. For flesh I use various tints, in accordance with the character represented or the colour or tone required. There is absolutely no restriction with regard to the colour of flesh (which, of course, must be in the glass and not painted on), so long as it harmonises with the scheme of colour. I generally cut angels' flesh out of green tint, of various depths as they approach or recede from the spectator, which all helps the necessary far-removedness of supernatural beings; the flesh of Christ generally out of warm tint; and other living beings out of tawny or red tints, as the character demands. In early work a deep brownish pink was used throughout for flesh; the minuses were cut off the flesh; and in different colours. The objection to this is that all the flesh comes at you at once; besides, it is quite mechanical. I think of a modern imitation of this period, where, in one of the little subjects, the figures are under water, and the flesh is as red as that in other subjects! Rightly or wrongly, it would be impossible for me to do a thing like that. In Perpendicular work, and, of course, its imitations, the flesh, the white draperies, and the canopies and bases are all cut out of the same white, which all rushes together, and leaves the little bits of coloured drapery stranded. With regard to the heads, they are cut out of the same piece of glass as the nimbus and painted on, and the hands and feet are frequently painted on a piece of white drapery, and not cut off. An impossible style, if strength, tone, and character are considered essential. It may be thought that my treatment of flesh is pictorial, but it is not so. It is just as much a convention to cut the flesh of Angels out of cold or cool tones, and that of living beings out of warm tones, as to cut them indiscriminately out of one tint; but it is one which lends itself to greater harmony. I know a church filled with figure subjects where all the flesh is cut out of ruby. This is a convention if you like, but a very hideous one. Another very important point which has never hitherto been thought of, is that of *timbre*. That is to say, brilliant objects should be cut out of brilliant glass, dull and solid objects out of duller, more opaque glass, that would suggest solidly without having recourse to paint, so that even the deepest tones of a window may preserve their translucency. The various materials must be regarded as the instruments of the orchestra, each of which has its individual tone colour, or *timbre*: thus there is the brilliant sharp colour that would bring out a melody like the oboe; then the more mellow but still rich colour that would suggest the violins; then the material of such tone and texture, suitable for background purposes, that would suggest the lower strings and drums; again, a rich Early English gold ruby that would suggest the thrilling tones of the trumpet. All these should be welded together, in like manner, to produce the effect of a rich, mellow, and powerful symphony. The glass is cut with a diamond or a hard steel revolving wheel, assisted with pliers to groze or trim the glass to shape. Glass varies considerably with regard to the ease or difficulty with which it may be cut; but it is a rule that the better the glass, the more difficult it is to cut. Think of cutting glass half an inch, or more thick, to a shape: in such cases even pincers have to be brought into use. I believe it is that it is not so much as sealed as other makes of “Antique.” It is consequently more brittle, and can be cut with less certainty. Thus, to the greater cost of the best material must be added the greater cost of cutting and the waste in broken pieces; to which add the cutting of the sheet, and the extra pieces of colour for plating. We have now reached the painting stage. The first step is to trace the outlines of flesh and drapery, of course, in a vitreous colour, viz., oxide of iron, ground in water, and fattened or made workable with treacle. Lay the cartoon on the bench, and you will be able to see the lines of it through the flesh tints, the light colours, and the sheet-glass which you are going to paint on. When traced the glass is given a comparatively light or tacking fire.

We now require a large piece of plate-glass, to be used as an easel glass, to which the glass that has to be painted is affixed with a mixture of beeswax and resin, made hot. The coloured glass may also be added, and as this is the first time we have seen all the colour together, alterations can be made in it at this stage, if necessary. The colours used for painting are of an amber or earthen sort, though the oxide of iron can be added to give body. It must be remembered that the colours of the window are in the glass, and that the colours for painting are simply different degrees of warm and cold shade tints. A window is usually painted in one colour throughout, but that need not necessarily be so. The tone of colour can be adapted to different objects. For instance, a cold white can be painted in a cooler tone, and in some cases a pure black can be used. The colour, which is again prepared in water, but with gum as the medium, is laid all over the glass in a flat matt, which, while moist, is stippled with a tool called a *moist*. This stippling gives a granulated surface which helps the texture wonderfully. When dry, the colour is gently loosened with the finger where the lights should come, and dusted off with a soft brush. As much as possible should be done with the finger; it gives more character and better texture. This process of modelling the lights is continued with hog-hair brushes, and a quill to take out the high lights; the flat tone should be left for the half-tones and shadows. When fired and stuck up again, the shadows are strengthened with oil colour: the same colour prepared with turpentine, and fat oil of turps as the medium. Especially is this necessary in the flesh, to give character and expression. The dry surface of the glass is first washed over with oil of tar, to let the colour flow freely. It is not essential that every piece of glass should be painted. On the contrary, if there is sufficient tone in the glass, it is better not to paint, but to let the varied markings and tone of the glass speak for themselves. The shadows will then possess more translucency than if painted. Light glass heavily painted is much more obstructive to light than richly coloured glass but slightly painted. I cannot leave the subject of painting without alluding to a kind of painting that is no painting, mean “Backing,” as it is called. This is, to lay a matt of colour on the back of the glass, and then partially remove it, for no other purpose than to make the glass look dirty and old; to give it, in fact, that tone which the glass itself lacks. From the assiduous way in which some firms plaster the back of their windows with colour, anyone would think that the chief attraction of the old glass was derived from the accumulated dust of ages. The parts that require it are now stained. Although this is called stained-glass, and we used to be called glass-stainers (we are all artists in stained-glass now), there is only one stain—a preparation of pure silver, which stains the whites yellow. It is mixed with yellow lake to reduce its strength; and this, being a vegetable colour, burns away. When fired again, the glass is now ready to be put together by the glazier. As already remarked, it has been usual to regard the lead as simply a means of holding the glass together; consequently, to employ an insignificant lead throughout. But if we regard the lead as an important factor in the design, we must use leads of various widths and of a bolder character. The proportions of the lead must be adapted to the size of the window and its distance from the spectator. That must be a very small window where  $\frac{1}{2}$  in. is too large for the principal lead. In large windows a  $\frac{1}{2}$  in. may be the principal lead; and if the window is going a great height,  $\frac{1}{2}$  in. or more will not be too much. There must be no idea of shuffling the lead out of sight. To hide the lead, and use as little of it as possible, is a characteristic of the pictorial window. A window can hardly be described as pictorial, where the lead is a prominent feature. Where leads of different widths are used it is necessary to mark the cutline with different coloured chalks—say a blue for the  $\frac{1}{2}$ -in. lead, a red for the  $\frac{1}{4}$ -in. lead, while the black ink remains for the  $\frac{1}{8}$ -in. lead. The leading recalls a danger to be avoided in designing—not to make every piece of glass of so near a size that at the proper distance one seems to see the glass through a wire trellising. This is a danger the mosaic dispensers are apt to fall into. The leading of the double glass, and of the thick and varied



pieces, offers difficulties. Leading becomes an art. One has to use a very broad heated lead, but sometimes that is not sufficient; in such cases one has to make a still broader heart by cutting the leaf off two calms of lead, and soldering the two hearts together; or by paring the leaf away to let the glass into the heart, and then soldering a fresh leaf over it. Thus you see another process that is considerably extended by our determination to use the best material. The lead is then soldered at the joints, and the panel is handed over to the cementer. It would be more correct to say the puttyer. Whereas in ordinary work of single glass the leads are filled with cement, (a thick paint which ought to be composed of whiting, linseed oil, white or red lead, dryers, and lampblack to make it a lead colour), in this sort of work every piece of glass must be putted on both sides. Copper ties are now soldered to the lead to twist round the bars, and the window is ready for fixing. Although I am explaining my methods thus frankly, I have not much fear that they will be copied. Not one of them is in the direction of time or material saving, and any one who copies them will do so at the peril of decreased profits. In stained-glass, as in the other arts, if one would do good work, one must never cut the cost.

Now that I have reached the last stage of my discourse, that section which is to deal with the Stained-glass of the Future, I am confronted by the hateful task of having to say something about my own work. It is unfortunately necessary, because I have to show that the ideas I am about to put before you are not mere impracticable theories, but the result of working in the best material. Just as Wagner, when writing his theoretic works, deduced examples from his earlier Operas (the spontaneous outcome of his artistic need, thus proving that they were not the result of any preconceived theories), so I must describe to you my first excursion into the unknown Land, the Land of Mystery, of Light and Tone. The window I am about to speak of was executed some few years ago for a lady who suggested the subject, "Wotan calling up Erda," from the Third Act of Wagner's "Siegfried." I must confess that at that time the subject seemed an impossible one for Stained-glass, and perhaps you will agree with me when I quote the stage directions. "A wild region at the foot of a rocky mountain which rises steeply. Night. A storm rages. Lightning and thunder, which last then ceases, while for some time lightning continues to flash through the clouds. Here the Wanderer enters. He strides with resolution to the mouth of a vault-like cavern in the rocks at front, and there stands, leaning on his spear, while he directs his invocation towards the cave. A bluish light glows in the rocky chasm. Illumined by this Erda very gradually rises from the depth. She appears covered with hoar-frost; her hair and swaths emit a glittering light." Now, the *crux* of the whole thing was the supernatural light in which Erda appears, and I must say that I was very fortunate in finding at that time (some early English, which I tempered with Powell's Blue on venetian opal, that realised the effect perfectly. To my surprise, therefore, instead of this subject being impossible in stained-glass, it became clear to me that this was precisely the medium in which effects of light were possible and could best be realised. I found there were possibilities in the best material which had never been dreamt of. Besides the supernatural light and the hoar-frost on the hair and swaths of Erda, it was possible to suggest the tone of night with glass alone: the vigorous action of Wotan, with his cloak and "beard blown by the night wind," contrasted with the mystical stillness of Erda; also the flash of red in the sky suggesting the subsidising storm. Fictorial, you will say? Not at all. A pictorial window would have been a representation of the scene as it takes place on the stage. But this is an independent conception, conceived in the terms of the material, and producing a result which could not be attained by any other medium. Let us be quite clear on this point. A stained-glass window becomes pictorial when it does such things, or in such a manner, as can be done as well or better in another medium, *e.g.*, in a picture or wall-painting. It follows from this that there is a class of subject which is peculiarly the province of stained-glass; that is, the supernatural, in which mystery is the most vital element, and in producing which, effects of light—with

which in stained-glass we are dealing directly—are the chief factors. I will just summarise the ideas I have gained by carrying out that "impossible" subject. That the subject of a window should be supernatural and symbolical. That mystery is the highest and indispensable quality. That to produce that, effects of light and tone are the chief elements. That there must be a definite tone-colour, and keynote of colour. The tracing and painting must be bold and expressive, wherever it is needed; but, as far as possible, the glass must be left to speak for itself; and the leading must emphasise the important lines of the design. There are some who believe that the subjects of a stained-glass window are a matter of perfect indifference; that any trivial thing will do for stained-glass; and who are quite content to fill a window with a number of single figures. What a colossal waste is that big twelve-light window I have in view! Four tiers of single figures. Eheu! Hinc illæ lacrymæ! What an almost matchless opportunity for a "Last Judgment." But no! That would be too pictorial (and difficult). Let us go on with our kaleidoscopic inanities; let us produce a window that is so dull and uninspiring that one never wants to see it again, even if the material itself were worth looking at. No wonder that stained-glass is considered such a supernumerary art, while such things are being done. Yet, why should stained-glass alone stand still and stagnate? Change is the law of progress, no less in art than in human society. If we are to have progress, it is essential that children should differ from their parents; although parents, who think themselves perfect (and even those who clamour most for progress), try to defeat that law, by trying to make their children after their own image and likeness. But the fact is that no parents are so good that their children may not be better. Where, again, would the art of music be to-day if it had been considered imperative to imitate the first attempts at Opera, with the undeveloped orchestra of that day. We should not have had the crowning glory of the Music-dramas of Richard Wagner. It is just as absurd to imitate old glass as it would have been for Wagner, when dealing with a colossal and complex subject like "The Ring," to have confined himself to the orchestra of Monteverde. Or imagine Tristan and Isolde conversing in Gregorian tones, accompanied by the sackbut and psalter. Away then with these monstrous delusions which have paralysed stained-glass so long: "that there is no glass like the old glass, and there will never be any windows like the old windows." Away with the Imitation that paralyses the imagination, and let us bring whole hearts to the study of the best material and the natural development of early work, when, as I imagine, there was only one kind of glass—the best the people could make. What then is this natural development of Early work which I venture to call "The Stained-glass of the Future"? And why is our development to spring from Early work, and not from Fifteenth Century and later work? Because the latter was no intrinsic development of the former, but simply a repetition in a more elaborate and ornate form. It is still a window of single figures or small subjects connected with canopies; consequently it leads to an *impasse*, a *cul de sac*; there is no development possible on those lines, so it must be ignored. Let me draw a parallel to the development of the Music-drama. First, we have the simple heartfelt strains or songs, loosely connected, answering to early work. Then there is the period of Italian opera; still the aria form, loosely connected, only more elaborate and artificial, consequently no vital development. This corresponds with work of the Fifteenth and subsequent centuries. Then we have the Music-drama, a development of the simple song through continuous orchestral melody until it fills the work as an organic whole; giving also to each work its special tone colour. For this latter quality, varied and distinct, yet in keeping with the subjects, I need only refer to "Die Meistersinger," "Tristan," "The Ring," and "Parsifal," and over all the individual style of Richard Wagner. I suppose no apology is needed for my allusions to Wagner and his works, as every man of culture must know something of them; but I have found them of the utmost value, as in them the great principle of unity in variety is so remarkable a feature.

And now, to return, from my parallel, to

the development ahead of stained-glass. In the first place, I should regard it as a development, that, in an age of commercial production, we consciously choose the best material. Another very important development would be that of regarding a window as a whole—one window, one subject—and not a series of small windows, as the single figures connected by canopies suggest. Owing to the kindness of your executive, I am permitted to bring some designs and cartoons, which gives me an opportunity of dealing more effectively with the subject of composition in a window of one subject, and without canopy and base. In the first place, it must be distinctly understood, that my desire to treat a window as a whole is not due to any impatience of the shafts dividing the window into lights; but to focus the attention on one subject, instead of frittering it away on a number of single figures or small subjects. The shafts, therefore, must not be ignored, but clung to, as the ivy clings to the oak. Broadly speaking, the linear design, if a window is to have its due monumental character, should be more or less perpendicular, following the lines of the shafts. Impersonal objects, such as angels' wings, trees, clouds, drapery, the lines of the landscape, may run through two or more lights, to help in binding the window together; but the human figure should very rarely extend beyond its own light. The colour design, however, should be horizontal—in strata, as it were. That is to say, the strong colours should be concentrated on the base of the window, as in a musical composition the bass is the most important thing; in the middle more neutral tones can be used; and in the upper part lighter and more ethereal tones, thus carrying the subject away into boundless space. The canopy must go, since it is no longer required to divide a window into sections, and as its lightness interferes with the tone of the window. You will see from this set of designs the difficulties one has to contend with in fitting a subject that demands a centre light into a window of an even number of lights. This suggests the idea that the architect, when he has a church to design, might do worse than confer with the glass-stainer as to the scheme of windows, with the view, in some cases, of adapting the shape of the window and the number of lights to the exigencies of the subject. Perhaps this is a counsel of perfection, but, at any rate, you cannot go far wrong in providing us with a centre light. Most subjects from the life of Christ demand a centre light, so, instead of four and six-light windows, give us three, five, and seven lights.

If, that is, as your President very happily expressed it at your last meeting, you are resolved to think out your work to the uttermost detail; and yet stained-glass can hardly be called a detail, it is so important in itself, and also in its effect in modifying the whole aspect of the interior. I feel very strongly that the architect should get out a scheme of subjects for all the windows in his church, whether there is any idea of them being carried out at once or not. The subjects would not then be such a hideous and incoherent jumble as they generally are now.

Another development would be a firmer grasp of the colour scheme, based on each window having a definite tone-colour in harmony with the subject; and a keynote focussing the colour. Its symbolism must be reconsidered and developed, so that it shall appeal to the Spirit of Reverence (if any such exists), to-day. Its drawing must be simple, dignified, and natural, without affectation of mediocrity. It will be a development to use paint with discretion, and only where it is necessary to give tone and contour. And, finally, by a bolder system of leading show that we regard it as the main factor in the design. Do not think, therefore, that I wish to ignore all tradition, and expect stained-glass to begin *de novo* from this moment. On the contrary: it is necessary to study good examples, and see what is the natural form of expression in this art, and what effects have been obtained with limited means. But surely one may study without falling into the rut of imitation; and let it not be forgotten, also, that our knowledge is increased by learning to avoid many things that have gone before. On the other hand, do not run away with the idea that stained-glass is to be learnt by simply looking at old windows. Before any one can make a cartoon for stained-glass, before any one can know what style of drawing the painter requires, he or she must



have had practice and experience in tracing and painting on glass. And yet, within these last few years, a horde of self-styled artists in stained-glass has risen up, and, like a plague of locusts, covered the land with works which almost sink into the ground for very feebleness. Stained-glass has become the happy hunting-ground for all sorts and conditions of crafty men; black men, black and white men, wall-paper men, wall-painting men, art students, particularly from those centres of light and leading where there is no technical teacher; any one, in fact, who with hand or foot can wield a pencil; and who, without ever having handled a piece of glass, can presume to colour designs and cartoons for this most rich and subtle of mediums. And yet these people float! A state of affairs which amply justifies my opening words: "that there is scarcely any subject about which there is greater ignorance than Stained-glass." I admit that it would have been more satisfactory to myself, and, perhaps, to others, if some one else could have written this address; but as I said at the beginning, "only those who have worked in the best material are qualified to speak of the possibilities lying dormant in it."

Let us, then, throw ourselves with enthusiasm into the task of making the best use of the best material, so that by developing it as we develop every other phase of the Art, we may produce, by our works of imagination and mystery, those feelings of exaltation, of rapture and devotion, it has hitherto been the province of divine Music alone to impart.

Mr. Lewis F. Day, in proposing a vote of thanks to the lecturer, said he had listened with great interest to the paper, in which there was a great deal that was very true, and which wanted saying. He specially agreed with the lecturer in emphasising such facts as that the glass is the main thing, and not the painting, for no amount of painting would make bad glass good. Glass painters knew that the glass must be good, but everybody did not know it. It was also true that as good glass could be got now as ever, and that the glory of glass was its colour. He was glad that Mr. Sparrow had insisted on the fact that leading was valuable in stained glass—that it was a help to the artist, and not, as was commonly supposed, a hindrance. It was well, too, to consider the consistency of glass, for the artist who knew the material could produce a great deal of effect by means of glass that was semi-opaque, transparent, and so forth. He agreed, as every one must, with the lecturer's censure of what he called "backing"—they used in his day to call it "antiquation"; it was a miserable sham, and a cheap one at that. He endorsed the lecturer's commendation of Powell's and Prior's glass, although he thought that there was other glass to be got quite as good. Rust used to make as good glass as any one, but that was a long time ago. The lecturer said rightly that best glass could not be got without paying for it, but the costliest glass was not always the best, and a man who knew what he was about often could get, in cheaper stuff (which was found at the bottom of the pot), some beautiful glass, which the makers did not intend to make. As to gold ruby, the lecturer may have had some other colour in his mind than what he (the speaker) had. He did not agree that copper ruby was comparatively vulgar. The most glorious ruby, in fact, ever produced was copper ruby. Gold ruby, although very beautiful, had to be used very judiciously; it was like one of those poisons which, if used judiciously, was good; but which, in general, was dangerous. Still, the lecturer might have in his mind some modern make of gold ruby that he (the speaker) did not know of. The lecturer's remarks as to architects specifying good glass were to the point. Architects should know more about the cost of glass. In his experience an architect specified some glass at 7s. 6d. a foot, and when told that that would not do at all, he remarked, "What a pity I did not know, I could easily have got 2l. a foot for it, but I cannot alter it now, for I should look a fool"—and so he would. Young architects were apt to make a mistake on this point, and when they had to design stained glass, they should first get to know what it costs. There were many hints in the paper which would be useful to those who wanted to know. He sympathised with what had been said about the glory of rich glass and the desira-

bility of using it wherever possible, getting shades with the glass instead of "mucking" on it with paint; and glass-stainers went astray from ideal decoration when they took to the paint. As to whether paint was responsible for thin glass or vice-versa in the fifteenth century, he was quite of opinion that the thin glass was due to the painter. The painter wanted the thin glass to show how clever he was. He did not go with the lecturer in his criticisms of white windows. He loved the early work quite as much as the lecturer did, and he loved and enjoyed rich glass; but there was Salisbury and York Minster (with the five sisters window), and many fine Perpendicular windows, silver lights, with jewels of colour flashing in it here and there; he could not think of these and think little of white windows. He did not care for the saints in those windows: in the window at Winchester the saints were all "smashed up," and they could hardly be recognised, and as to canopies, they were mistaken in idea and unimaginative; but he saw beauty where Mr. Sparrow apparently did not; and when he looked at the windows he forgot his prejudices in favour of early glass. The effect of those big Perpendicular windows was to his mind only less than that of the finest early glass; and that effect was decorative and of a kind for which there was occasion nowadays. They were to gather from the lecturer that the glass of the future was to be deep and rich, but we had got accustomed to light windows now, and it was not only cheapness that induced people to insist on having grisaille windows, it was love of light, and it was no use preaching against that. The glass designer had to take that into account, and do the best he could with it. There was not always the opportunity for deep, rich windows, but there was for light windows. There was mystery in light windows, quite as much as in the coloured work. It was all very well to say that there was nothing like jewellery, but jewels were rich and rare, and for his part he was quite content with silver, or silver and gold. Mr. Sparrow called the light windows chilly, but he (the speaker) did not feel that; and his opinion was that the glass of the future would not be deeper or richer, but lighter and more brilliant. He agreed with Mr. Sparrow's theory of the treatment of glass, though he thought that the principles advocated were more adapted to work of a barbaric kind than to work of a pictorial character—he used the word "pictorial" in a good sense, such as that of Mr. Sparrow. Mr. Sparrow claimed rather too much when he insisted on the right of covering the window with one big subject. To do that was a privilege that the glass painter might occasionally indulge in, but if the architect saw fit to design a window with mullions, those mullions ought to be taken into account and treated with more respect than Mr. Sparrow seemed to be inclined to treat them. A big Perpendicular window was a whole, and it was designed as a whole, the divisions being part of it. Those divisions wanted, to some extent, emphasising, or as acknowledged, more frankly than Mr. Sparrow seemed inclined to do. Mr. Sparrow had rather injured his case, which was a good one, by overstatement. He said that there was no mystery without stained glass. Had he been to St. Mark's, Palermo, Ravenna—had he seen any fine old church in which there was mosaic work? The mystery in such buildings was quite as great as in buildings where there was stained glass—and he said that as a lover and student of stained glass. As to the Wagner theory, that was a personal matter. He thought he should be more influenced by Handel in church work, and in domestic work by Beethoven and Mozart. As to imitation, no sane person wanted that; but change might be good or bad, and it was no more original to follow a new idea than to keep to the old ideal. Old ideals did not change, or if they did, so much the worse. The old ideal in glass was to glorify the light which shines through the window; that should be the ideal to-day, and he hoped it would be the ideal of the future.

Mr. J. D. Crace, in seconding the vote of thanks, said he agreed with a great deal that had been said, and he thought that Mr. Sparrow's general principles were unexceptionable. He was a little taken back by the title of the paper, because the processes which Mr. Sparrow described were the processes which had been going on since the thirteenth century without any great variation. Mr.

Sparrow had taken for granted that canopies must go, but he must have overlooked the object of them, as Mr. Day seemed to have done. The great value of canopy work was not its ornamental treatment, but as a connexion with the architecture. The great value of canopies throughout the fourteenth and fifteenth centuries was that the subject and colour of the window were so connected, and that that was the principle was pretty clear from the treatment which prevailed in regard to fresco painting. In the great fresco paintings of the fifteenth century—which might be considered to be the best period of decorative fresco painting—the subjects always contained sufficient architecture to connect them with the architecture of the building in which they were placed; and if the end of a church was decorated with a series of frescoes, the pointed architecture assisted the idea that they were connected. In that way canopies had a great value, which he should be sorry to lose because they could not be accounted for in a rational manner in relation to the subject, for the glass must be looked at from two points of view: (1) the artistic treatment of the glass, and (2) the relation to the architecture. He could not agree, either with Mr. Sparrow's ideas as to why glass was thinner and the colourings paler during and after the fifteenth century. The colouring was often less intense, but that was largely to be accounted for by the circumstances under which it was destined to be used. So long as the windows were, perhaps, 20 ft. high and 5 ft. wide at the outside, and consisted of two or three lights only, great intensity of colouring, and very beautiful colour, was quite possible and consistent, but in the case of great cathedral windows, sometimes 70 ft. high and 30 ft. wide, the enormous area of the window made it necessary to adopt a different treatment and a different sort of glass. It was not only the question of painting on the glass—it was quite true that the glass was more painted on; but the reason for that was that the windows were so large that they could afford more painting on. In speaking of glass of the fifteenth century as representing more or less decadent treatment, he thought that was overlooking the whole of the Italian glass. Think of the beautiful windows in the choir of Sta. Maria Novella, designed by Filippino Lippi, where all the qualities of the glass were obtained, where the treatment of the figure was beautiful, and where there was a very careful and beautifully thought-out ornamental treatment! In the cathedral at Florence there were upwards of thirty windows, designed by Ghiberti, and at least one by Agnolo Gaddi, which would be an earlier one. Again, an artist of a later period, Bernard van Orley, a pupil of Raphael, designed a great deal of glass, and he had to deal with windows of an enormous size, but he treated his subjects in proportion—they were no longer windows restricted in size, but they covered an immense surface, as, for instance, in St. Gudule, Brussels. There were facts which should be taken into account in criticising the quality of the glass during the fifteenth and sixteenth centuries; and as to that particular quality of play of light obtained by the imperfect piece of glass what could beat the windows of Fairford, which were very late, quite at the end of the fifteenth century? Taking this into account, it would not do to condemn with a stroke of the pen any period of art. All periods of art had their reason for being, and the details and different features of them were usually interlocked and dependent upon so many causes that to pick out one and say that the material (the glass) of this period is not so good as the material of another, while it was true, it did not follow that that was so because the artists could not get anything better; it was because the style of architecture, and the area to be covered by the window, required a different sort of glass. He thought Mr. Sparrow had been hard upon the master glass-stainer who was not satisfied with his figure the first time. We all ought to do a good many things we do not do, and know a great many things we do not know; he had had a great deal to do in experimenting with colours, and he did not believe that any one entirely knew what a coloured work was going to look like until it was in position; and especially was that the case with the glass window. The position of the window had a great deal to do with the ultimate effect—projecting buttresses or opposite buildings might interfere with the direct light, and might



upset the scheme of colour. It was not always possible to know what the conditions were under which the glass could be used. He agreed with Mr. Day about Wagnerian music and art. There was one point in which the similarity held good: admirers of Wagner were always inclined to be rather hard on all other musicians, and Mr. Sparrow's ideas about glass made him a little unfair, perhaps, to the glass which had not been worked his way. As to imitation, no one wanted severely to imitate the old glass, but at the same time no school or period of art could afford to ignore all the experience of men who had gone before. For each man to begin at the foot of the ladder was a poor way to progress, and he thought it would be found in art, as in most things, that the more we can avail ourselves of what has been done before, the further we shall go ourselves.

Mr. H. P. G. Maule, hon. Secretary, then read a communication which had been received from Mr. N. H. J. Westlake.

Mr. Westlake said he had carefully read the paper, but he found little light as to the future, such as he had expected from the title of the paper. Possibly the lecturer thought, as he did, that the best future would come by doing our best, day by day, without straining, although striving. Straining for novelty was too painfully shown in modern exhibitions of glass and wall painting cartoons; it destroyed the repose so valuable in good art. He criticised the prominence given in the paper to the names of certain glassmakers. He was sure it was not done in the way of an advertisement, but it necessitated the omission of the names of other glass-makers whose productions were not distinguishable from those mentioned. The practice of "plating" was also advocated, evidently as practised by American makers. It was a very pernicious form of work, and ought with proper material to be unnecessary. It was especially pernicious on the point of durability, as the lead of a window was the first part to decay, and then there was the probability of the falling out of one of the plates. Moreover, it adds to the weightiness of a window. A window of good stout glass and lead had always a tendency to cockle irregularly, and to tear itself from its copper bands. This irregularity of weight should be obviated and not exaggerated. As to the general principle of the lecture, it appeared that the lecturer's first thought was the effect of an individual window, irrespective of the general "coup" of a number of windows—say, in the aisle of a church. Here, unless there be some rhythmic bond, the whole of the side of the church loses the proportion of the windows to the wall and to each other. This rhythm was found from traditional practice to be best produced by the repetition of a dominant feature, such as was effected by what is called canopy work. Regardless of what the lecturer said of Perpendicular work, or even early Renaissance work, the result was most perfect in some churches in these styles. Witness the old glass in the ante-chapel of New College, Oxford, and in the work of Jean Cousin (a great artist) at Sens and Paris. It must also be remembered that "early glass," such as that at Canterbury, Bruges, Chartres, Florence, &c., was heavily coloured. It was introduced here from France, where the light was better; but even in France on a dull day such glass as that at Chartres prevented anything else being seen, and much of it was removed from our own churches in the fourteenth century for that reason. As to the relative cost of good work, the question of style had nothing to do with it. Good Perpendicular or Renaissance glass was the most expensive, as white glass, if of any value, required the best painting (although much that was done now was badly manipulated), and where there was one first-class glass-painter, there were fifty moderate cartoonists and thousands of good glaziers employed. Early glass had the least technical painting value. He could not enter into musical parallels—such as the likening of golden ruby to trumpet tone; nor could he admit that "mystery" was the most valuable ingredient in a painted window. Neither did he see why angels, being supernatural—a word that had no art meaning—should be green-white, whilst our Lord's flesh was warm white. The whites of different tones running together in a window were not a defect, but gave the effect of breadth, whereas when everything was cut out and juxtaposed with its opposite, spottiness resulted, such as one sees in all

second and lower class work. That portion of the paper concerning the technical making of windows was that usually followed by all respectable makers of windows. There were, however, slight differences of practice in the selection of tones and colours with different artists. No artist in these days went by numbers or water-colour drawings for his tones. Neither was "sepia" the best medium for all cartoons. He did not think that much knowledge was gained by reading technicalities; nothing but long and intelligent practice produced the best results. And here he entirely agreed with the lecturer, who lamented the immigration into painted glass ateliers of men who knew nothing about its requirements, but who were ever ready to teach and say what art is and what glass should be. They were of both sexes, and their name was legion.

Mr. E. J. Prest said that the point which struck him most about the lecturer was that he seemed to have failed to grasp the architectural possibilities of stained glass, and seemed to overlook the fact that we must take into consideration first of all, what the style of the church is, and what the architect's ideas in designing and building the church were. Glass suitable for an Early English church would be very unsuitable for a Perpendicular church, and glass suitable for a very strict rendering of Perpendicular such as was to be seen in the work of Messrs. Bodley & Garner or Messrs. Austin & Paley would not do for such a free rendering of Perpendicular as we saw in Mr. Sedding's churches, for instance. It was a very important thing for glass painters or designers first of all to grasp the character of the building. Mosaic treatment of stained glass, although it was very beautiful, and for many purposes seemed to be quite the right thing, and certainly a step forward, was in some respects quite the wrong treatment. He entirely agreed with other speakers in saying that it would be a grievous pity to do away with canopy work, which we had for so long admired. We could not help being impressed by ancient windows in which canopy work was seen, such as those in Fairford Church and elsewhere. He did not quite follow the lecturer in regard to the use of white glass in Perpendicular work. The lecturer seemed rather to infer that the glass was flat and of one texture, and that in modern adaptations of Perpendicular work the antique glass was also flat. The great beauty of modern stained glass, as well as the old, was the difference in the make of glass and the tones used. We should not use one white in a window, but a judicious blend of blue and green tones of white. As to the makes of glass, he thought an injustice was being done, perhaps unintentionally, to the beautiful glass being made by Messrs. W. E. Chance, who really made most beautiful glass. Their streaky whites could not be surpassed by any one in the world. There was also a small firm of Glasgow makers, who made a glass which they called St. Mungo glass, which was very beautiful and which gave some good effects. It was sometimes not so brilliant as the Early English glass, but there were great possibilities in it by judicious selection. He did not altogether endorse the lecturer's sweeping condemnation of the "gin-bottle" treatment in the new cathedral at Westminster. No doubt Mr. Bentley allowed for the toning effect of the fog of London; and when one remembered that every detail of the building was thought out by the architect, even to the smallest detail of the ornamental glazing, they felt that they must respect his work. Again, with regard to a window the lecturer had not named, but which most of them knew pretty well, he could not follow the lecturer in his condemnation of the rows of figures that were placed there. The window in question was a beautiful window of its type, designed and carried out by two of the greatest artists who ever worked together, and the ruby used there for the flesh was not at all out of place, and the tone of the window, the colour scheme, was so intensely rich that the pale ruby flesh, by contrast, seemed to fall into its right place. He was one of those unfortunate individuals who, in selecting glass for a window, made many alterations. He was not sufficiently capable of selecting the glass straight off and putting it up, for one's workshop or studio gave no position similar to that which the glass would eventually occupy, and almost of necessity one found that one's work required alteration at the last moment or as the work

progressed. There was, no doubt, a vast future for the mosaic treatment of glass.

Mr. F. Lishman said as to the cartoons shown, the saddle-bars were in nearly all instances omitted, and where shown, they were great distances apart. The saddle-bars ought to be recognised. Where one would like to see glass used with something of the freedom one sees in those cartoons was in buildings not ecclesiastical, and an excellent example of that could be seen in Electra House, by Mr. Belcher. In the vestibule there was a fine mosaic treatment of glass, which was combined very well with the architecture.

Mr. J. Dudley Forsyth said that Mr. Sparrow spoke about glass painting and said that it should not be encouraged because the quality of the glass was so rich in itself. That was all very well, but glass-painting was a very interesting art, and could be treated in such a way that it could in itself improve the beautiful quality of a glass. Glass-painting could be treated in various ways. In a Gothic window the treatment was very different from that in a Renaissance window; the Renaissance window required a more delicate and artistic touch. He did not quite follow what Mr. Sparrow said about stippling. Stippling was done as a rule with a hogshair brush and the badger was used for flattening out the uneven surface. A window was essentially an architectural feature, and no matter what decoration was intended for it it should be treated architecturally. He was not sure that the massing of Mr. Sparrow's colours would lend themselves architecturally to the buildings for which his windows were intended. The massing of colour was a very serious point, and if one had a very hard and deep colour in a window, butting up against the stonework of the architecture, it was very apt to spoil the lines of the architecture. In preparing the cartoons there was an excellent opportunity for very careful drawing. Very little had been said about good drawing. The drawing of the figure should be carefully and seriously thought out, and there was no reason why, because one was drawing for stained glass, proportion and grace of line should be ignored. They should be as seriously studied as were the picture painter's draperies. A figure for a window, although it should be drawn from life, should not be naturalistic: it must be conventional or decorative, because the material in which it was to be executed necessitated the introduction of hard lines, just as the hard lines of a figure on a wall were necessary.

The Chairman, in putting the vote of thanks, said that Mr. Sparrow had given them a fresh, and, in many respects, an original view of the treatment of glass in windows. He had read and listened to the paper with pleasure and profit, and he rather expected it would give rise to some diversity of opinion. On a subject of this sort it was so much a matter of opinion and personal feeling that it was impossible to dogmatise and wrong to attempt to do so. He had the greatest sympathy with almost everything Mr. Sparrow had said, and his cartoons appealed to him (the speaker) in the strongest way. At the same time, people who held different opinions were not necessarily wrong, and he did not think rules and laws should be laid down on a subject of that kind. There was one point with which he did not go with Mr. Sparrow, who rather seemed to look at stained glass from one point of view—i.e., that stained glass is stained glass, and the best kind of stained glass is only of one kind. He could not see that, because if they were dealing with, say, a window in a Gothic church, or Early English, or Perpendicular, he could not see that the same kind of glass would do as that for the window of a Renaissance building. Different treatment altogether would be required, and if they had a highly-finished Renaissance building, with rich marble in it, more delicate treatment of the glass would be required than if they were dealing with a Gothic building. Mr. Sparrow had been hard on the glass in Westminster Cathedral. The reason why the glass there was more or less white seemed to be because the interior was intended to have decoration more or less of the richest character, and it would have been a fatal error to put coloured glass into a richly decorated building. As to leading, most of Mr. Sparrow's remarks would be accepted as axioms. The lead should be made use of in every possible way to emphasise the lines of the design. As to the treatment of a window with many lights in it as one subject, that seemed to be quite the right thing to do. However



many divisions there might be in a window, it was, after all, one window. The mullions and divisions of tracery did not prevent the window being one window, and the most effective treatment would be to treat it as one subject; and the artist who treated it as a great number of subjects threw away his opportunity. There was a suggestion in Mr. Sparrow's remarks that he regarded the window as the one thing in a building. That was an excusable error into which most craftsmen fell; they looked only at their piece of work, and did not regard it as only one item in the whole, which ought to be co-ordinated with all the rest. Otherwise, if one man made his own work the most prominent, all the other decorative features would suffer more or less. Mr. Sparrow's musical illustrations appeared to him (the Chairman) in the strongest way, and they were most interesting and graphic.

The vote of thanks having been heartily agreed to.

Mr. Sparrow, in reply, said that most of the points raised in the discussion were really answered in the paper, and the Chairman had answered others. As to gold ruby, he thought Mr. Day must be confusing it with what was known in Powell's manufacture as gold pink. If Mr. Day had seen the specimens of Early English rich ruby—not pink at all—in daylight and compared them with copper ruby, he would know that there was an enormous difference. The white windows one saw in old work had a tone of age. Mr. Westlake had referred to plating. He (the speaker) found that if he wanted to get a rich window it was quite essential to plate, simply because the demand for good material was so small that one could not get the colours rich enough, or in sufficient variety, without it. As to the permanency of plating, he had always done it and had never had the slightest complaint. One speaker seemed to think that if canopies were done away with it would be impossible to get an effect of continuity in treating the side of a church as a whole; but with a proper succession of subjects one could always bring the thing together, it depended on the choice of subject to a great extent. The great difference between people was as to the effect the window should have. Mystery was the great thing, and by that he meant something that gave one the feeling of devotion. A church window was not merely a matter of decoration; it must be devotional, and have an effect on the worshippers, and the greatest means to that end was Mystery.

The Chairman announced that the next meeting will be held on March 6, when papers on the subject of competitions will be read by Mr. H. B. Cresswell and Mr. A. W. S. Cross.

The meeting then terminated.

#### CARPENTERS' HALL LECTURES: ANCIENT ROME IN 1903.

The first of the Carpenters' Company's spring lectures on matters connected with building was given at Carpenters' Hall, London Wall, on Thursday evening last week by Professor R. Elsey Smith, who took as his subject "Ancient Rome in 1903." Mr. Aston Webb, A.R.A., presided over a large audience, and briefly introduced the lecturer.

The lecturer first gave a brief account of the history of Rome, and, proceeding, said that well might the title of Eternal City be yielded to one with such a history, which, in spite of all vicissitudes and misfortunes, still, after a lapse of 2,500 years, holds a proud position in the world. The buildings of ancient Rome have suffered not only from the ravages of time and the pillage of successive enemies, but from the much more complete and destructive attentions of its own inhabitants. The finer buildings of the empire were, as regards their structure, almost imperishable from any ordinary causes, so massive and perfect was their construction, but some were lined throughout with the utmost profusion of rich marbles, and the medieval Roman found that these materials could be turned into excellent lime, and so availed himself of the profusion of materials ready to his hand; and even after the revival of interest in Classical learning and architecture which is known as the Renaissance, the Roman popes and princes did not hesitate to use such buildings as the Colosseum as a quarry from which the finest building stones could be procured for their own great palaces. Rome was certainly not destroyed in

a day—or in a century; and it was a matter of surprise that so much should still remain to indicate to us the extent and glory of the Rome of the Emperors; but the very ruin it has suffered has helped to retain for us some traces of the work of the ancients, for the level of modern Rome is in many places 30 ft. above that of the ancient city, and, where the original work has been uncovered, patient investigation had brought to light much that helps us to reconstruct in imagination the buildings and palaces and shops of the Romans, and their temples, baths, circuses, and places of public assembly; and where the remains are scanty the deficiency in many cases was partially made good by contemporary records.

In considering the remaining works of the Romans, the lecturer dealt first of all with those works which might be looked upon as purely works of utility. Of these, the earliest were the walls built to enclose and defend the city. The earliest wall, where it is still most perfect, is about 10 ft. thick below, and more above, and it was built on a ledge artificially formed in the rock of the hill about 40 ft. below the summit and rising above it to the level of the upper surface of the hill. The wall had three main gates and a smaller gate, from which a still existing flight of steps led to the summit. The wall was built of stone quarried in the hill, and it showed an advance in construction in the use of squared stones worked with metal tools in place of the irregular stones used in Cyclopean masonry. The next wall, the wall of Severus, was of much greater extent and was a truly stupendous work, of which fragments still exist. A portion of this wall was recently destroyed in the development of modern Rome: it was 9 ft. thick and 50 ft. high from the bottom of the fosse. Elsewhere, where the nature of the ground permitted, this wall, like the early one, was built against the rock face, and portions of this part are also in existence, still standing to the full height of 50 ft. and 10 ft. 6 in. thick. In the upper part of the wall were semi-circular open arches, 34 ft. above the foot of the wall, and probably intended for the use of some engine of war. Of even greater extent was the great wall of Aurelian, built in the third century A.D. to resist the Goths. It was in the later method of construction used in the Empire—i.e., mainly a mass of concrete, faced partly with brick and partly with stone. It still formed in the main the enclosing wall of the city. Its length is about fourteen miles, and it had originally fourteen gates, most of which still exist, and 383 towers, of which only a few remain. The thickness of the wall was 12 ft., and the height in many places 60 ft., and throughout the length on the inside was a vaulted passage provided, like the towers, with loopholes for archers. The towers for a height of about 25 ft. were of solid concrete, and above this were three stories, the floor of the lowest approximately level with the great gallery, and the floor of the highest level with the top of the wall; the towers projected on the outer face of the wall and the loopholes commanded the ground between each pair of towers.

The lecturer then dealt with the work for the drainage of the great marsh that separated the Palatine and the Quirinal—the cloaca or sewers, which were formed for draining the marshy ground, and also for carrying off the town sewage. Some of these sewers are still performing the functions for which they were originally executed. No doubt it was from the Etruscans that the Romans derived their skill in such work.

As to the roads of the Romans, the Roman principle was to go from point to point with as little detour as possible, and where necessary valleys were spanned with viaducts, great cuttings were formed in the rock of the hillsides, and boggy places solidified with piles; and throughout their whole length a careful foundation was formed, and the actual surface finished with great blocks of lava, irregular in form, but fitted with extreme care, some of the blocks measuring 4 ft. by 3 ft. A portion of such a paved road is still to be seen in the Forum, but in most places the paving has been carelessly relaid later. The roads were kept in careful repair, and curators of them were appointed—an office assumed even by the Emperors.

As to the great aqueducts by means of which Rome was so bountifully supplied with water from the neighbouring hills, they brought water from a great distance. In some cases, it was carried for many miles on a series of lofty

stone arches. These arches supported a channel, and the water was led into reservoirs, from which the various fountains, baths, houses, &c., of the city were supplied by lead pipes, as a rule. These pipes were of sheet-lead bent round a wood core, and the edges soldered together; but they were of much heavier metal than our modern pipes. The taps and turn-cocks were of bronze, and, in cases of great pressure, the pipes also.

The lecturer then referred to the more purely architectural works of the Romans, and considered the sources from which Roman methods of building are likely to have been influenced. These, probably, were mainly two; first, the Etruscans (who influenced the Romans in the arch and in other ways), and the great influence of the Greek colonies which had been established in the southern part of Italy and Sicily, and, later, to the direct acquaintance with the best Greek work. Though the Romans departed largely from the Greek ideals, they were influenced by them greatly in the use of the Orders and in the decorative treatment of interiors. The Romans were unrivalled constructors, with a genius for dealing with new problems of planning and construction, and rendering their buildings perfectly adapted for the special use to which they were to be put, but artistically they could not be placed on so high a pedestal. Much of their detail was of high merit and great beauty, but there was a want of restraint in its application; and after the establishment of the Empire, with its luxury and wealth, architectural taste rapidly declined, and with it the technical skill of the artisan. The Romans developed an entirely new system of construction, combining strength with great rapidity of execution, which allowed of the application of the finishings of the building to the completed structure. These finishings were often of the most lavish and ornate description, but little, with the exception of the floors, was left.

The lecturer then showed lantern views of the Forum, the temples of Vespasian, Saturn, Romulus, and Antoninus and Faustina, the House of Vestals, and several other well-known buildings, which he described. By patient care and investigation the plan and many details of most of the old structures in the Forum have been recovered, and all that remains of them exposed to view. The Temple of Vespasian, though it has only three complete Corinthian columns with entablature, has the substructure nearly perfect. All the ten Corinthian columns of the Temple of Antoninus and Faustina stand, and much of their entablature, which is richly carved. Much of the walls of this temple exists, forming part of the church of San Lorenzo. The existing remains of the Temple of Castor and Pollux probably belong to a restoration at about the end of the first century A.D. Three columns of the peristyle exist, and much of the substructure. Much of the ornament, and in particular the capitals, of these temples have been greatly damaged. The great wall of the Tabularium that formed the western boundary of the Forum was the most extensive remains of Republican Rome, but little is known of its history or use. It consisted of an arcade with an attached Doric Order, and a great vaulted passage behind, and in the fifteenth century is said to have had an upper story. The three existing upper stories are modern, and much of the arcade has been filled in, only one arch being visible, and this is much restored. The small Temple of Vesta in the Forum, almost completely ruined, consisted of a circular chamber or cella, surrounded by sixteen Corinthian columns. The Temple of Romulus was almost completely preserved, but the House of the Vestal Virgins was sadly ruined. The walls for part of their height still exist, and in places even the second story exists. The structure of the Rostra still partly remains, but what is left belongs to the Rostra rebuilt on a new site by Julius Caesar.

Amongst the most complete memorials of antiquity are the great triumphal arches, two of which stand in the Forum and one near it. The lecturer described the Arch of Titus (built to commemorate the capture of Jerusalem), the Arch of Severus (built in A.D. 203), and the Arch of Constantine (built in A.D. 312). Another form of memorial was that of the column, and some minor ones still stand in the Forum; but the most famous specimens were found beyond it. The column of Trajan was 100 Roman feet high, including the base and capital, but not the great plinth on which



it stands. The shaft is composed of twenty-one solid drums of marble, and is 12 ft. in diameter at its base, and from top to bottom a spiral stair was cut from the solid marble, while on the outside a continuous band of sculpture winds from the base to the summit. On the summit stood the colossal statue of Trajan, replaced now by that of St. Peter.

The column of Marcus Aurelius was also described by the lecturer, who then referred to the Forum of Augustus. A portion of the great circuit wall of the Forum, about 100 ft. high, still exists, and is one of the most stately ruins of Rome. On one side of an important road which ran through this Forum, stood the great temple of Mars Ultor, of which three marble columns still stand, and a portion of the cella-wall with the entablature and coffered ceiling over the peristyle. Returning to the Great Forum, Professor Eley Smith described the basilicas that formed an important feature in its surroundings. These buildings exhibited the later methods of Roman construction, which were responsible for the preservation to our time of some of the most colossal of their achievements. It is probable that small basilicas were the first buildings, other than quite private rooms, in which Christian worship took place, and the early buildings built for Christian worship in Italy were mostly of this type—one which had an important influence in the planning of Christian churches in many lands. There were no remains of such simple buildings in the great Forum; they were replaced by vast structures. Of the great Basilica Julia there is little but the platform on which it stood, with some remains of the marble piers with attached columns that enclosed it and the row of shops with offices above, and part of a staircase leading to the upper floor, which was carried over a series of concrete vaults by the lower piers. The site of the Basilica Emilia has quite recently been excavated, and in this case some portions of a wall and several shops or offices have been discovered, and a considerable area of paving of the richest marbles, arranged with great skill; but, as in the former case, the superstructure has perished. The great bronze gates now served as the entrance doors of St. John Lateran.

Nearly all the buildings and monuments hitherto noticed might be described as the work of the mason, built of squared stones or blocks of marble, and with columns of solid marbles, porphyrys, granites, &c., but for the vast buildings required during the days of the Empire a system allowing of more rapid construction was required, and was rapidly perfected.

The lecturer then described the Roman system of concrete construction, and gave as an illustration the Basilica of Constantine, one of the most impressive ruins in the Forum. The north aisle of the building stands nearly perfect. Fragments of the decorative features of this building are to be seen here and there, but though we can obtain some notion of the vast size and stately proportions of the building the imagination alone can supply the effect that must have been produced when it was complete, either internally, with its white marble columns (one of which now stands in the Piazza in front of S. Maria Maggiore), walls, and floors of marble and richly-modelled and painted vaults; or externally, with a casing of marble, the entrance flanked by porphyry columns and the roof glittering with bronze tiles.

The lecturer then dealt with the great public baths, the best preserved of which are those of Caracalla,\* which he described in detail. The whole establishment must have been designed and worked in a scale of lavish splendour such as no other city had ever seen. The great Tepidarium of Diocletian's baths has been converted into the Church of S. M. degli Angeli, and it is practically perfect, but is not of its original height, having had the floor considerably raised. Another class of buildings constructed for the amusement of the people was the stadia or racecourse, of which there is a fine example in the Palatine. This the lecturer described and illustrated.

No building of which remains still exist in Rome was better known than the Flavian Amphitheatre, generally known as the Colosseum. It was of great size, skillfully arranged and constructed, and was, comparatively, in a good state of preservation; but no very high place could be claimed for the archi-

tectural detail. The long sweep of the cornices, the regular openings, and the splendid masonry, gave it an impressiveness that was most remarkable. In the course of a long and interesting description of the building, the lecturer said that even the London County Council could find little cause for objecting to a building so well provided with staircases and exits; though they would certainly object to the pitch of the stairs, which had 10 in. treads and 10½ in. risers. The Circus Maximus was of vastly greater size than the Colosseum, but it was wholly constructed of concrete faced with marbles, and had completely perished. More than two-thirds of the great outer wall of the Colosseum had been taken away for the sake of the stone; but enough remained even of this wall to give a fair notion of its original aspect.

The last building described by the lecturer was the Pantheon, which he said was one of the grandest and most remarkable of buildings, and which produced a deep impression on the beholder. In concluding an interesting description of the building, Professor Smith said that this great building had stood for more than eighteen centuries, and, built as a heathen temple, it had for close upon 1,300 years been consecrated as a Christian church.

On the motion of the Chairman, a hearty vote of thanks was accorded to the lecturer for his able address.

#### THE ARCHITECTURAL ASSOCIATION SPRING VISITS:

II.—NATIONAL SAVINGS BANK AND POST OFFICE BUILDINGS, ADDISON-ROAD, WEST KENSINGTON.

The second spring visit of the session was made on the 21st inst. to these buildings, designed and carried out by Mr. Henry Tanner, the Architect to the Office of Works, and which are now almost completed.

Various plans were on view, and Mr. Tanner himself most kindly met the members, and, after giving a short account of the requirements he had had to provide for, conducted the party over the works.

The main problem consisted in providing headquarters for the National Saving Bank, now located in Queen Victoria-street, in which some 3,000 men and women clerks will be employed, while arrangements had further to be made for a considerable increase of this number in the future. When it is noted that 15,000 odd ledgers are in use, some idea can be gained of the amount of clerical work which will be carried on in the building. Some provision had to be made for the public, as well as a power station for heating and lighting, a sub-district sorting and post-office, by means of which the mass of correspondence coming to the Savings Bank could be expeditiously dealt with, and also means for adequately feeding the whole of the staff employed, the men and women being separately placed and provided for.

The building is therefore an interesting example of modern industrialism, designed with due regard to economy of annual maintenance, and careful attention to the health and well-being of the servants of the nation; so that their capacity as workers may be developed to the utmost by providing healthy and cheerful offices, utilising the latest inventions for culinary purposes and not forgetting reasonable facilities for recreation.

The building is planned with two long parallel blocks 324 ft. long by 54 ft. wide, running east and west; these are connected by two shorter arms, running north and south, with corridors down their centres forming a large quadrangle in the centre and three sides of a court to the east and west. These latter will become enclosed when the extensions are carried out, and are therefore faced with white glazed bricks. At the south extremity of the site, and detached from the south wing, is placed the power station and electric plant; on the east is the post-office and sorting-room, at present a detached building, while on the west will be placed workshops and the clerk of works' department.

The main south wing is for women and the north wing for men. Stairs are conveniently arranged at each corner of the central quad, the lavatories and cloakrooms being placed in the shorter sides and lighted from the quad, while on the west and east sides respectively of these wings offices are placed, separated from the cloakrooms by the broad corridors connecting the north and south wings. In order to gain sufficient cloakroom space a

mezzanine has been contrived between each main floor entered directly off the various stairs.

The most striking feature of the building is undoubtedly the generous amount of window space, the long wings being practically lighted by large windows on all four sides with the exception of the space taken up by the connecting arms. These great rooms, some of which are undivided throughout the whole length of 320 ft., are 46 ft. wide and 16 ft. high from floor to floor, with but a single range of columns down the centre, and ought to be well adapted for healthy working purposes.

The heating will be by means of radiators and low-pressure steam, or when available, the exhaust steam from the electric light installation will be used; fresh air can be admitted behind each radiator. The ventilation is by "natural" means, viz., by these inlets and open windows, while extract openings are formed in the casings of the cross girders, connected with flues running up in square projections on the external walls, and terminating in open louvred towers above the roof. Provision has been made in these for the insertion of extractor-electric fans at the roof level, should it eventually be found necessary.

The upper lights of the windows are casements made to open inwards, while the lower lights are sashes. Thus the natural ventilation of these rooms should be of the best and most effectual nature, if these windows are kept properly open.

With the exception of a few rooms devoted to heads of departments, the walls throughout internally are lined with glazed bricks of pleasing colour, which insures economy of maintenance and saving of labour in cleaning. The floors are of maple blocks laid on the concrete, the corridors being paved with Ruabon tiles.

The basement contains a printing-office and folding-room, strongroom, stores, considerable storage space for men and women's cycles, and a boy's kitchen, but the refreshment department generally is placed on the top floor. Here, in the south wing, is the women's dining-room, a large kitchen, scullery, and larders, with a lift in connexion. A minor kitchen has been provided for sorters, while the men's department is similarly arranged in the north wing. Considerable interest was taken by members in these arrangements; the steam-heaters, gas-ovens, 2-in. teak sinks for crockery and galvanised iron sinks for vegetables, &c., all being carefully selected, while adequate top light and ventilation has been provided.

The roof is flat and will form an excellent promenade for the workers. Externally, a midland brick of good strength and weathering qualities, but of somewhat uninviting appearance, with Portland stone dressings are the materials employed, and the utilitarian nature of the building is clearly defined.

The constructional ironwork has been carried out by Messrs. Dorman & Long, Messrs. Kirk & Randall being the contractors.

A vote of thanks to Mr. Tanner for his kindness and trouble concluded an instructive visit.

#### THE LONDON MASTER BUILDERS' ASSOCIATION.

On Thursday evening last week members and guests of the London Master Builders' Association dined in "The Empire Hall" of the Trocadero Restaurant, Piccadilly-circus, W., Mr. G. J. Lough, President, in the chair. The company included the following gentlemen:—Mr. Arthur Vernon, President of the Surveyors' Institution; Mr. H. T. Hare, President of the Architectural Association; Mr. W. F. King, President of the Institute of Builders; Mr. W. F. Wallis, President of Southern Counties Federation of Master Builders; Mr. C. H. Barnsley, President of the Midland Federation of Master Builders; Mr. J. Dewrance, President of London Association of Engineering Employers; Mr. W. E. Riley, Architect to the London County Council; Mr. Walter Smith, Master of the Carpenters' Company; Colonel G. H. Trollope, V.D.; and Messrs. J. Brown, J.P.; E. J. Brown; J. Carmichael; S. Collins, L.C.C.; F. J. Dove; T. Gregory; F. May; R. Sawyer; Silvanus Trevail; C. C. Trollope; C. Wall; E. White, L.C.C.; F. H. A. Hardcastle; J. W. Lorden; S. B. Depree, and others.

The loyal and patriotic toasts having been

\* See our issue for February 16, 1889, for an illustration.



honoured (Mr. Silvanus Trevail proposing the "Imperial Forces," and Col. G. Haward Trollope responding).

Mr. J. Brown proposed "The London Master Builders' Association and its President." He said that while the Association included so many able men in its ranks it would be able to carry on the excellent work it had done in the past. London was being absolutely rebuilt, and from one end to the other its architectural works were being greatly improved. But building work had now to be carried out as quickly as possible, for we were not like the monks of old, who took their time at their building work, and who not only prepared beautiful plans and drawings but also models in order to see how the work would look when carried out; and he suggested that more of this might be done in these days. Nowadays it was not so much the value of the building put up that was considered, as the value of the ground on which it was built, and speed, therefore, and mechanical aids had become a necessity; and it was surprising that work was done so well in the circumstances, and that it lasted so long. The Association was young in years, but it had accomplished a great deal. It began at a time of trouble between masters and men, and it had accomplished so much that now masters and men were able to meet at a conciliation board and discuss and often settle their differences without striking. This had been done, too, in spite of great opposition. Men and masters understand each other better to-day than they did. As an old builder he felt sorry when the old personal friendship between master and man passed away, and men were paid and discharged by the hour; but they had to face the conditions as they are and be just and true, both to the men and the clients. The hardest battle of life was with oneself, and he begged of them to be loyal to each other, and to make up their minds what was right, irrespective of persons or things. In that way they would win the confidence of all men.

The Chairman, in response, said the Association was having its first year's experience of the new rule as to subscriptions, which had been passed in order that the Association might get a reserve fund for use in case of need. That rule was for members to pay so much on the roof, paid in wages, and this year the money had been collected, and he thought they might congratulate themselves on the way in which the members had paid up their largely increased subscriptions. There had been only one little difficulty, and that was this: for some reason or other a good many builders objected to sending in their return of wages. As Mr. Carmichael said last year, if builders had been asked for a return of the amount of profits, their reluctance could be understood. Still, after a good many applications, returns had now been received from practically all the members, and the consequence was that the Association is, financially, in a position it had never been in before. They had paid all their debts, they had money in the bank and money invested. The rule was first adopted for one year only, but at the last general meeting it was adopted permanently, and they were collecting the subscriptions now without the trouble of last year. There were still some builders in London who are not members of the Association, and that ought not to be so, for all the master builders of London ought to be united, and he hoped that those who are not members would join. It had been a source of gratification to him as President of the Association to preside at the meetings of the Conciliation Board, for friction and strikes had been avoided as a result of those meetings. The Board had not always been able to come to decisions equally agreeable to masters and men, but they had given their decisions honestly and fearlessly on the facts as stated by both sides. The men's representatives had met the masters and had listened to their side of the question in a very fair, just, and respectful way, and had not acted, as in years gone by, in any dictatorial way. The men's representatives had not always carried their point, and they saw the justice of the masters' contentions. With trades unions as trades unions masters had no quarrel. Those unions were started with the laudable object of improving the status and condition of the men; and really the masters' associations were for the same purpose. There was no reason for quarrelling with the men's unions, unless they went beyond their proper province and dictated to the employer how

he should carry on his business. As to limiting the output, if the men did so it was an economical mistake. The dearer workmen made their work the less work people would have done. There was one little grievance he had against some of the workmen's unions, and it was this: they were in the habit of making rules of their own, and then trying to read them into the rules of the Masters' Association. For instance, at the Conciliation Board the other day the carpenters raised the question of piecework, and said that one member of the Association was working piecework, which was contrary to the rules. But the Association had no such rule, and they did not object to piecework; in fact, some of the members wished they could have a little more of it, and he did not think some of the men would object to that, for then some of them would be able to earn three or four pounds per week instead of being tied down to the union rate of pay for what was called a skilled workman. The Association had lost by death during the year Colonel S. Harrison and also Mr. Walter Spencer, who was a good friend of the Association. In conclusion, the Chairman said that the thanks of the Association were due to their energetic and painstaking secretary, Mr. Costigan.

Mr. W. F. Wallis then proposed "The National Federation of Master Builders of Great Britain and Ireland." In the course of his remarks he said that the Federation had been in existence twenty-five years, and its income now is seven times as great as it was in 1887. He saw no reason why the Federation should not have a house of its own, a permanent secretary, and give benefits to its members. Why should not the Builders' Mutual Insurance be incorporated with the Federation? and why should it not insure all the builders of the United Kingdom and give them the benefit of accident insurance? In addition, why should they not found a good war fund and give members legal advice and assistance in strikes? If this were done, the Federation would be more useful than ever. Strikes were getting out of favour with the unions, and rightly so, for the recent legal decisions had given them cause to think. At the same time it must not be forgotten that the men intended to make strenuous efforts to recover lost ground by means of fresh legislation, and the Federation must take the most efficient steps to stop that.

Mr. C. H. Barnsley, in response, said there were 11,000 firms engaged in the building trade in the country, to say nothing of the allied trades, and to attempt to federate them was a bold venture, seeing how the trade is scattered over a wide area, and what a diversity of custom there is, and what a difference as to rules. Then there was the prejudice and indifference of the masters themselves, for there were retrograde and stationary as well as progressive builders; but the greatest difficulty in regard to the federation of the master builders of the country was the selfishness of many. These men were not ready to join or influence the movement, but they were quite ready to accept its benefits. That was one of the difficulties to overcome, and he was glad to say that the Federation had made progress, and it was on a sound financial basis. The Federation must be united to be strong; the strength of the men was their compact unity.

Mr. W. F. King then proposed the toast of "The Architects and Surveyors." There was a freshness and vigour about the architecture of the present day which not only gave pleasure, but also hope for a still more brilliant future for architecture. He recently had occasion, as President of the Institute of Builders, to meet the Council of the Royal Institute of British Architects, and he had been much struck with their courtesy and kindness, and their liberal and impartial views on matters which might be in contention between themselves and the builders. Builders generally had the highest opinion of the impartiality of architects, and in proof of this he might say that a builder, in the event of a dispute with an architect, was always ready to submit the question in dispute to another architect, knowing that he would receive impartial and fair treatment. As to surveyors, the quantity surveyor was a modern creation, and builders would not like to be without them at the present day.

Mr. H. T. Hare, who responded for the architects, said that architects and builders must work together, for one was complementary to the other. As to unions, this was

an age of combinations, and for men of any calling to make progress they must combine. Any combination of employers which had as an object increasing efficiency and the carrying on of work without friction must have the sympathy of all architects. The Architectural Association, over which he had the honour of presiding, existed mainly for the education of the rising generation of architects, and he was quite sure it was to the interest of the architectural profession and of builders that architects should be thoroughly qualified to carry out their work; and unless they were qualified, it was to the detriment of the public as well as of architects and builders. He supposed that no meeting of architects and builders could properly be "rounded off" without some reference to the question of conditions of contract. The question had been under discussion for many years, and it had often been said that the new conditions were on the point of being settled, but they were not arranged yet. It was highly desirable that there should be a standard form of contract acceptable to both architects and builders, and he believed that at the present moment this was nearer of accomplishment than it had ever been before. The points in dispute had been narrowed down to very small limits, and he had good reason for believing that the whole document was absolutely on the point of being accepted. All that architects desired—and he was sure it was all that builders desired—was that the document should be a fair one between the contracting parties; one side did not want to have any advantage over the other. His experience was that it did not matter what the conditions of contract were provided the two sides were fair and honest, and only wanted what was due to them; but he was afraid that there were some cases in which either one party or the other wanted more than it was entitled to, and that was the root of all the mischief. As to limiting the output and the reducing of the efficiency of the workman, he hoped the Association would fight against it to the utmost. He could not help thinking that one of the results of the negotiations between the masters and the men would be a return to something in the nature of piecework. Piecework was what a good many builders objected to and fought against, but he could not see that, in principle, there was anything wrong in it. Every contract was piecework, and he could not see why the principle should not be carried to its logical conclusion.

Mr. Arthur Vernon, who responded for the surveyors, said there was something charming in the title "Master Builders." By that builders meant that they were masters of their trade; that they meant to be masters of their men; and architects and surveyors knew that they were masters of the situation. Architects and surveyors loved the honest, straightforward builder, who gave the best of work, the least trouble, and the most satisfaction. A firm of builders had worked for him for twenty years, and he had occasion to find fault with something the other day. The builders replied, in a phrase which should indicate the general relationship between the architect and the builder:—"We cannot let you complain," and they did the work over again. The Surveyors' Institution had a membership of nearly 4,000 and it included the best practitioners in the United Kingdom.

Mr. J. W. Lorden submitted the toast of "Representatives of Public Bodies and Visitors."

Mr. E. D. White, L.C.C., replied. For a long time the County Council assumed a hostile attitude to builders, and imposed conditions of contract which builders resented, refusing to tender. So the County Council, alleging that a ring had been formed against them, started a Works Department, which had been a heavy and egregious failure. 75,000l. of the ratepayers' money had been squandered, and if the accounts were made up to date he believed the loss on the Works Department of the London County Council would come out far above 100,000l. The facts were being kept back as long as possible, in the hope that some job would come in to improve the result. One grievance which builders had against the London County Council is about to be removed, viz. that the rule of the Council retaining the priced bills of quantities sent in by tenderers will be altered. In future, shortly, those bills of quantities will be returned.

The proceedings then ended.



## THE LONDON COUNTY COUNCIL.

The usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, Sir J. McDougall, Chairman, presiding.

**Loans.**—On the recommendation of the Finance Committee, it was agreed to lend Southwark Borough Council 7,750*l.* for contribution to housing scheme; Stepney Borough Council 1,500*l.* for contribution towards purchase of Ford and Sidney Squares; Woolwich Guardians 1,000*l.* for poor-law purposes; St. George-in-the-East Guardians 3,850*l.*, and West London District School Managers 1,800*l.* for the same purposes. Sanction was also given to the borrowing of 3,600*l.* by Lambeth Borough Council for paving works, and to 805*l.* by Islington Borough Council for electric light installation.

**The King and Workmen's Cupboards.**—The Chairman said he had received a letter from the King's private secretary in reference to the recent visit of the King and Queen to the artisans' dwellings at Millbank. The following is part of the letter:—

"Their Majesties were greatly interested by everything that they saw, and his Majesty especially so, from the fact that he was a member, and most constant in his attendance at the meetings, of the Royal Commission on the housing of the working classes.

Both sanitation and comfort appear to the King and Queen to be well cared for in these houses, and the only suggestion which they would offer is that the inmates should be provided with a larger number of cupboards. This might seem a small matter, but they would be a great convenience, and would also prove of considerable advantage, inasmuch as they would help to prevent a 'litter' in the rooms, and would thus add to their tidiness."

**Accidents to Workmen.**—The following recommendations of the Works Committee were agreed to:—

"That the arrangement made by the Works Committee for the commutation, on payment by the Council of 200*l.*, with 3*l.* 3*s.* costs, of the allowance of 1*l.* 7*d.* a week made to George White, labourer, under the provisions of the Workmen's Compensation Act, 1897, be confirmed."

"That the arrangements made by the Works Committee for the commutation, on payment by the Council of 225*l.*, with 3*l.* 3*s.* costs, of the allowance of 1*l.* 7*d.* a week made to W. J. Mears, bricklayer, under the provisions of the Workmen's Compensation Act, 1897, be confirmed."

**Tramways.**—The following recommendations of the Highways Committee were agreed to:—

"(a) That the supplemental estimate of 70,500*l.* submitted by the Finance Committee be approved; and that the expenditure of that amount on capital account be authorised in connexion with the road-work and platelaying portion of the reconstruction of the Tooting to Westminster, &c., section of the London County Council Tramways.

"(b) That the sum of 8,250*l.* be added to the amount of the contract entered into with Messrs. L. G. White, Ltd., in pursuance of the resolution of the Council of November 5, 1901.

"(c) That the sum of 2,085*l.* be added to the amount of the contract entered into with Messrs. Walter Scott, Ltd., under the resolution of the Council of November 5, 1901.

That the estimate of 32,000*l.* submitted by the Finance Committee be approved; and that the expenditure on capital account be authorised of sums not exceeding that amount in all, in respect of the rebuilding of a portion of the existing car-sheds and the erection of workshops at the Council's tramways depot at Camberwell, in connexion with the reconstruction, for electrical traction, of the London County Council Tramways.

"That the offer of Messrs. Dick, Kerr, & Co. to supply twenty additional double-decked single-truck, electrically-equipped cars for the sum of 11,200*l.* be accepted."

**Atmosphere of the "Tubs."**—Discussion was resumed on the Report of the Public Health Committee, a portion of which consisted of reports made by the Council's chemist and Dr. Andrewes on the atmosphere of the tube and underground railways. The Committee recommended that copies of the reports by the Council's chemist and Dr. Andrewes be sent to the Central London Railway Company, in compliance with their request.

Mr. Beachcroft moved as an amendment to refer the matter to the Committee to consider whether the reports of the Committee could not be printed for sale.

The amendment was accepted by the Chairman of the Committee, and was agreed to.

**Opposition to Bills.**—The Council agreed

that petitions should be presented in opposition to the Crystal Palace District Gas Bill, the Gas Light and Coke Company's Bill, and the Thames Conservancy Bill.

**Widening of Hampstead-road.**—Considerable debate arose upon the question of the widening of Hampstead-road between Euston-road and Tolmer's-square, owing to the complication of the matter with the question of the construction of a tramway from the present terminus in Hampstead-road to a point near Oxford-street. The Borough Council of St. Pancras desire the County Council to widen Hampstead-road, but are opposed to the tramway scheme, while the Highways Committee agree as to the importance of the street widening, but wish the Borough Council to consent, as a condition, to the introduction of a Bill to authorise the County Council to construct the tramway along Tottenham Court-road. The matter came before the Council upon a Report of the Improvements Committee, who made a recommendation in favour of the widening of the street at an estimated gross cost of 245,000*l.* (226,500*l.* net). There was also a special Report of the Highways Committee upon this matter, proposing to amend the recommendation of the Improvements Committee by making the expenditure conditional upon the action of the Borough Council as above stated.

Mr. McKinnon Wood moved that the Report of the Improvements Committee be referred back, as this was not a convenient time for adding to the Council's capital liabilities.

Mr. Cleland seconded the amendment.

In the end, the amendment to refer the Report of the Improvements Committee back was carried by sixty to thirty-four.

**The Fire at Colney Hatch Asylum.**—The Asylums Committee submitted a long report as to the recent lamentable fire at Colney Hatch Asylum. In the course of their remarks the Committee reported as follows:—

"We have referred previously in this report to the fact that the asylum which came into the possession of the London County Council at the time of the transfer of county property only afforded accommodation for 714 per cent. of the total number of lunatics for whom the county had to provide accommodation. On January 1, 1890, there were 10,104 patients for whom accommodation had to be found for the county. On January 1, this year, there were 16,661 patients, showing an average annual increase for thirteen years of 327. Starting with a great deficiency, and having a very large annual increase to contend with, it is some satisfaction to record that on January 1 this year there was sufficient accommodation to house 974 per cent. of the total number of the county's certified lunatics. In a period of thirteen years the deficiency in accommodation has been reduced from 281 to 26 per cent. The expenditure of the Council (including liabilities) in providing new asylum accommodation for the last thirteen years, amounts to 1,925,000*l.*; this figure does not include the alterations to Hanwell asylum, costing 66,800*l.*, and improvements and additions at other asylums which amount to many thousands of pounds. The number of beds provided by the Asylums Committee since 1890 in permanent and temporary buildings, with the dates of the opening of the asylums, are shown in the following table:—

Permanent Buildings.		
Asylum.	Number of beds.	Opened.
Cane Hill (additions) ...	876	March, 1893.
Claybury ...	2,158	May, 1893.
Banstead (additions) ...	102	June, 1894.
Heath Asylum, Bexley	2,098	September, 1898
Hanwell (alterations)...	150	March, 1902.
Horton ...	2,000	March, 1902.
Epileptic colony ...	300	
	7,684	
Temporary Buildings.		
Colney Hatch... ..	300	May, 1896.
Banstead ... ..	302	June, 1896.
Hanwell ... ..	400	March, 1898.
Manor... ..	700	June, 1899.
	1,700	

With regard to other temporary accommodation we may here state that the temporary buildings of the Manor Asylum and the Hanwell annexe were constructed with plastered interiors on steel latting. The annexe for males at Banstead, though match-boarded, is not of the same design as the buildings which were destroyed at Colney Hatch. We have, however, thought it desirable to make certain alterations in the corridors which will minimise the danger in the event of an outbreak of fire. We are also with the same object and with the knowledge and concurrence of the Commissioners in Lunacy, having alterations carried out at the Manor Asylum and Hanwell temporary buildings. We hope, as

soon as possible, to report to the Council as to further asylum accommodation now necessary, and the manner in which we think it should be provided."

Mr. Hubbard, Chairman of the Committee, replying to a few remarks and suggestions, said it was very well to be wise after the event. Before this catastrophe no one had any idea that a fire could get hold of the buildings in the way that had occurred; someone had been constantly on the watch in the dormitory, and there had been a hose with a good flow of water obtainable by the mere turning of a wheel. Nor was it thought, with the exits there were, that if a fire occurred the patients could not be removed—it was believed that they could be got out in two minutes. The insurance companies did not regard such buildings as liable to a terrible risk, or they would not have taken the insurance at half a crown per cent., which was the highest rate the committee paid, another place being insured at the ordinary rate. After this bitter experience of the corridor acting as a funnel, the committee had lost no time in removing the wood and the felt from the corridor at Banstead, and they proposed to lay a concrete floor. At Hanwell they had a sub-way, and were breaking up the corridor into sections. The committee realised the risk of the temporary buildings, but they could not remove the 1,400 remaining patients at once; they were, however, anxious to put all the patients into permanent buildings at the earliest possible date. They had tested the water supply at each of their asylums, and it was very good. It had been said that the doors ought to open outwards; they did open outwards.

**Dust and the Demolition of Buildings.**—The Local Government and Taxation Committee reported as follows, the recommendation being agreed to:—

"The Conference on Streets and Street Traffic held in 1900 expressed the opinion that when buildings are being demolished in streets, the owner or contractor should be compelled to prevent annoyance as far as possible by sprinkling water and by the erection of screens made of reed, straw, or other suitable material. The Council on February 10, 1901, referred this resolution to us, with a view to our framing a by-law to give effect thereto. We accordingly prepared a by-law which we thought would meet the case, and, in accordance with our usual practice, submitted it in draft to the Home Secretary for his observations. The Home Secretary states that he feels doubtful whether there is such a general nuisance as to justify a by-law, and inquires what evidence there is of the existence of a nuisance not covered by Section 121 of the Metropolitan Management Act, 1855, which requires the erection of a boarding in cases in which the footway is obstructed or rendered inconvenient by the demolition of a building. He also expresses doubt whether the proposed by-law would remedy the evil in question, and in other ways adversely criticises it. Having regard to the views of the Home Secretary and to the fact that the nuisance in question is to some extent dealt with under an existing statute, we are not at present prepared to recommend the Council to take action in the matter, and we therefore recommend—that the reference to the Local Government and Taxation Committee on February 19, 1901, with regard to the demolition of buildings, be discharged."

**Southern Outfall Sewer Enlargement: Greenwich-road Branch.**—It was decided to construct the Greenwich-road branch of the proposed new outfall sewer from Crossness to Deptford without the intervention of a contractor. The amount of the estimate is 17,500*l.*

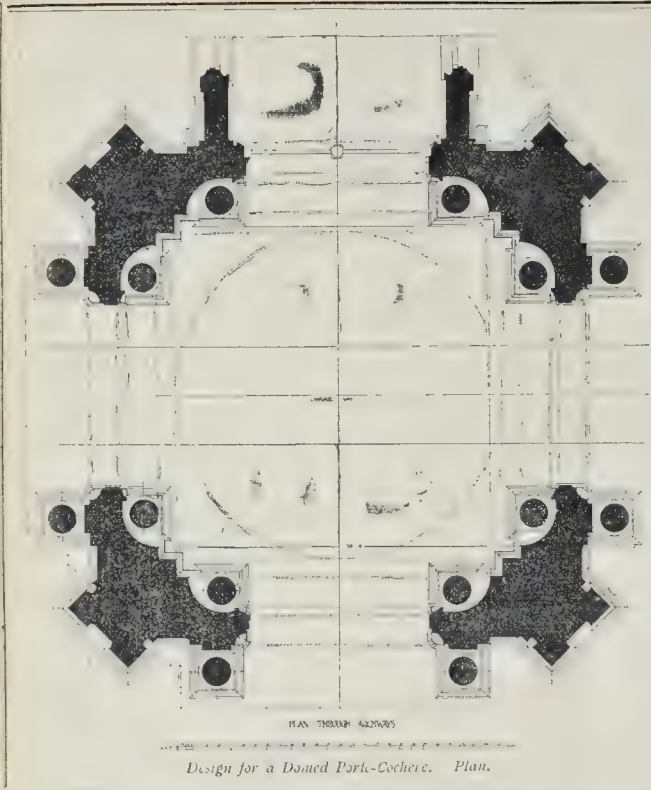
The Council adjourned soon after seven o'clock.

## COMPETITIONS.

**SCHOOL PREMISES, MOORFIELDS, ST. GEORGE, BRISTOL.**—The first premiated design in this competition was that sent in by Messrs. La Trobe & Weston, Clare-street, Bristol. The building is for 400 junior mixed scholars. Nineteen designs were submitted.

**PROPOSED BUILDING INSPECTOR FOR ABERDEEN.**—On the 10th inst., at a meeting of the Plant Committee of the Aberdeen Town Council, the question of the appointment of a Building Inspector, to act under the jurisdiction of the Corporation, came up on a remit from the Council. The general feeling was that an inspector should be appointed, but meantime it was resolved to remit to the Burgh Surveyor to inquire as to the nature of the duties of similar officials in other towns, to define the qualifications necessary for such a post, and to report generally as to the desirability or otherwise of an inspector.





Design for a Domed Porte-Cochère. Plan.

### Illustrations.

#### DESIGN FOR A DOMED PORTE-COCHÈRE.

**WE** give this week the design by Mr. J. B. Fulton for a domed porte-cochère to a public building, for which the Grissell medal was awarded this year by the Council of the Institute of Architects.

The Grissell medal, as most of our readers are aware, was founded for the encouragement of drawings of practical construction, design in the artistic sense being a secondary consideration. The nature of the subject given this year, however, almost necessitated the prominence of the element of architectural design, and indeed in some of the sets of drawings submitted design, in the popular sense of the word, seemed to have been considered almost to the exclusion of constructional detail. Mr. Fulton, however, has produced a design in which fine architectural quality is combined with a most complete and conscientious study of the putting together and jointing of the stone-work, and it was, perhaps, the only one in which design and construction were treated entirely on an equality.

Mr. Fulton has sketched in the sculptural decoration with his usual ability, but we may suggest that it is hardly wise to employ figure sculpture on three different scales in the same building, unless the smaller sculptures are so decidedly framed off from the general architectural design as to become a separate element—as, for instance, in the frieze of the Parthenon. In Mr. Fulton's design the figures between the columns and those on the consoles are in exactly the same relation to the architecture, and therefore suggest two different scales. This should be avoided in combining sculpture with architecture.

#### ALDRESHOT COUNCIL OFFICES, FIRE STATION, AND TOWN HALL.

EARLY last year the Urban District Council of Aldershot invited architects to submit competitive designs for these buildings, with

the result that twenty-six designs were submitted, the accompanying design under the motto "Nemo" being awarded first premium by the assessor, Mr. Frank T. Baggallay. The author of the design is Mr. C. E. Hutchinson, who has been appointed by the Council to carry out the erection of the Council offices and fire-station, it having been decided to postpone the building of the town hall until a future date.

The Council have applied to the Local Government Board for sanction to borrow 9,000*l.* to cover the cost of erection of the buildings, and an inquiry was held by Major J. Stewart, R.E., on January 28, when no opposition was offered to the scheme.

The design had to be arranged so that the front elevation of the buildings should be complete, and that when the Council eventually decide to erect the town hall no addition or alteration shall be necessary to the main front. The town hall was therefore placed behind the Council Offices block, with corridor connecting same with entrance hall of offices.

It is proposed to use Monks Park stone for dressings and Blue Forest of Dean for the plinths to main front. Red brick and coloured cement work will also be introduced in the elevations, and the roofs are to be covered with green "Eureka" or Welsh slates.

The estimated cost is about 8 300*l.*

#### SOME FURNITURE FROM THE ARTS AND CRAFTS EXHIBITION.

**WE** give illustrations from photographs specially taken for us (by permission of the exhibitors) of five examples of furniture at the Arts and Crafts Exhibition.

No. 1 is an oak sideboard by Mr. Sidney H. Barnsley, exhibited in Recess 6 in the North Gallery.

No. 2 is another oak sideboard of somewhat more elaborate nature, which stands in the centre of the end wall of the North Gallery, and was specially referred to in one of our articles on the exhibition. It is designed by Mr. Ernest W. Gimson, and executed by Mr. P. Waals.

No. 3 shows a chest of drawers by Mr.

Ernest Barnsley, and a small cabinet by Mr. Sidney Barnsley.

No. 4 is a small oak sideboard, exhibited in Recess 7 in the North Gallery, designed by Mr. W. Curtis Green and made by Mr. A. Romney Green and Mr. D. Dillway. It was referred to and described in our general review of the exhibition.

No. 5 is a very interesting letter cabinet, No. 292 in the catalogue, exhibited in the South Gallery; it is designed by Mr. E. W. Gimson and made by Mr. P. Waals. The circular panel in the half-opened door contains a decorative treatment of a peacock, with expanded tail filling the circle.

#### THE SURVEYORS' INSTITUTION:

##### REGULATIONS FOR PROTECTION FROM FIRE.

AN ordinary general meeting of the Surveyors' Institution was held on Monday evening at No. 12, Great George-street, S.W., Mr. Arthur Vernon, President, in the chair.

The minutes of last meeting having been read and confirmed,

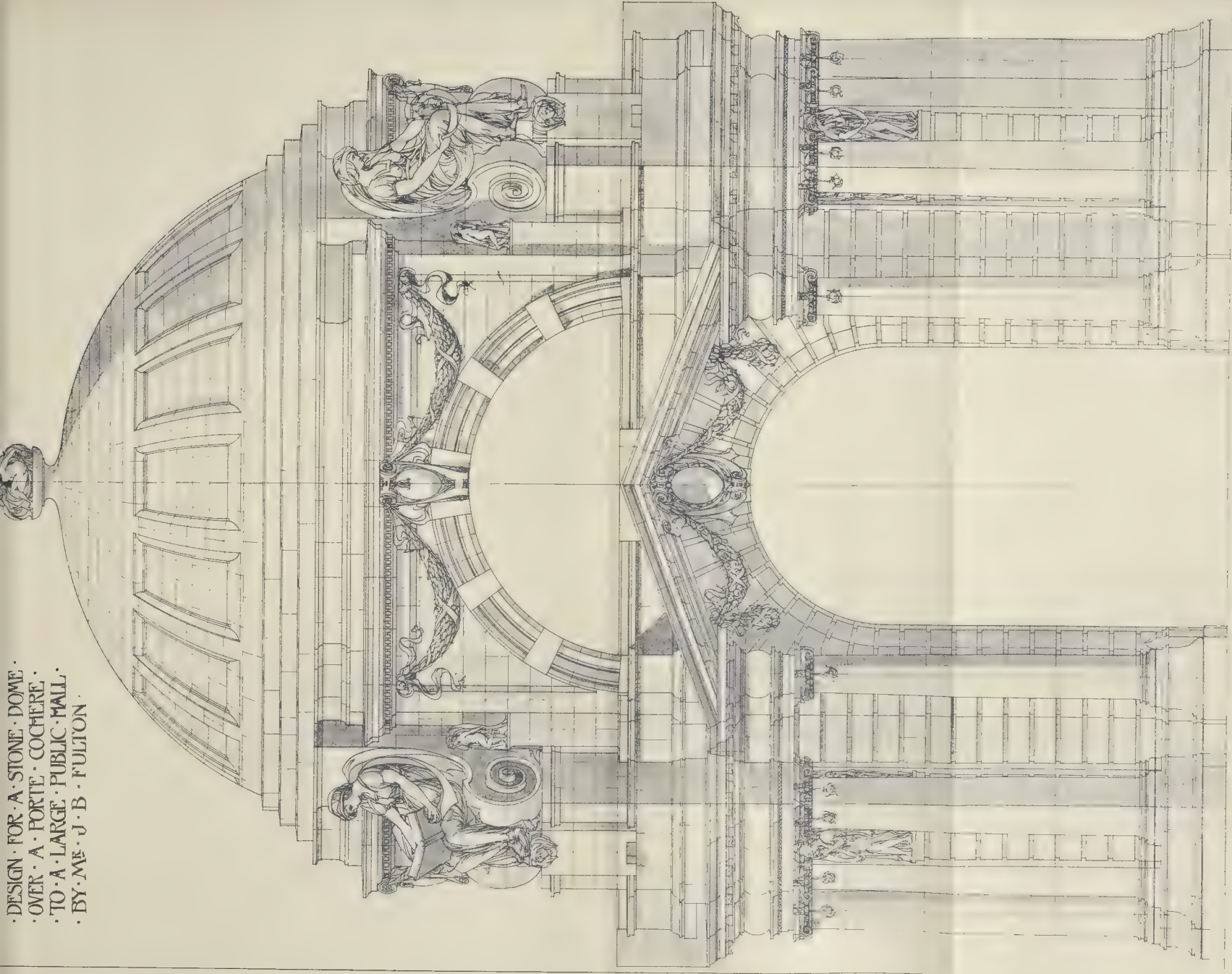
Mr. Penfold, Hon. Secretary, announced some donations to the library and the library fund, and a vote of thanks was passed to the donors.

Mr. Henry Lovegrove then read a paper entitled "Regulations for Protection from Fire." The following is a short summary of the principal points in the paper: Introductions, Acts and By-laws; Notes on the London Building Act, 1894; Notes on the L.C.C. Regulations for Theatres and other places of public resort; Regulations under the Factory Act; General Remarks on Construction to prevent Loss of Life by Fire; Suggestions for new Legislation; Comments on the London Building Act Amendment Bill, 1903, and Views of Property Owners and the City Corporation. As to the regulations for the construction of theatres, &c., he said, speaking generally, they left nothing to be desired, and it might be hoped that their adoption would prevent any very serious loss of life in connexion with fire or panic in a London theatre. The very excellent regulations under the Factory and Workshops Act, 1901, should be embodied in the proposed Building Acts Amendment Act.

The whole of the Sections were excellent, and everything possible had been done to prevent loss of life in case of fire or panic. In all cases of construction designed to save life the most important consideration was to have floors, passages, and staircases sufficiently fire-resisting to enable the inmates to escape with ease and safety through wide staircases and spacious exits, as suffocation by smoke was the real danger, risk of death by fire being of secondary importance. As to the clause that all wind-ward windows above the ground floor, facing the public way, must be made to open easily at sill level to a sufficient height and width to allow a full-grown person to pass through in case of need, nothing could be worse than the common practice of using in factories iron casements with one small portion, often near the top of the window, hung on centres for ventilation; in such buildings escape by the windows in case of fire would be impossible. It was to be hoped that the regulations now in force would prevent the use as factories of ordinary buildings, often crowded with workers, two or more buildings being sometimes thrown into one, and in some instances all the staircases but one being removed or blocked up. A case came under his notice of a fire which might have had disastrous consequences if the structure had been burnt down in the day during working hours instead of in the night. In this building the workers had to go the whole length of a long building to descend the stairs, and then the length of the next floor to reach the main staircase. Fortunately the existing rules provide not only a direct exit of fire-resisting construction, but more than one such exit. Take the case of an ordinary building of the warehouse class, with proper walls and party walls, with a roof of incombustible materials in strict accordance with all the requirements in force. The front was on what might be called the pier and lintel system, with very large openings, and piers of the minimum dimensions. In a fire the iron or steel lintels buckled, and the piers cracked. This sometimes occurred in both back and front walls. The back wall was usually carried on girders supported by iron columns or stanchions entirely unprotected, and in some cases, if the materials stored on



· DESIGN · FOR · A · STONE · DOME ·  
 · OVER · A · PORTE · COCHERE ·  
 · TO · A · LARGE · PUBLIC · HALL ·  
 · BY · MR · J · B · FULTON ·



· ELEVATION ·

SCALE 1/4" = 1' 0"

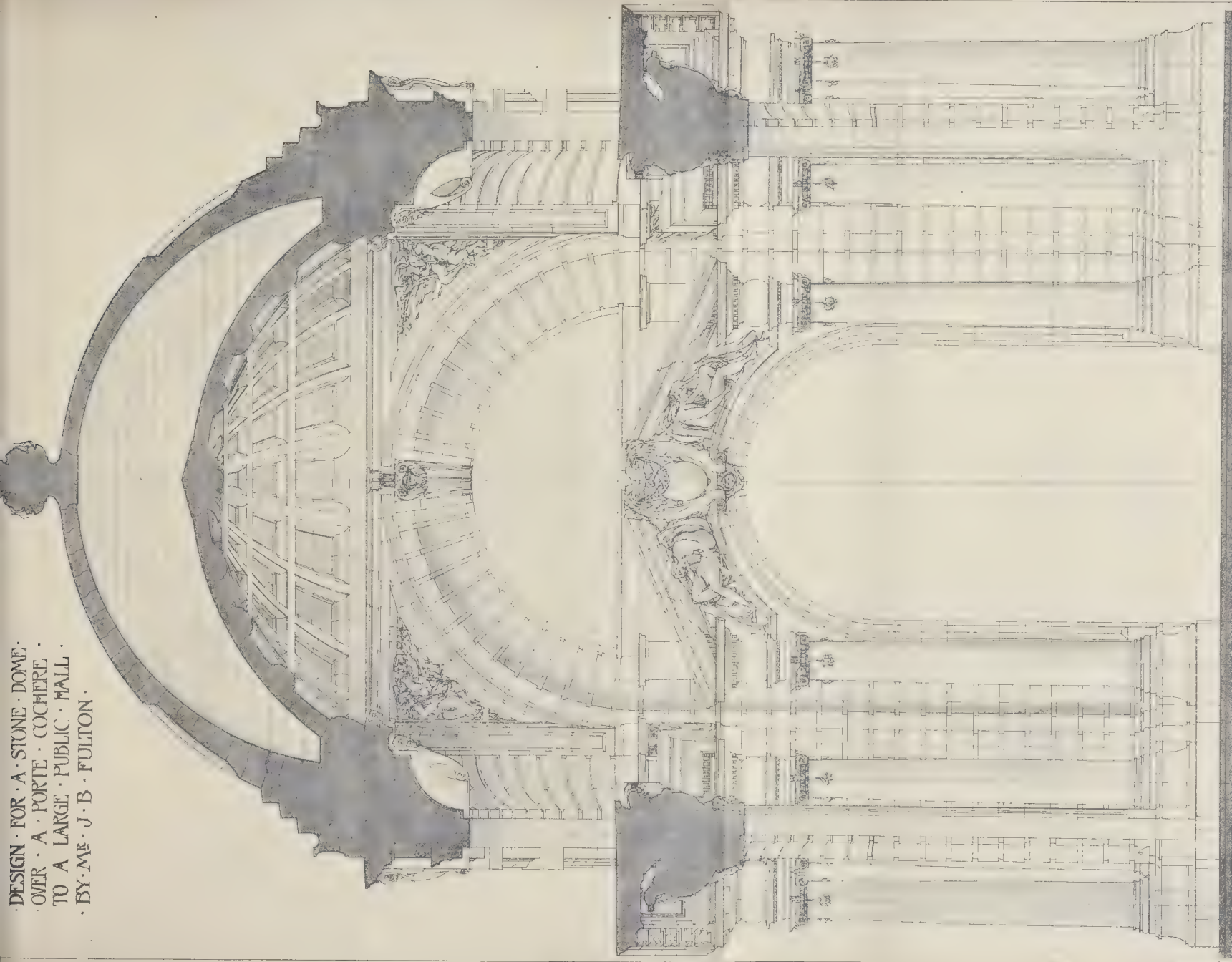
· FULTON ·







DESIGN FOR A STONE DOME  
 OVER A PORTE COCHERE  
 TO A LARGE PUBLIC HALL  
 BY MR. J. B. FULTON.

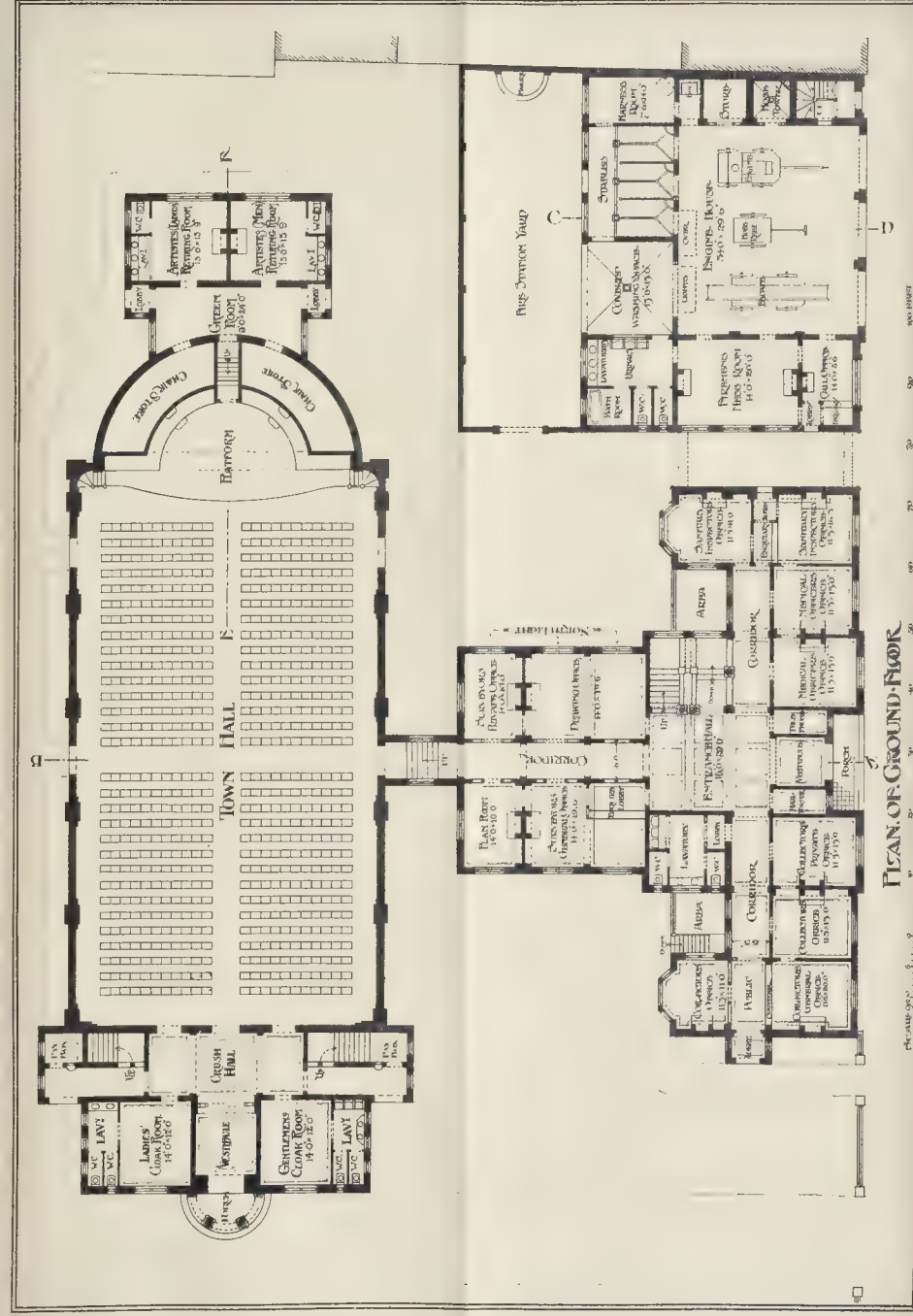


SECTION













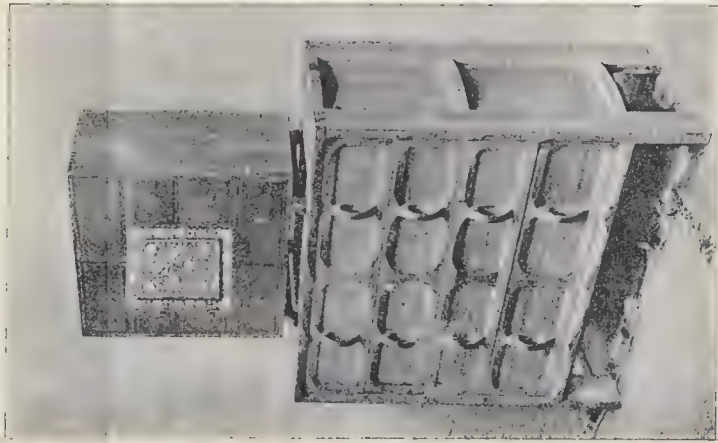




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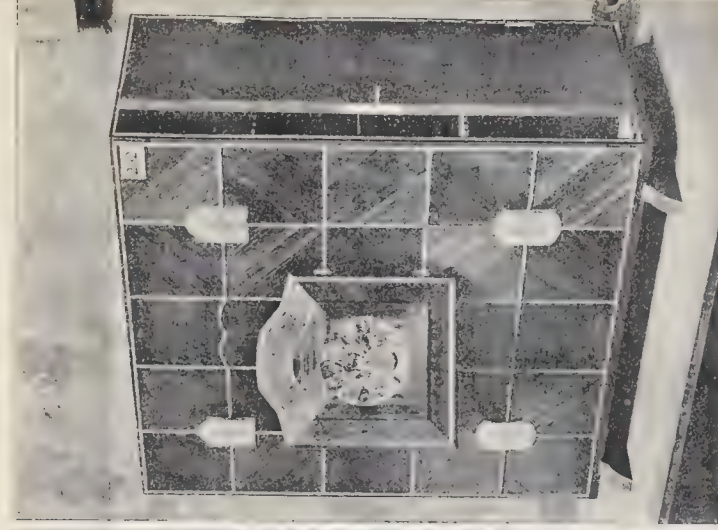
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the lower floors were very inflammable, the columns bent or broke during the fire, and the building collapsed. Behind this back wall there was an area from 10 ft. to 20 ft. deep, covered with a glazed lean-to, through which the fire ascended and the burning timbers from above fell. The glazed area was often adjacent to two or more similar areas, and so the fire spread. The roof was often largely formed of glazed skylights, and the lift formed a convenient shaft to carry the fire up the building. Given these conditions, and each floor crammed with, say, furniture or other inflammable goods, and it could not be surprising that very extensive fires occur, causing great destruction of buildings and stock. It was impossible to widen the streets in the centres of business life, or to control the conduct of business, and it had been shown how a building, in strict accordance with all existing regulations, might yet be a structure which would be easily and quickly destroyed should any portion ignite. Fire-resisting floors must have been in use on the Continent for many years, as they are found in buildings of from thirty to forty years old, and it was strange that in this country more buildings for business purposes, such as factories, stores, and warehouses, were not constructed with floors formed of steel joists filled in solid with coke-breeze concrete. Floor boards could be nailed down upon the concrete and the under side rendered. The thickness was less (so that there was a saving in height) and the cost was no more than that of the usual fir joists, with often a match-boarded ceiling, which was soon destroyed in a very ordinary fire. If these fir joists were pugged with coke breeze and cement concrete, they would offer some resistance. Then again, how much valuable property would be saved if roofs were of fire-resisting material, or were protected by some such material. He inspected, not very long since, a floor of concrete beneath which a furious fire had raged with very little damage except the melting of the asphalt finish. In all cases the girders and supports must be protected, or the whole would collapse, as was the case with a fireproof floor in one of the great fires in Tabernacle-street, Finsbury. Nothing could be worse than the lining of walls with matchboarding, as in such a case the fire rapidly spreads over the rooms adjacent, and was easily and quickly conveyed to the floor above. The regulations of the London County Council as to escape from roofs over 60 ft. above the pavement were good, but if not complied with by the construction of a staircase to a fireproof flat or landing, other means, such as iron steps and ladders, would be of very little use in case of fire. In the daylight a man in his ordinary clothing could ascend and descend with ease, and the whole thing appeared to be delightfully simple; but change the scene to a dark night, with rain or snow, and suddenly awakened and scantily clothed girls, women, or old people attempting to climb or descend an iron ladder! In any case the treads of the iron steps or ladder should be flat, and not, as is sometimes the case, ordinary iron bars.

Until the passing of the London Building Act, 1894, churches and many other buildings were allowed to be constructed as veritable death-traps. Churches and chapels (to consider that class of building for the moment) were frequently, previous to the date named, provided with only two doors, often rather narrow and opening inwards. It must have occurred to many taking part in the service in a crowded church, where perhaps even the passages were filled with forms and chairs, to wonder what would happen in the event of a fire or a panic; as, if the doors did get closed in the struggle, the narrow exits would soon be blocked with corpses. Quite as dangerous, on a smaller scale, were the various public rooms and schoolrooms used for parochial entertainments. There was no kind of system in the arrangement of seats, which were often partly forms and partly chairs. If the entertainment was popular, the place was crowded at the back and sides with persons standing, and one thought with horror of the two doors opening inwards. At bazaars, and often in parochial rooms, some performance of a theatrical nature took place, and the lighting of the stage, whether by gas or candles, was often a source of danger, being generally improperly fixed and insufficiently protected. Every precaution should be taken to avoid the presence of unnecessary articles of an inflammable nature in the enter-

tainments referred to, and the legal regulations must be carried out so as to insure that the building was fire-resisting, in order that if the fire might be held in check while the persons assembled could escape through ample exits instead of being suffocated and eventually burnt.

As to theatres, a well-devised plan by which during panic the audience might find an easy exit from any part of the house was of more importance than the consideration of the methods of fire-resisting construction. The architect must, in the first place, consider ample and direct means of exit, and when these points have been secured then fireproof construction and appliances for the extinction of fire might be considered. Before considering the building itself, a suitable site must be secured with at least two sides fronting streets. If possible, the exits should be at the end of the theatre opposite to the stage, where the fire generally originates, there being a tendency for the audience to rush in the opposite direction on an alarm of fire being given. Some of the best authorities on theatre planning considered that the dress-circle should be nearly on the same level as the street, so that, in the event of panic, the people from the crowded pit would run less risk in ascending stairs than in descending, while the lower position of the ground floor or pit would enable the upper floor to be only a very short distance above the street level. Here the regulation as to height, on the stage side of the proscenium wall, was good, as the smoke would ascend from the stage and pass through the lantern, instead of ascending to the roof of the auditorium and suffocating the unfortunate individuals in the gallery, as was the case at the Exeter theatre fire.

Fire-resisting floors were generally considered to be the most important factor in preventing a spread of fire, and the best floor was that which combined conditions likely to produce satisfactory results with great lightness. Very many of the patent floors in the market were so heavy as to require a great increase in the strength of walls and other supports. Every system for use in the future must, without doubt, include complete protection of all ironwork. The patent systems were many, one of the best consisting of tubular terra-cotta lintels arranged diagonally, their own diagonals being at right angles to the line of joists, so that the lower flanges of the joists were completely covered by the lintel; other floors were constructed of solid concrete, the lower flanges of the joists being covered with terra-cotta. There was also a floor of steel decking with concrete filling, and some years since a well-known firm introduced a special kind of concrete of gypsum, said to be thoroughly fire-resisting. Whatever might be the form of the floor used, the girders carrying the floor and stanchions or columns supporting the same must be encased. For this purpose the iron or steel might be covered with expanded metal and plastered. Many writers spoke highly of the use of a floor made of solid wood beams or joists placed close together. An experiment was made in London not long since with a floor composed of beams 12 in. by 9 in., laid so that the thickness was 9 in. After a most severe test of fierce fire for an hour at 2,000 deg. Fahr., the fire was extinguished by water, and the wood was found to be charred  $1\frac{1}{2}$  in. to 2½ in. deep. Another experiment was made on a floor of wood joists filled in with concrete, constructed with 9 in. by 3 in. fir joists placed 16½ in. centre to centre, and the concrete—composed of 1 part of Portland cement to 6 parts of coke breeze, properly mixed, and allowed ample time to set. After being exposed for half an hour to 800 deg., it was exposed for one hour to 2,500 deg., followed by a stream of water. Five hours afterwards the floor collapsed, the joists having been burnt from 2 in. to 6 in. deep. Some experiments were made with the ordinary form of iron door, which remained in position, but became red-hot, buckled, and warped, as did the frame. One upper corner bent over. Another door of wood covered with tinued steel plates was much buckled and bulged, the upper part bending inwards, and admitting the flames, in one-fourth of the time taken to render the iron door useless.

In any amendment of the London Building Act, it should be made compulsory to remove and clear away every temporary wood or iron building, except fowl-houses and similar buildings not exceeding 6 ft. in height, as in

many districts in London the gardens were so covered with shanties of various kinds that if a fire occurred it would spread to an alarming extent. All such existing buildings should be removed within six months after the passing of the Act. Section 84 of the London Building Act should be amended so as very clearly to define the wooden buildings to be licensed. The transfer of the powers under this section from the London Council to the Borough Councils was one of the most foolish things ever done by the legislature, for unless the Borough Councils were very careful, a portion of the Building Act would be a dead letter. Section 74 of the London Building Act should be altered so as to include public-houses and beer-shops, and the nature of the enclosures to the passages and staircases should be clearly defined, and the decision of the magistrate at the Clerkenwell Police-court, confirmed by the Court of Appeal, should be entirely swept away; but the requirements should be confined to new buildings, i.e., such re-erectations as were so defined under the Building Act.

The London Building Acts Amendment Act, 1903, is divided into four parts. "Section 5 gives definitions of 'owner' and 'high building,' which latter means a building of which the upper surface of a floor or story is more than 50 ft. above the footway or ground adjoining. Section 6 requires that means of escape shall be provided from new buildings after the passing of the Act. Under Section 8, any alteration in the accommodation on the upper stories must be approved by the Council. All appliances and means of escape must be kept in good condition to the satisfaction of the Council. Section 9 deals with the construction of internal staircases. It would be possible so to alter this section as to state exactly how such staircases should be constructed, and thus avoid the delay necessary in obtaining the special approval of the Council, and greatly to decrease the work of the Committee and officials. Section 10 requires that, after January 1, 1905, owners of existing high buildings must present plans and descriptions of means of escape, and the approval of the Council must be obtained. Instead of going to arbitration in case of difference (Section 10 [5]) the matter could very well be referred to the existing Tribunal of Appeal, which does not get sufficient work. Copies of all plans and schemes approved by the Council should be sent by the Council to the district surveyor, as by Section 82 (5) of the London Building Act. By Section 11, after January 1, 1908, all existing buildings are placed on the same footing as new buildings, thus allowing three years for owners to make the required alterations. Section 12 applies to all buildings not occupied by one family, in which more than thirty persons sleep or are employed, and it would be well to insert a clause exempting public buildings. Section 13 provides for an order of the Petty Sessions Court prohibiting the use of certain portions of buildings. Section 14 requires the Council to keep register of orders made under the last section, but it is difficult to understand the necessity for the words after 'reasonable times.' The section as it stands might work against the intention of the Council in case of accidental omission. Section 15 is not clear, and the procedure under the Dangerous Structure Sections of the London Building Act would be found to work better. Section 17 (1) appears to require the alteration of a few words in places. In Sub-section 6, it might be better to settle the width of the passage as 3 ft., as the 6 in. more or less can make very little difference. Sub-section 8 provides for an additional staircase if the frontage of the building exceeds 40 ft., and it might be better to fix the area at twenty squares, otherwise a very large building with a narrow frontage would be very inadequately provided with staircases. Sub-section 10 provides for pugging between joists, which is nearly certain to produce dry rot. Section 18 is excellent, and a necessary requirement, but here again one word for the passage would be better. Section 20 relates to the construction of lifts and their enclosures. The roof over the lift might have a glass lantern and ventilator to allow smoke to escape. Sections 21 and 28, both inclusive, refer to notices, and legal penalties, not of much interest, and not admitting of much discussion.

The First Schedule describes the method of arbitration, which may prove elaborate and expensive. If it is finally approved, the District Surveyor could act as arbitrator for the Council,



but it would probably be better to refer each case to the Tribunal of Appeal. This, of course, is a legal question, not of much interest to the general public. The Second Schedule refers to the fees of district surveyors under the Act, and, when the matter is explained, the Council may be relied on to see that the fees are adequate, having regard to the responsibility and work involved. The laudable intention of the Bill is to provide proper protection for the public, but care must be taken not to press too heavily or the result may be migration of factories, &c., from the county of London, and consequent loss of rates."

Directly the Bill was proposed, the City of London took an adverse view of it, and would probably try to obtain an entire exemption from its principal clauses. There was no portion of London where the risks were greater, as the buildings were crowded on every available foot of ground, and were often crowded with workers whose only means of escape in case of fire would be by a narrow staircase. Some of the factory and warehouse buildings, both in the City and adjacent, had many partitions with doors opening inwards, adding to the difficulty of escaping in haste from a burning building. The erection of new buildings in accordance with the Bill would not present such serious difficulties as were likely to arise under the retrospective clauses, which would, without doubt, seriously affect the interests of property owners, mortgagees, and others.

It must be admitted that, as experience had proved, many City buildings offer very little resistance to the flames, while their position in crowded streets and courts rendered them veritable death traps. It would, therefore, be better for the City carefully to consider the provisions of the Bill, and, if possible, to get some of the more drastic ones modified, thus avoiding what the City Fathers most dread—a great expense to owners, a disastrous effect upon trade, and the driving from the City of many traders, with the result of a serious decrease in the rateable value of property. In many cases a large outlay would be required for new stairs, &c., and unless the tenant could be made to pay more rent the loss must fall on the owner or mortgagee, while if they refused to carry out the requirements of the County Council the upper floors, more than 50 ft. above the pavement, would remain empty, and a still greater loss be thereby sustained. He was sure that a staircase of the usual type required by the Factory Act was most beneficial, as so many of the other escapes to roofs and flats would be of very little use. He would suggest a strict regulation requiring shavings and rubbish to be frequently removed, and gluepots and stoves used only on a proper hearth. He had discovered stoves standing on a tray on a boarded floor, the surrounding floor being several inches deep in shavings, while each of the alien workmen was smoking a cigarette. The clauses of the Bill were being carefully considered by the district surveyors of London, whose opinions, the result of practical experience, would, he was sure, be courteously received by the London County Council, and as many as possible of the suggestions adopted.

Mr. Alexander Payne, in proposing a vote of thanks to the lecturer, said he very much agreed with Mr. Lovegrove's remarks. As to the Building Act of 1894, he never could understand why its retrograde provisions, in some respects, had been agreed to. By the Act of 1855 all door and window frames on the exterior face of a building had to be kept back in reveal, and the obvious reason for that was in order to keep wood from the face of the building; also to prevent these frames when burning from falling into the street. In addition to that, barge boards and wood for gables were not permitted. Unfortunately, at the time of the discussion on the Bill of 1894, some architects were attracted by the fashion of 150 years previously, and they wanted to do away with those restrictions, and as a result of their representations those requirements were abolished. He had seen a big fire in a factory where the flames extending across the road were prevented from spreading as there was nothing to ignite in the houses opposite, all the wood being kept in reveals; and the old restrictions, in his opinion, ought certainly to be maintained in the case of buildings in streets, though they were not so important in the suburbs and in buildings standing back some distance from the street.

This was an important point, as also was that of party walls. A very strong attempt was made at the time of the passing of the 1894 Act by some architects to get rid of party walls. It was said that party walls did not look well in long rows of buildings, projecting above the roof; but, fortunately, the evidence of fire brigade officers was so strong as to the immense utility of the party walls above the roof that the Committee said they dare not make any alteration; and so party walls were retained in the 1894 Act. But the modern system of building was resulting in great measure in the abolition of party walls. It used to be the fashion in the suburbs to build rows of small houses with a party wall between each of them, and rarely did a fire which might occur in a house extend beyond the small building in which it took place; but now, owing to the increasing custom of erecting buildings in flats, containing sometimes practically a dozen houses in one, if a fire broke out in such a building it would probably go the whole place. In the new Bill there will probably be legislation on this point; these buildings in flats should have proper fireproof exits and should be limited in size by party walls. In some cases in these flats there were shops below and dwellings above, and as the danger from fire in shops—in some shops especially—was greater than in dwellings, some legislation seemed necessary in that respect. The shops should be entirely distinct from the dwellings, with proper party walls, and each shop should be distinct from others. Mr. Lovegrove had given a useful abstract of the regulations with regard to theatres and factories. He did not propose to make comment on these. The regulations had worked very well, and he did not think new legislation was proposed as to theatres or factories; but there was one other point in the paper on which he would like to make special remark. The most retrograde step in modern legislation had been the transference of the powers of the London County Council as to wooden structures to the Borough Councils. It was a mistake to have two authorities dealing with the same matter, for it led to irritation and litigation. It had been decided in the law courts that the Borough Councils were the licensing authorities as to wooden structures, while the District Surveyors saw to the carrying out of the licence. But the Borough Councils would not inform the District Surveyors when they had licensed a building, so that a District Surveyor might take legal action, and then find that a licence to erect had been granted by the Borough Council. It was intended that licences should be granted for buildings which did not come under the Act, but the Surveyors to the Borough Councils were under the impression in some cases that they could license any building, such as a church or a house, in wood if they pleased, which would of course render all the precautions against fire in the Building Act entirely nugatory, but he did not think that there would be anything but muddle until wooden structures were put back under the authority of the London County Council. He knew of the following case, which showed the danger: Some one went to the County Council for a licence to erect a wooden building covered with corrugated iron, but the Council did not think the building a proper one to grant a licence for. The applicant then went to the Borough Council, taking off the corrugated iron, and got his licence. We knew from the Colney Hatch disaster what a great danger there was from these buildings, and, if such things as he had described could be done, legislation seemed useless. As to the proposed amendments to the Building Act, the owners of property were up in arms, and there would be great difficulties in getting the Bill agreed to; but the same difficulties had to be faced in regard to theatres and factories. To prevent and stop fires was an economical thing for owners of property, and it ought to be done; and he hoped that a good and useful Bill would be introduced and carried, and that the owners of property, instead of entirely opposing it, would co-operate with the public officials in carrying out an object which, if well done, would be beneficial to all.

Mr. C. Forster Hayward, F.S.A., in seconding the vote of thanks, said he agreed with Mr. Lovegrove in most of his remarks, and went beyond him in thinking that legislation might be carried very much further in some directions. He was glad that the County Council had introduced their Bill as to the means of escape from fire and the reduction of risk from

fire. The loss of life and property from fire recently had been so appalling as a result of the absence of certain precautions which might very well be taken that fresh legislation was needed, and legislation of a most drastic kind. Even the new proposals did not provide for fireproofing iron columns supporting buildings, and he might say that he had got people to go beyond the Act and do so, though even then there were difficulties. For instance, only that day he passed a place where iron columns were protected with wire put round them; but he found that the wire was nailed to wood blocks placed between the flanges! If some knock were given to the columns during a fire, and the flames were to get to the wood, the "protected" column would be sure to go. There was no provision in the Act as to protecting iron work from fire and that was needed. Another matter about which he felt strongly was as to the construction of staircases. According to Section 68 of the Act, staircases of large buildings had to be fire-resisting and "supported or carried by fire-resisting supports." That provision ought to be very widely extended—to almost every staircase which was made of fire-resisting materials such as stone or concrete. The matter had engaged his attention a great deal, for he had seen cases in which the stone staircase had fallen and crushed down under a very slight outbreak of fire and where wooden staircases would not, probably have been destroyed. In a building in Woburn-place there was an ordinary stone staircase, apparently as good as thousands of others, supported by being built into the wall on one side. A fire occurred (which had a fatal result), and the staircase crushed down in a heap. He afterwards found that all had broken except the few steps which were supported by an ordinary 2-in. framing which held in the spandrels between them and the stairs which went down to the kitchen or cellar in the ordinary way, so that the stairs were saved which were supported on the 2-in. woodensupport; and the stone steps, which were exposed only to a slight licking fire, crushed down. From that he deduced the theory that the outer string of every stone staircase ought to be supported in some way or other, and that no stone or concrete stairs ought to be allowed without supports to the outer string. He had been able to get that done in many cases, but unless the authorities had backed him it would not have been possible to enforce his views. He wished those views could be embodied in the new Act, which he hoped would result in some good legislation for the prevention of fire and the saving of life.

Mr. J. Douglass Mathews said he was rather sorry, seeing the attempts there were to prevent loss of life from fire, that the new Bill had not gone a little further and dealt not only with high buildings and places occupied by more than thirty people, but with the ordinary dwelling house, which must need protection as much as other buildings. For a comparatively small outlay, the staircase in an ordinary house might be shut off from the other part of the house. Instead of the thin timber used in staircases of ordinary houses, it might be made thicker so as to resist fire.

Mr. A. R. Stenning said he did not agree with Mr. Lovegrove that it was only in the 1894 Act that there was any idea of prevention of fire in buildings, for the Act of 1855 started with that idea in the preamble and heading of the Act. A great many clauses of that Act were very good, and had worked very well. The present crisis or scare was owing to the fire in Queen Victoria-street, and the County Council were frightened because they had not got their fire brigade, and other arrangements for putting out fire, in a better state, and the Bill they had prepared went too far, and he was doubtful about some of its clauses. He was a member of a Committee of that institution, which was trying to find out whether they could make any practical suggestions with a view of improving the bill, but that was a matter he was not in a position to discuss then. He might say that he thought the County Council might have waited a little longer before introducing their Bill, and might have relied more on the powers they already possess under the Factory Act of 1901. As to Mr. Payne's point about the sash frames, he (the speaker) never knew of a fire occurring in the manner suggested, and he did not think the amount of wood in a sash frame, when on the external part of the brickwork, was sufficient to



cause a spread of fire from a building on the opposite side of the street. As to fires in flats, he had had a great deal to do with such buildings, and he might say (and this was also the statement of Sir Richard Farrant, who had had so much experience in regard to this class of building) that the fires which had occurred in these buildings had been very few; and, remembering how little furniture and combustible material there was in the rooms of these buildings, he did not think, where the buildings were properly constructed of concrete and iron joists, that sufficient heat could be generated in any one room to cause a fire to extend beyond that room. He had a little experience himself in Scotland a few years ago in a large hotel. A fire occurred in the middle of the night in one of the rooms on the second floor, some material in the room having caught fire, but the fire was confined to that one room, although the floor, which was burnt through, was of wood, and though the building was badly constructed. There was, as a rule, not sufficient combustible material in such buildings to cause a big fire, though that was not so in an ordinary house which was constructed with wood joists. If the present Building Act were carried out judiciously, there was no need to enforce upon unwilling lessees and owners of property the absurd requirements of the London County Council, and the proposed Bill would be unnecessary. A fire was a very alarming thing, and it was desirable to protect those who had to work in buildings where escapes were not provided, and it was difficult in London to provide all the means of escape that were possible. He thought that surveyors and others should do all they could to advise their clients not to turn their buildings into some other purpose than that for which they were erected, and if that practice could be stopped a good many fires could be prevented. He endorsed what Mr. Payne said about party-walls stopping the spread of fire, but in the country they were glad to stop a party-wall from coming through the roof and so spoiling the appearance of buildings. But fires seldom spread from house to house—a house might be gutted but, as a rule, the fire did not extend.

Mr. Thomas Blashill said he was sure the proposed Bill would be received by members of that Institution with respect, and that they would, while opposing some of its provisions, do all they could to improve it. Surveyors must not put themselves in the position of property owners, who did not want to spend money, but they must take a calm and impartial view of matters. As to what had been said about panic legislation, none of the recent great fires taught us anything that we did not know before. If one set fire to combustible materials, the fire would burn, and burn quickly, and as to the "marvellous" way in which, according to some newspaper reports, fires spread, there was nothing at all marvellous about it. Such fires as the Paris Bazaar fire and the Colney Hatch fire taught the practical man nothing, but they taught something to people who did not think. If one set fire to a wooden building, it was on fire all over at once—that was a necessary consequence, and there was nothing marvellous about it. What practical people had to do was to see that provision was made to get people out of burning buildings as quickly as possible when a fire occurred. He did not agree with Mr. Lovegrove as to pugging. Pugging a floor was a very ordinary operation, and if damp pugging was used dry rot would occur, but if the pugging was allowed to dry there would be no dry rot. He had had much to do with artisans' dwellings, and there was not one built for the London County Council but what had steel and concrete floors, which were not more expensive than properly constructed wooden floors. He quite agreed as to the rarity of fire spreading in small flats from one tenement to another, and the trouble was not about such buildings, but rather factories, warehouses, theatres, churches, even, where people were cooped up with no means of escape whatever. Surveyors were really most interested in regard to retrospective legislation. He could not see how the enforcement of rules as to protection from fire in new buildings could be justified if old and dangerous buildings were to be exempt. Legislation affecting these old buildings must come sooner or later: whether there should be three or five years' grace he did not care to argue, but exemption should not go on indefinitely. As to

fireproof construction, there were many fireproof materials brought out every year, and he did not see why we should not make use of them. That class of material known as asbestos, or asbestic, or uraltic was not used half as much as it ought to be, and he hoped that greater use would be made of them. Door and window frames set out in the front of brickwork had been found from experience to be exceedingly dangerous. As to what Mr. Stenning had said about the absurd regulations of the London County Council, those regulations were largely founded upon the reports made from time to time by the chief officers of the Fire Brigade as the result of their knowledge and wide experience, and it did not do to say that a requirement was absurd when we had had no experience of its necessity. As to the hope expressed that clients and owners might be got to take more care in the management of their premises, he had had so much experience on that head that he knew it was hopeless to expect anything of the kind. Over and over again he had seen ample stone staircases in warehouses in the City filled up by boxes and cases stacked against the wall so that there was not room for two people to pass against the banister, and when the occupier's attention was drawn to this, he remarked that there was not going to be a fire. That was the general view: "they knew it would not happen." The same remarks applied to theatres more or less. One of the greatest difficulties in years gone by was to get the doors of theatres opening outwards provided with self-acting bolts—panic bolts; and there was one theatre where a foremost theatre architect introduced panic-bolts amongst other up-to-date requirements. The client, however, said he would not have them unless he also had the means of locking the doors, which, he said, could be unlocked immediately before a performance took place. The Board thought they had no power to object to that, and permission was given. He (the speaker), feeling rather anxious about the matter, went to the theatre one evening at nine o'clock during a performance, and found, as he expected, that all the doors were locked. He went into the box-office, where the clerk said, in response to his remarks, "Oh, yes, it's all right. I have the key in my pocket, and I shall unlock the doors five minutes before the end." Things were very much altered now, and the Council would not have locks. That showed that occupiers could not be relied on. He had found the cellar under the stage of three or four theatres packed by scenery up to the joists under the stage; he had found a chained dog in a panic exit, bicycles at another, and in another two beer casks which entirely blocked the exit.

A member said he did not agree with what had been said against the transference of powers as to wooden structures to Borough Councils; in most cases Borough Councils took a common-sense view of things, and, what was more, no one was better able to judge of local requirement than the Local Authorities. The mistake was in not transferring the whole of the responsibility as to wooden structures to these bodies.

Mr. E. Dru Drury said that Hankey's mansions were constructed under the 1855 Act, and the floors were of concrete and steel joists, and on one occasion there was a fire in one of the flats which burnt itself out without extending. There was also a fire at the Welshbach Incandescent factory, where there was a lot of inflammable material, but divided into sections shut off by iron doors. The fire broke out in the middle of the day, when 125 girls were at work, but the forewoman promptly closed the iron doors and the girls got away through the three or four separate exits without difficulty. The London Building Act and the Factory Acts, judging from those examples, seemed to fulfil their objects very well. Professional men ought not to find much fault with the new Bill. There was one very wise provision, *i.e.*, that lifts should be enclosed; for lifts were often funnels for conveying fire from one floor to another. Some such Bill as that proposed was sure to be passed sooner or later, and they should do their best to make it workable.

After a few remarks from Mr. A. King, the vote of thanks was passed, and Mr. Lovegrove briefly replied.

The Chairman announced that the next meeting will be held on March 9, when Sir John Barton, C.B., will read a paper on "The Early History of Irish Valuation." The meeting then terminated.

#### ARCHITECTURAL SOCIETIES.

ARCHITECTURAL ASSOCIATION OF IRELAND.—The sixth annual dinner under the auspices of the Architectural Association of Ireland was held on the 19th inst., at the Dolphin Hotel. The President, Mr. F. G. Hicks, occupied the chair. After dinner the President gave the toast of "The Architectural Association of Ireland." He said they had been established some seven or eight years, and this was their sixth annual dinner. He thought they were doing a rather good work in a quiet way by their meetings and classes. Their membership was increasing every year. They now numbered 150. During the present session they had approached the Royal Institute of Architects of Ireland with a view to initiating examinations for admission to their body. The matter was still under consideration. The Institute had taken up the matter favourably, but great bodies moved slowly, and they could not, of course, expect for an answer until some further time had elapsed. Still, the Association intended to keep hammering away, and if the Institute did not grant their request they would probably hold an examination of their own. The toast was cordially honoured. The President next gave the toast of "The Guests," which he coupled with the names of Mr. Purser, President of the Junior Engineering and Scientific Society, and Mr. Crawford Smith, both of whom replied.

#### ARCHÆOLOGICAL SOCIETIES.

BRITISH ARCHÆOLOGICAL ASSOCIATION.—A meeting was held on Wednesday evening, the 18th inst., Dr. W. de Gray Birch, F.S.A., hon. treasurer, in the chair. Mr. T. E. Price Stretche exhibited a curious example of a horse's bit which was recently dug out of the moat surrounding an old manor house in Shropshire. The bit probably is of the early fourteenth century. Mr. Patrick exhibited on behalf of Mr. Richardson a fair mark, of the date 1807, of the Royal Exchange Assurance Co. It is of cast lead, and bears a good impression of the building which was the immediate predecessor of the existing Royal Exchange, and was destroyed by fire in 1838. This fire mark was taken from one of several old cottages of late seventeenth century date at Strand-on-the-Green, Chiswick. These cottages once formed a portion of the City Barge Inn, and portions of the old City Corporation barge were used in the construction of the inn. Mr. Percy Scott exhibited a collection of Greek and Roman antiquities of bronze, a male and female figure, two fibula, a key, a nail-shaped symbol, highly ornamented with lines and cross patterns, a ring, a "boar-pig" finger ring engraved with a horse leaping up towards an altar or canistrum. With reference to these bronzes, especially the male and female figures, the Rev. H. J. D. Astley remarked "that they bore a great resemblance to similar articles found at Troy, Tirgins, and Mycenae. They belong to the prehistoric or Mycenaean portion of the Bronze Age, and may be compared with products of Etruscan art." Mr. Andrew Oliver gave some "Short Notes on Some Churches in France," descriptive of a large series of fine photographs which were hung on the screens. About midway between Chartres and Le Mans is La Ferté Bernard with a grand church of the fifteenth and sixteenth centuries. The interior terminates in an apse without a triforium, the space which would be occupied by it being filled in with panelled work. Upon the caps of the columns round the apse are statues under canopies. The exterior shows two distinct dates in the work, the parapet consisting of an inscription in large letters. Close to the south porch there is a curious representation of Julius Caesar and Cleopatra looking out of a window, occupying the blank space over the arch of the window. About ten miles from Nevers are the remains of the monastery of La Charité sur Loire. Upon the site of five bays of the north aisle modern houses have been erected within the walls, the vaulting shafts are to be seen on the outside. The great tower is a grand piece of early twelfth-century date, 1107. The whole building, with the exception of the arches in the choir, shows rounded arches, which is somewhat unusual at so late a period. Of the original structure there alone remains the tower (already mentioned), about three bays of the nave, chancel, and transepts. There are some mutilated remains of the dormitory and refectory, the former now used as a stable, the



latter as a warehouse, while other portions are incorporated in the municipal buildings. Another church has been turned into low-class dwellings. At Soissons, the remains of the once great Abbeys of S. Jean des Vigores and S. Marie des Vigores, the former possessing a magnificent triple-arched front, flanked by a tower and spire on either side, and portions of the cloisters are still in existence. The refectory and dormitory are now used as a depot for military stores. Of S. Marie hardly anything is left, but, like S. Jean, the remains are in the hands of the military authorities. Mr. Gould, Mr. Baxter, Mr. Compton, Mr. Williams, Mr. Rayson, Mr. Cheney, the Rev. H. J. D. Astley, and Mr. Patrick took part in an interesting discussion following the paper.

#### ENGINEERING SOCIETIES.

**THE JUNIOR INSTITUTION OF ENGINEERS.**—On the 21st inst. a party of about 100 members of this Institution visited the East Greenwich works of the South Metropolitan Gas Company through facilities extended by the Chairman, Sir George Ivesey. They were shown over by Mr. Joseph Tysco, and Mr. W. G. Wernham expressed the thanks of the party for the arrangements made for their benefit. The Company owns some 130 acres of land at Greenwich Marshes, having a frontage of 1,400 yards on the river Thames. About 100 acres of this land are reserved for gas-making purposes, upon which area it is intended to arrange twelve retort houses. Four retort houses, 485 ft. long, running parallel with the river, are now completed, and a fifth is being built. Each house is equal to a make of about 6,000,000 cubic feet per day, and contains forty-five settings, of ten retorts in a setting. Each retort house has separate connexions, condenser, exhaustor, washer, scrubbers, and purifiers, with one extra set of exhaustors for three retort-houses. In No. 1 retort-house the Foulis-Arcol hydraulic stoking machines are used. In Nos. 2, 3, and 4 houses West's stoking machines are employed. They are worked by the wire-rope system, driven by gas engines. The coal jetty is built L-shaped, and works are at present in progress to convert it into a T-shape for increasing the coal unloading facilities. At present four hydraulic cranes are fixed for unloading only one ship at a time. The jetty is in communication with the coal stores between each retort-house, by means of an elevated railway. A ship of about 1,250 tons is discharged in about 7½ hours. The gas is condensed in pipes running round the retort-house, and afterwards in a 36-in. spiral pipe condenser. It then travels through a water condenser, so arranged that the gas passes backwards and forwards through the gas passages, while the water runs from bay to bay in the opposite direction. Compound condensing engines of the "Farney" type are connected direct to pairs of 140,000 cubic feet per hour exhaustors. There are six of these sets—one set for each retort house, with two spare sets for the four houses. A new engine-house is in progress of construction. The gas passes through three "Livesey" washers, supplied with ammoniacal liquor from the hydraulic mains and scrubbers, and thence to the scrubbers; the second and final one are supplied with water, which is afterwards pumped over and over in the first or liquor scrubber. There are six purifiers—four charged with lime, and two with oxide. The lime purifiers are worked in rotation. The station meters will pass 150,000 cubic feet per hour, two being required for each retort house. The drums work in concrete tanks sunk in the ground, so saving the expense of a meter house. The first gasholder erected is in four lifts, varying from 241 ft. to 252 ft. in diameter, and 44 ft. deep, with a capacity of 8 million cubic feet. The second gasholder built was made larger, but as the water in the ground was the cause of adding so considerably to the cost of the work, it was decided to excavate to a depth of 13 ft. only, and carrying the concrete tank 20 ft. above the ground level. As the diameter of the outer boiler is 300 ft. and the depth only 31 ft. 6 in., the holder would be difficult to guide on rising, if special care had not been taken in the arrangement of rollers for the inner lift. There are six lifts, two of which rise above the framing. The capacity of this holder is 12,000,000 cubic ft. A considerable portion of the gas made at these works is sent up daily to the Old Kent-

road works through four miles of 48 in. main. Centrifugal fans are used for handling the gas as well as for distribution. New chemical plant has been erected for the manufacture of sulphate of ammonia and the necessary sulphuric acid. One unit of ammonia plant is completed, which is capable of turning out 20 tons to 25 tons of salt per diem. Spent oxide of iron is used for acid making, the material being burnt on shelves, and the resulting sulphurous acid oxidised to sulphuric acid in the usual manner. Each unit is capable of making about 14 tons per diem.

#### BUILDERS' CLERKS' BENEVOLENT INSTITUTION.

At the thirty-sixth annual general meeting of this Institution, held at 21, New Bridge-street, E.C., on the 24th inst.—the President, Mr. Fredk. Lionel Dove, in the chair—the report and balance-sheet for the past year were presented, approved, and adopted, and officers were elected for the present year.

The report showed that the income for the year had been 756l. 13s. 11d.; 606l. had been paid in pensions, the largest amount yet disbursed in that direction by the Institution; and 15l. had been paid as temporary relief grants. In addition, three builders' clerks' orphans are still being maintained and educated in the Orphan Working School, Haverstock Hill, N.W., per the presentations purchased by the Institution.

The Chairman, in moving the adoption and printing of the Report and Balance-sheet, said he should be glad to hear of an increase in the number of annual subscribers. The affairs were admirably worked, and a great deal of benefit dealt out to those who were so sadly in need.

Mr. H. W. Parker seconded the motion, which was carried unanimously.

It was announced that Mr. Deputy Greenwood has kindly accepted the office of President for the coming year, and Mr. Dove proposed his election as President, and remarked that as a well-known City business man and a member of the Corporation, he was eminently fitted to occupy the position in question.

Mr. Turpin seconded, and it was carried unanimously.

The Hon. Treasurer, Mr. Edwin Brooks, was re-elected, also the following gentlemen as committeemen—Messrs. Desch, Dutch, Parker, Pitts, Stansfeld, and Turpin. The honorary auditors were also re-elected.

A vote of thanks was accorded Mr. Dove for his services during his year of office.

Mr. Dove, in reply, said the committee were excellent colleagues to work with, and he could not finish without congratulating the committee on having in Mr. J. Austin such an able secretary.

#### APPLICATIONS UNDER THE LONDON BUILDING ACT, 1894.

The London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses:—

**Formation of Streets on the Sanders Estate on the South-East side of Coldharbour lane.**

**Norwood.**—That the resolution reported to the Council on January 20, 1903, in regard to the application of Messrs. R. Ellis & Son, for sanction to the formation of five new streets on the Sanders estate on the south-east side of Coldharbour-lane, Brixton, be modified so as not to require the applicants to form the temporary streets, except in connexion with, and as part of, the permanent roads intended to be formed.—Agreed.

**Proposed Erection of One-Story Shops, Mare-street, Hackney.**

**Hackney, Central.**—One-story shops upon part of the forecourts of Nos. 263, 265, 267, and 269, Mare-street, Hackney (Messrs. Hodgson & Whitehead for Mr. H. W. Rowlandson).—Refused.

**Erection of Houses, Brockley-rise.**

**Lewisham.**—(a) That the resolution of the Council of October 7, 1902, consenting to the erection of seventeen two-story dwelling-houses with bay windows, on the west side of Brockley-rise, northward of Honor Oak Park, be rescinded. (b) Erection of seventeen two-story dwelling-houses with bay windows on the west side of Brockley-rise, northward of Honor Oak Park (Mr. A. H. Kersey for Mr. R. Kersey).—Consent.

#### Lines of Frontage and Projections.

**City.**—A stone balcony at the fourth floor level of proposed premises for the Clerical, Medical, and General Life Assurance Society, No. 1, King William-street, City (Messrs. Dunn & Watson).—Consent.

**Norwood.**—That the application of Mr. P. L. Waterhouse for an extension of the period within which the erection of an addition at the Norwood Technical Institute, Knight's Hill-road, West Norwood, to abut upon Chapel-road, was required to be commenced, be granted.—Agreed.

**Hackney, Central.**—A block of buildings on the site of No. 222, Mare-street, Hackney, to abut upon Darnley-road (Messrs. Holman & Goodham for the Royal London Friendly Society).—Refused.

#### Width of Way.

**Islington, West.**—A dwelling-house on the east side of Adam's-place, George's-road, Holloway (Mr. W. Goring).—Refused.

#### Width of Way, Line of Frontage, and Projections.

**Westminster.**—Two three-story projecting windows in front of a building on the site of No. 83, Vincent-square, Westminster (Mr. E. J. Stubbs for Messrs. T. Millman & Co.).—Consent.

**Hackney, Central.**—The re-building of No. 46, Morning-lane, Hackney, abutting upon Fox's-lane (Messrs. Still, Wheat, & Luker for Mr. J. Ward).—Consent.

#### Width of Way and Height of Buildings.

**Kensington, South.**—A fire-brigade station on the north side of Clarence-mews, High-street, Kensington (Mr. O. Fleming for the Fire Brigade Committee of the Council).—Consent.

#### Space at Rear.

**Kensington, South.**—A modification of the provisions of Section 41 with regard to open spaces about buildings, so far as relate to the proposed erection of a block of residential flats on a site on the southern side of Erompton-road and eastern side of New-street, Kensington, with an irregular open space at the rear (Mr. C. W. Stephens for Messrs. Stuttard & Co., Ltd.).—Consent.

**Lewisham.**—A modification of the provisions of Section 41 with regard to open spaces about buildings, so far as relate to the proposed erection of seventeen houses on the west side of Brockley-rise, Brockley, with irregular open spaces at the rear (Mr. A. H. Kersey).—Consent.

#### Means of Escape at the Top of High Buildings.

**St. George, Hanover Square.**—A deviation from the plans approved in respect of the means of escape in case of fire, proposed to be provided in pursuance of section 63 of the Act, at a block of residential flats and No. 10 (now known as No. 7), Park-lane. St. George, Hanover-square, so far as relates to the omission of doors shutting off the corridors on the top floor from the main staircase, and the erection of a 2 in. deal glazed partition, with an opening fitted with self-closing doors, shutting off that floor from such staircase (Messrs. Rolfe & Matthews).—Consent.

#### Dwelling-houses on Low-lying Land.

**Peckham.**—Twelve buildings on low-lying land situated at Nos. 650 to 674, Old Kent-road (Messrs. Holman and Goodham, for the Royal London Friendly Society).—Consent.

**Greenwich.**—Houses and shops on low-lying land situated at Blackwall-lane, East Greenwich (Mr. E. Liater).—Consent.

\* \* \* The recommendation marked † is contrary to the views of the Local Authority.

#### MANCHESTER CITY COUNCIL AND THE FAIR CONTRACTS CLAUSE.

AT an adjourned meeting of Manchester City Council on the 18th inst., the Town Clerk said correspondence had been published in regard to the fair contracts clause, and he had that morning received a letter from the secretary of the Manchester and Salford Trades Council expressing the hope that the Council would reject a motion which appeared on the agenda in the name of Mr. T. C. Abbott. Mr. Abbott's motion was as follows:—That, having regard to the serious objection made to the form of contract required by the Corporation of this city, it is expedient that a full consideration be given to its provisions, with the object of securing, if possible, an arrangement that shall be acceptable to all concerned. That for this purpose a special Committee be and is hereby appointed with power to advise the Committee shall include Aldermen Hoy, Vaudrey, Southern, and Harwood, and Councillors Arrandale, Sutton, Heenan, Smethurst, and Brocklehurst.\* In moving it, Mr. Abbott said that not only the Watch Committee, but other committees as well, had felt a difficulty in connexion with the new clause. His motion did not in any way deal with the principle involved in the Standing Order and Clause 4 of that order. It had nothing to do with the question whether or not it was a just and a fair clause. It was simply a question of the Council facing a difficulty that had



arisen—a difficult technical, financial, and it might be, legal—in regard to the interpretation of the clause which had been drafted and accepted by the Council on November 9 last. Matters of considerable importance depended on the interpretation of the clause. Only one side had been heard in the discussion, and therefore he thought they were giving the parties who had already stated their objection to the clause an opportunity of submitting their views to the consideration of a committee.—Mr. Alderman Rawson seconded the resolution. Mr. Hart proposed to add after the words "with power to act" the words "and at the same time to consider and report upon the desirability of establishing a works committee." This, he said, would extend the scope of the consideration of the committee beyond that of a mere examination of the phraseology of the fair contracts clause. The master builders might be quite right in challenging the phraseology of the clause, but their action would afford the opportunity for interminable discussion. Why had they not given the clause a twelve months' trial? All that was in the minds of trade unionists was that people taking contracts from the Corporation should submit to the recognised conditions of work. That was all that was wanted. The master builders said they could not follow everybody with whom they had to deal, and see that their work was done under fair conditions. In reply, he could say that the Council never had the slightest idea of asking them to do any such thing. The London County Council, he would point out, had a far more drastic clause than the Manchester one. The London Council had established a Works Committee, and had put an end to trouble by doing work for themselves under proper superintendence.—The Town Clerk said the amendment of Mr. Hart was one of which notice must be given.—Mr. Brookelhurst suggested that the proposed committee should consider "other steps" for overcoming difficulties. Mr. A. H. Scott hoped the proposed committee would be considerably enlarged and report on the question of the Council doing its own work, as Mr. Hart had suggested. As a member of the Watch Committee, he was struck with the unanimous decision arrived at by the local contractors in the tenders with regard to certain work required at the new fire station. If they were going to allow these contractors to see that the work of the Corporation could be set back by them, not once but many times, then it became time that the Council should consider the other alternative—that the Corporation should carry out its own work. The Rivers Committee were carrying out the whole of their work by means of their own employ, and the Tramways Committee had never regretted the stand they took in carrying out their own work in placing the overhead wire equipment. The contract the Watch Committee had to let was for the foundations of the new fire station, and the wisest course for the Committee to have adopted would have been to do the work themselves. If they had carried out a policy of this interference once and for all have done this interference by a combination against resolutions approved by the Council. Mr. Sutton said the master builders ought to have given the clause a year's trial. The Council ought not to consent, two months after passing a resolution, to see themselves dictated to in this way in regard to the matter. The resolution affected some 50,000 working men in Manchester, and if they multiplied that number by five, it was going to affect the happiness and the wages of 300,000 working people. He urged that the existing clause should be given a twelve months' trial. Mr. Brookelhurst moved as an amendment that after the words "acceptable to all concerned" should be inserted the words "and, at the same time, to consider and report as to the advisableness of taking such further steps as, in their opinion, are required to avoid the recurrence of the difficulties which have now arisen." Mr. Abbott accepted the amendment as part of the resolution. Sir J. Harwood said it had been stated that wages were different in different towns. That was so. A plasterer might earn, say, 8d. an hour. In Liverpool the rate would be 7½d. But a contractor sending a man out from Manchester to Liverpool would pay the man not the Liverpool but the Manchester price. He thought there had been no need to raise this question last November. The old clause, which he himself had the chief part in drafting, had worked very well. There had been no serious contractor's good faith. Of course it did not work absolutely well, simply because it was not wise to change that which had acted fairly well. There were always some people who tried to obtain labour at less than its just reward, and there always would be. He hoped the Council would go back to what it did before. Mr. Boyle said that the Tramways Committee had had their own difficulties with contractors, some of whom were defied by subterfuges to get behind the clause originally drafted by Sir John Harwood. The masters were now seeking as a body to get out of something that was embodied in the new fair contracts clause. Not one committee only, but a combination of employing committees of the Corporation might put their backs to the wall and say they were determined to see fair play paid to their men. Mr. Heenan said he was a Contractor who had had no trouble with his men for twenty-two years. What he feared was tender.

ing for work under conditions that no honourable man could accept. A man could not honestly do work for 1,000l. less than another contractor. He had to make up the money in some way. From that point of view he thought the Trades Council clause told in favour of the honest contractor. The resolution of Mr. Abbott, as amended, was carried by 47 votes against 25.

#### THE LONDON BUILDING ACTS (AMENDMENT) BILL.

The Lord Mayor, in response to numerous requisitions and resolutions of Ward meetings, has given directions for convening a public meeting of the citizens at the Guildhall on Thursday, March 5, at noon, to protest against the provisions of the London Building Acts (Amendment) Bill, 1903, now being promoted by the London County Council. Among the requisitions received is one from warehousemen of the City, who consider that the provisions of the Bill are "unworkable and an unnecessary interference with business, and that the measure if it becomes law will seriously depreciate the value of property without right of appeal." The signatories include Messrs. J. & R. Morley; Messrs. Cook, Son, & Co.; Messrs. Copstock, Crampton, & Co.; Messrs. Hitchcock, Williams, & Co.; Messrs. Pawsons & Leaf, Ltd.; Messrs. John Howell & Co., Ltd.; Messrs. Sharp, Perrin, & Co.; Messrs. S. Northcote & Co., Ltd.; Messrs. Sprackley, White, & Lewis; Messrs. Thomas Tapling & Co., Ltd.; Messrs. Dent, Allcroft, & Co.; Messrs. Ward, Sturt, & Sharp; Messrs. Rylands & Sons, Ltd.; the Fore-street Warehouse Co., Ltd.; Messrs. Foster, Porter, & Co., Ltd.; Messrs. Bradbury, Greatorex, & Co., Ltd.; and many others.—A resolution was adopted on Tuesday last week by the members of the Streets Committee of the City Corporation in respect to the Bill. The terms of the resolution were as follows:—"That, having regard to the general opposition throughout London to the London Building Acts (Amendment) Bill, a representation be made to the London County Council asking that body to withdraw the measure, and to arrange a conference with the Corporation and the Metropolitan Borough Councils to consider the whole subject, with a view, if possible, to a Bill being framed that will effect the object without needlessly oppressing property owners."—Alderman Sir Henry Knight presided on the 19th inst. over a meeting at Haberdashers' Hall, Gresham-street, of the leading members of the Wood-street trade for the purpose of protesting against the passing of the Bill. Mr. H. Morley moved the first resolution, to the effect that the provisions of the Act were inapplicable to properties for trading or commercial purposes, and would in many cases render premises useless for the purposes for which they were used. Mr. G. Vickery seconded the motion, which was carried. Mr. G. W. Kirsham followed with a resolution condemning the Bill as a dangerous and unwarrantable interference with the actions of traders and occupiers, and would if carried out destroy many centres of industry. Mr. Rowe seconded the motion, which was also carried unanimously. Mr. T. Tapling moved a proposition to the effect that the loss of life from fire in the City had not justified such drastic and ruinous proposals. Mr. G. Lewis seconded the motion, which was carried. A resolution in favour of the Corporation obtaining an amendment of the Building Act, 1894, was also agreed to. Some of the speakers alleged that the London County Council were attempting to throw their responsibility upon the property owners after having neglected to provide adequate fire appliances in London, which, one speaker asserted, was put into the shade by the fire arrangements made in some provincial towns. It was also asserted that if the Bill was passed thousands of poor work girls in the City would be thrown out of employment.—Mr. Alderman Strong presided on the 24th inst. at a ward meeting of the electors of Queenhithe, who were called together to consider the provisions of the Bill. The Chairman said there was no doubt that the Bill had a close connexion with the sad fire in Queen Victoria-street, and he could not help thinking that had longer ladders been provided on that occasion there would have been less sacrifice of life. The Metropolitan Fire Brigade was a department of the London County Council, and it would have been better if the Council had permanently reorganised the Brigade and placed it in possession of the best possible appliances for the rescue of perishing people. Mr. Deputy Pryke moved a resolution describing the provisions of the Bill as oppressive and drastic, and ruinous to trade in the City, and suggesting that the Bill should be withdrawn, in order that the County Council, the Corporation, and the Metropolitan Borough Councils might draw up a Bill relating to the same. The motion was seconded by Mr. H. T. Moore, and adopted.

CHURCH, DUNFERMLINE.—A new Church of Scotland building is to be erected in the district of Brucefield, Dunfermline. The plan, prepared by Mr. McGregor Chalmers, Glasgow, consists of a nave with two side aisles, with an apse at the east end of the nave. Halls and other offices are also provided. The church will accommodate 723 persons, and the cost will be about 5,000l.

#### METROPOLITAN ASYLUMS BOARD.

THE fortnightly meeting of this Board was held on Saturday, Sir R. M. Hensley presiding. The Works Committee submitted a report on the fire-extinguishing arrangements at the various hospitals under the Board. From information supplied by the Engineer of the Board they reported that the water supply at Levensden Asylum was poor, but the matter was under consideration. A similar report came from Caterham Asylum, but it was added in regard to this institution that the use of a portable steam fire-engine of 250 gallons per minute capacity was available. At the South-Eastern Hospital, too, the supply and pressure of water were bad, but a scheme for putting them right had been submitted. At Bridge School, Witham, the supply and pressure were "somewhat questionable," the supply being shut off by the local water company every night and on certain days it was even shut off about noon, leaving the institution with only its storage supply to depend upon. Other institutions in which the supply and pressure were reported as "poor" were Rochester House, and the Eastern Asylum Station. The Committee added that they hoped at the next meeting to be in a position to report as to whether there was in every case sufficient force and power to ensure the water reaching the highest part of the farthest building.

#### BOOKS RECEIVED.

QUANTITIES. By the late Professor Banister Fletcher. Seventh edition, revised and enlarged by Phillips Fletcher. (E. T. Batesford, 7s. 6d.)  
JOURNAL OF THE SANITARY INSTITUTE. Published quarterly. (Sanitary Institute, Margaret-street, W.)  
ENGLISH TIMBER AND ITS ECONOMIC CONVERSION. (London: W. Rider & Son, Ltd. 3s. 6d.)  
WILSON'S EQUIVALENTS OF ENGLISH POUNDS AND KILOGRAMMES. (London: E. F. Hingham Wilson. 2s. 6d.)

#### Correspondence.

##### NEW ART IN STAINED GLASS.

SIR,—There is to be a revolution in stained glass: no longer, as heretofore, the glass, but the lead is to inspire the designer, and be the vehicle for the embodiment of his ideas. He is to think in comes rather than in colour. He is to value the lead for the light it excludes, rather than the glass for the light it admits. For Mr. Sparrow has told the members of the Architectural Association—he said it twice, and with emphasis—that the leading must be accepted as "the most important, the main factor in the design" of the stained glass of the future. We were let into the secret; we were initiated; the new gospel was proclaimed, that no window is so small, but that half-inch leads could, and should, be used; three-quarter and one-inch leads were uncalled for us; but as from babes the revelation of Sir W. Richmond's inch-and-a-half leads was by merciful economy withheld.

Preachers of new gospels seldom have much respect for old ones; so we find that the works of the old masters in glass (from whom we have learnt all that we know) are not considered by the new school, which Mr. Sparrow represents, to set any standard of excellence at all. But there are still some who hold that the Medieval glaziers understood their business, and that if, for example, they used narrow leads, it was not without good reason; and with their works before us it would be rash to assert that they were not justified by results. That they did use narrow leads is placed beyond doubt by the following considerations:—

1. When original leads remain, about 1½ in. is found to be a normal width; but, as there is often doubt whether or not re-leading has taken place, the following evidence of intention can be adduced:—

2. When, as sometimes happened in subjects upon quarries, the exigencies of glazing made it desirable to omit some portion of the diagonal leading of the background, while yet the eye required continuity, a sham lead was painted on the glass; and the line so painted to represent the absent lead will be found to be about a quarter of an inch thick.

3. There is still more direct evidence, for old glass will be found to be painted up to within about an eighth of an inch of the edge, indicating leads of about twice that width. There are some fragments in my possession which show this very clearly.

Workers in the old paths scarcely need to be told not to ignore the leads or to shuffle them out of sight. But this is just what the new school, for all its theories, attempts to do; for it throws the leads, as far as may be, into the outline. This is merely to cause confusion; for it is clear that all leads cannot be outlines, and it is curiously true that a thin painted line forms a much more effective, as well as refined outline, whether seen in the aisle of a village church or the lantern of a cathedral, than does a lead. Those who exaggerate the importance of the leading in the scheme of a window have noticed this, and been thereby chagrined, for they use wider and wider leads to force up their main outline in the attempt to make it hold its own with the painted line. The result is that their windows lack



all refinement, and appear coarse—I will not say in comparison with old windows—but when seen side by side with poorish specimens of commercial glass.

There is much more that might be said of the painting, colouring, and workmanship generally of the new school, but I fear that I have already exceeded the reasonable limits of a letter.

F. C. EDEN.

#### KING'S COLLEGE AND SOMERSET HOUSE.

SIR,—In an article by Canon Beecching in a recent number of the *Treasury* magazine, the following passage occurs:—

"When in 1829 the Government made a grant to the College of the vacant land on the east side of Somerset House, they made a condition that the river frontage should be completed in accordance with the original design of Sir William Chambers. Every one will allow that this condition was most satisfactorily fulfilled by the architect selected, Mr. Robert Smirke. *This language alone is sufficient to show that the design of the frontage of Somerset House was not a failure.*"

I am not aware in what respect the new college buildings were considered a completion of Sir W. Chambers' design, but surely to that distinguished architect the credit for the magnificent river frontage of Somerset House, and of its noble terrace, is wholly due. He did not live to see with inevitable horror the commonplace brick eastern annexe erected by the College authorities, and the comparatively recent addition to this annexe of two stories, overtopping the main building with their crowning ugliness, and deforming the view from the Embankment of his palatial work.

Against this latter act of vandalism Mr. Shaw Lefevre, after he had ceased to be First Commissioner of Works, in vain protested. The college plea of want of funds to provide additional accommodation prevailed—similar pleas have marred many other public buildings.

So far from King's College having any occasion to "glory" in their additions to Somerset House, it seems to me that the style in which these works were completed was their shame and a violation of the conditions attached to the Government grant of the site.

C. N. K.

#### "L'ART NOUVEAU."

SIR,—In your last issue I am reported to have said to the Leeds and Yorkshire Society that "we should resist the unwholesome forces as are affected by what are known abroad as 'Les Nouveaux,' &c."

What I did say was that "we should resist the unwholesome forms affected by what is known abroad as 'L'Art Nouveau.'"

It may not be good French, but it is its recognised title.

I feel so strongly that the warning is necessary that I venture to draw your attention to the mistake, and my protest.

JOHN BELCHER.

The account was furnished to us, and was not by our own reporter, but there was no such ungrammatical English in it as is given in Mr. Belcher's quotation, which is incorrect, as he will see if he refers to the report again. "L'Art Nouveau" is of course both correct French and a well known and accepted phrase, but as "Les Nouveaux" was in the report sent to us, we supposed that the speaker had used that expression in regard to the ultra-modern artists.—Ed.

### The Student's Column.

#### BUILDERS' TOOLS AND THEIR USES.

##### CHAPTER 4.

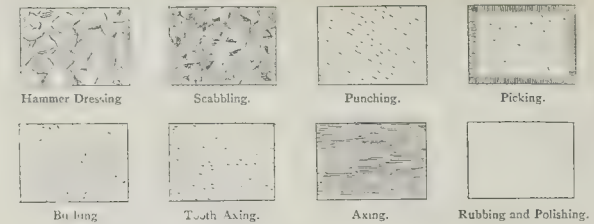
##### Granite Mason.

**H**IS chapter will be divided into portions similar to the last.

##### Quarrying.

As granite is too hard to be quarried by hand tools it is procured by explosives and by wedging, the former process being usually reserved for smaller pieces, and the latter for large blocks.

**Explosives.**—The present system of blasting Aberdeen granite is to bore a succession of holes from 2 in. to 4 in. diameter, according to the depth of the bed, which may range from 3 ft. to 30 ft., introducing charges, and firing them together by electricity. This starts a big mass, and in the resultant crack or fissure, considerable quantities of gunpowder are exploded to thrust out the "piece" from the "face." The above plan admits of larger stones being rift from the rock with less chance of their sustaining damage. Sometimes monster blasts are fired by electricity, and as much as five tons of gunpowder are stowed away in chambers. The quarrying of these chambers, and of the passages leading to them, may occupy as long as a year.



Illustrations to Student's Column.—I.—Labours to Granite.

Wedging is then resorted to for the purpose of splitting the portions thus thrown down into the sizes wanted. Small steel wedges are driven into the stone by hammers at distances from 3 in. to 6 in. apart, dividing the material with great celerity and little friction. Large lumps are also detached by gadding and wedging, as described in the last chapter, and, although strictly speaking granite has no planes of stratification, it possesses distinct lines of cleavage, and can be worked equally well in any direction.

The Egyptians are believed to have obtained their granite by inserting a row of wedges of dry wood into notches made for the purpose, and then causing the plugs to swell by pouring water over them, which burst the blocks from the face of the quarry. Another effective method adopted by the ancients was to kindle large fires on the top of the rock until it became heated, and then suddenly chill the surface by throwing water upon it. This split the stones into lines of natural cleavage, after which it was broken up as required. Sometimes grooves were first cut, and artificial lines of cleavage caused.

##### Stone Conversion.

The same general remarks on the conversion of freestone apply with equal force in the case of granite, which is almost always worked and polished at the quarry, as the gain on the cost of labour and carriage for quarry-worked stone is considerable, the expense of the transport of the waste material being saved, except for the difference between the railway rate for worked stone and stone in block. It is also easier to square and dress stone while it contains the ground or "quarry-sap," and local men being more accustomed to it, the conversion is better and more economically performed. This quarry-sap should, of course, be allowed to dry out, to season the stone before commencing building operations, and in this connexion it may be interesting to note that Vitruvius recommended that stone should be allowed to lie two years before being used, so as to permit the natural sap to evaporate, while Sir Christopher Wren specified three years' exposure on the beach for the stone for the erection of St. Paul's.

The sawing of granite is somewhat similar to that described in the previous chapter, and the machines, when in motion, are fed with iron sand and water, the former being called chilled shot by the granite workers in Aberdeen, where it is specially manufactured for this trade. This material is also termed "krushite," and it consists of minute chilled cast metal shot made from scrap-iron, and varying in size from mere powder to clover-seed bulk. Blocks of granite are now being sawn with this material instead of sand at the rate of 4 in. deep per hour, and hard grit stone at 9 in. deep per hour, with twelve blades in the machine. It is superseding diamond saws, as it is capable of doing the same amount of work at one-tenth the cost. In sawing and polishing, one ton of this stuff is equal to about 300 tons of the sharpest sand. For nice sawing, when the granite is cut perhaps  $\frac{1}{2}$  in. thick, to be polished on both sides for fancy caskets, samples, &c., the finer kinds of shot are demanded. Recent improvements in machinery, such as the diamond saw and pneumatic chisel, and the use of the rotary cutter in the lathe, have practically revolutionised the granite business.

Granite is dressed by machines on the same principle as those of Messrs. Brunton & Trier, with their revolving metal discs, or of a type resembling the rubbing-machines before mentioned under "Freestone Mason." Polishing is divided into the three processes of shooting, emerying, and glossing. The em-

ployment of the fine iron sand or shot mixed with water enables machine-polishing by iron rubbers to be executed about three times as fast as when sea sand was used, and about ten times less of it is necessary. In the second stage emery is employed instead of the shot. Glossing, the last operation, is performed with irons or rubbers covered with flannel or felt, putty powder (oxide of tin) being used as the glossing medium. Some polishers rub oil on the finished stone to deepen the gloss.

Granite for columns, balusters, and circular articles, is worked chiefly in lathes, which are large enough to take blocks 25 ft. long and 5 ft. in diameter. The blocks, when rotated, press and are ground away by the wedge-like action of rather thick steel discs, 6 in. or 8 in. diameter, set at an angle, and moving with an automatic carriage along the lathe-bed. Fig. 90 explains this cutting action. Large lathes have four discs, two on each side, and a column may be reduced some 2 in. in diameter the whole length of the stone by one lateral movement of the carriages along the bed.

For fine grinding and polishing the column is transferred to another lathe, where the required surface is attained by the simple revolution of the granite against heavy iron moulds or rubbers merely placed on top, with the necessary abrasives, the moulds being kept in position by a bar of wood (fig. 91). Blocks are prepared for lathe work by being roughed out with a point, and by having holes chiselled in their square ends for the reception of the lathe dog and centres.

All plain surfaces can be done by machinery, but rebates, mouldings, carvings, &c., are cut by hand.

##### Tools of the Granite Mason.

In addition to the majority of the tools used by the freestone mason, the granite mason employs the following special ones:—

Scabbling hammer.	Bush hammer.
Spalling hammer.	Tooth axe.
Scabbling pick.	Single axe.
Punch.	Patient axe.
Pick.	Steel chisel.
	Iron rubber.

##### Labours to Granite.

The successive stages through which granite passes from the rough to the fine state are indicated in the accompanying diagram.

The **Scabbling Hammer**, as well as the **Spalling Hammer**, are employed for hammer-dressing, which merely consists in reducing and removing the roughness of the stone. The spalling hammer weighs 12 lbs. to 16 lbs., and is shown in fig. 92. Hammer-faced work is also said to be hammer-blocked or quarry-pitched. It is likewise frequently termed rock or rustic work, and is mostly confined to foundations, plinths, and quoins, where a bold massive appearance is aimed at.

The **Scabbling Pick** is used for scabbling, or still further reducing the piece to approximate dimensions and taking down the excessive crudeness of the hammer-dressed work. It is seen in fig. 93, and weighs from 12 to 18 lbs., the length of the head being some 18 in.

The **Punch**, or **punchion**, is a blunt pyramidal-pointed chisel required for punching, or bringing the surface to a finer face, such as for copings, curbs, channelling, &c., and for the beds and joints of rock-faced work. The punchion is of steel, either oval or octagonal, 10 in. long and 1 in. diameter (fig. 94). With punchions and chisels a steel-headed hand-hammer is used, termed a mash-hammer or maul, which weighs from 4 to 5 lbs., and has a flexible hickory handle to give it a spring on the hard stone. For illustration see Brick-layer.

The **Pick**, or pointed hammer (fig. 95), is



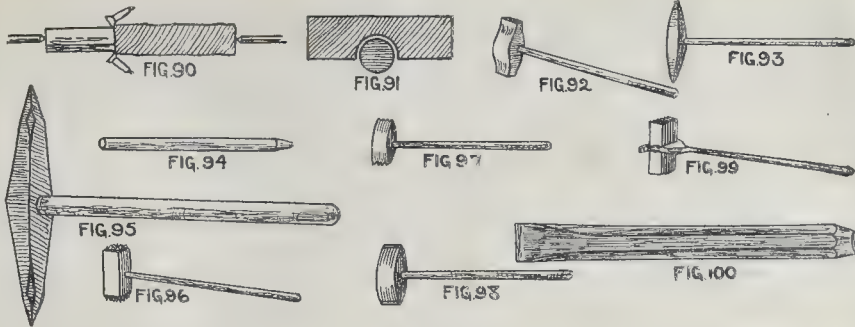


Fig. 90.—Granite Column in Lathe.  
Fig. 91.—Polishing Granite Column.  
Fig. 92.—Spalling Hammer.  
Fig. 93.—Scabbling Pick.

Fig. 94.—Pouchon.  
Fig. 95.—Pick.  
Fig. 96.—Bush Hammer.  
Fig. 97.—Tooth Axe.

Fig. 98.—Single Axe.  
Fig. 99.—Patent Axe.  
Fig. 100.—Steel Chisel.

Illustrations to Student's Column.—11.

very like the scabbling pick, but lighter, and is employed for picking, or still further producing a finer face, drafted margins being usually run round the parts so dressed.

The *Bush Hammer*, or *bunching hammer*, is a square prism of steel, 8 in. long and 3 in. square, whose ends are cut into a series of pyramidal points, varying in number and size with the work to be done (fig. 96). It is used for bushing, bush-hammering, or bunching, pounding off the roughness of the stone, and leaving the face approximately smooth. This kind of finish is only suitable for hard stones, as soft ones are apt to scale with the treatment.

The *Tooth Axe*, or *serrated pick*, is 4 in. wide, and usually has fine teeth at each end. It is employed for tooth axing, or fine or close-picked work on ashlar masonry. This serrated pick is going out of use in Scotland owing to the trouble and expense of sharpening it, but is still found valuable in Devon and Cornwall (fig. 97).

The *Single Axe* weighs about 12 lbs., and has a head 10 in. long, with two opposite cutting edges about 3½ in. wide (fig. 98). It is known in Devonshire and Cornwall as a *muckie hammer*, for muckling or splitting up small stones after they have been split by the wedge and feathers. The single axe is required for axing or toning down the unevenness left by the pick, leaving marks in parallel lines, such as in drafted margins, which in granite are usually cut with this tool. Fine-axed work is simply a finer description of the preceding.

The *Patent Axe* is used for going over the surface after it has been brought to as fine a surface as possible with the ordinary single axe, and is the finest description of surface work before polishing. Patent-axed work is employed in the best class of building, on monuments, and as a finish to contrast with polished work. It is not intended to take anything off, but merely to mark over the face in an uniform manner. The faces of the hammer are formed of a number of parallel thin steel blades, bound together so as to allow of their being taken out and re-sharpened. Their size is 6 in. by 3 in., and they vary in number and fineness from 4 to 12 per inch, producing the same number of cuts per inch (fig. 99).

A *Steel Chisel*, as sketched in fig. 100, is used with the muck hammer for drafts, margins, mouldings, &c.

*Iron Rubber*.—For high-class buildings the final surface on certain parts is rubbing and polishing, the latter being a process of friction only. The stone is put on the machines, and it is first rubbed smoothly with steel filings (termed shot, which is more effectual than the sand formerly used), and water, under an iron rubber, till all the tool marks are removed; then with emery powder and water, under the same iron rubbers; and finally the rubbers are covered with felt or flannel, and putty powder (oxide of tin), moistened with water, takes the place of the former abrasives to produce the final gloss. A paste of beeswax and turpentine is sometimes used instead of the putty powder. A good polish can only be obtained by persistent rubbing, and will keep its lustre for half a century.

Large plane surfaces are usually polished by a machine termed a vertical. It is an iron

wheel-shaped ring revolving on the surface to be polished, and driven by a vertical shaft. A lighter wheel is used for emery, and a felt-covered wheel for glossing. Straight mouldings are done by a "pendulum"—that is, a reverse to the moulding is cast in iron or other metal, and worked by machinery backwards and forwards on the moulding with a pendulum motion. Broken surfaces, as in a case where carved and polished work intermingle, are polished by hand.

#### GENERAL BUILDING NEWS.

**WESLEYAN SUNDAY SCHOOLS, HAYLE, CORNWALL.**—New Wesleyan Sunday schools have just been opened at Hayle, and the chapel has been renovated, re-seated, a vestibule placed at the entrance, and a new organ, built by Messrs. Hele & Co., Plymouth, obtained. New vestries and other accessory rooms have been added. The contract was secured by Messrs. White & Thomas, Crowan. Mr. Sampson Hill, Redruth, was the architect, and Messrs. Isaac Newton & Sons, Hayle, the decorators.

**POLICE STATION, ABERTILLY.**—A new police station and courthouse have been erected at Abertilly. The contract for the building was let to Messrs. D. W. Richards, Ltd., of Newport. The frontage to Cwm-street is 90 ft. and to Queen-street 120 ft., the depth between the streets 150 ft., and the rise from Cwm-street to Queen-street 36 ft. To obviate the difficulty as to the site, the buildings have been erected in two blocks, that fronting Cwm-street consisting of police entrance, charge office, three cells, constables' dayroom and offices, with accommodation for ten single constables, a superintendent's office, married sergeants' quarters, consisting of parlour, living-room, scullery, &c., and three bedrooms. The quarters in each instance are private, connected inside by doors, and having separate entrances. The buildings were designed by Mr. William Tanner, County Surveyor, and erected under his direction.

**SCHOOLS, EDINBURGH.**—Edinburgh School Board intend to erect a new school on Albion-road to give accommodation for 1,400 pupils. The architect is Mr. J. Carfrae, Architect to the Board.

**ASYLUM BUILDINGS, TALGARH, BRECONSHIRE.**—The new asylum serving the counties of Brecon and Radnor was opened recently. The buildings have been erected from plans prepared by Messrs. Giles, Gough, & Trollope, Strand, London, the contractor being Mr. Watkin Williams, of Pontypridd. The buildings cover about seven acres, the contract price being about 120,000l.

**BAPTIST TABERNACLE, HERTFORD.**—It is proposed to erect at Hertford a new Baptist tabernacle on the site adjoining the present tabernacle at the bottom of Port Hill, from the designs prepared by Mr. James Farley, architect, of Hertford. Seating accommodation will be arranged for 500 persons, a gallery being erected facing the rostrum for the purpose of providing the necessary number of seats. The baptistry will be placed under the door of the rostrum, and three vestries will be provided in the rear, with classrooms over. The lighting will be by electricity, and the ventilation will be effected by an ornamental turret placed in the centre of the main roof. The whole of the buildings will be heated with hot water on the low-pressure system.

**CATHOLIC CHURCH, WREKINGTON.**—The Wrekington Catholics have just erected a new church, to be known as St. Oswald. The church is a stone structure, built in the Early English style, the inside being built up with concrete instead of brick. The seating accommodation is for 350, and the building, which cost 3,000l., was erected by Mr. R. Bruce, of Washington, Mr. J. C. Parsons, of Newcastle, being the architect.

**DUNFERMLINE COTTAGE HOSPITAL.**—This building is to be extended by additions to the east and west wings of the hospital and a rearrangement of the wards. The plans have been prepared by Messrs. Sydney Mitchell & Wilson, Edinburgh. The additions are estimated to cost 3,000l.

**DISPENSARY, CHELSEA.**—On the 20th inst. Lord Cadogan laid the foundation-stone of the new Chelsea, Brompton, and Belgrave Dispensary, now being erected in Manor-street in place of the old building at Sloane-square. The architects of the new building are Messrs. A. W. Sheppard and J. F. Burkinshaw, of Adelphi, W.C. The main structure is being built of red brick relieved with terra-cotta dressings. A residence will be provided for the house surgeon, also a committee-room, &c. for the management; and provision is also made for waiting and consulting rooms, with an isolation-room and dispensing department and workrooms attached. The building will be fitted with electric light. The builders are Messrs. Stimpson & Co., of Brompton-road, and the cost will be 3,000l.

**SCHOOL BUILDINGS, SHEFFIELD.**—The Buildings Committee of Sheffield School Board in their minutes recommended that Messrs. Holmes & Watson be instructed to prepare plans for the provision, at Carter Knowle-road, of a school to accommodate 600 children, on one story, and with central hall; the building to be appropriated for a mixed department and an infants' department, with provision for further classrooms to be added hereafter. The plans for the proposed school at Norton Woodseats, to accommodate 340 children, as submitted by Messrs. Hemmell & Paterson, were adopted. The Committee reported that they had had under consideration the question of school accommodation in the district, comprising Upper Crookes and Lydgate, and they recommended that a plot of land containing 8,470 square yards fronting to Lydgate-lane be purchased from the trustees of the Harper House Estate of the Society of Friends for the sum of 2,300l., for the purpose of erecting a public elementary school thereon. The Committee also recommended that a plot of land containing 3,063 square yards fronting to Sharrow-lane and Sitwell-road be purchased from the trustees of the Girls' Charity School for the sum of 2,581.2s., on which to provide buildings for a school for defective children, a cookery centre, and a centre for manual instruction.

**THEATRE, FALKIRK.**—The plans for the new theatre to be erected in Vicar-street, Falkirk, by the Falkirk Grand Theatre and Opera Co., came before the Dean of Guild Court on the 30th inst. The theatre, which is to be situated behind a large new tenement of shops and dwelling-houses, will be partly built on the cantilever system, and a reserved capacity for 2,000 people. The estimated cost of the erection is about 15,000l., and the architect is Mr. Alex. Cullen, Hamilton.

**CAIUS COLLEGE, CAMBRIDGE.**—We understand that Messrs. Aston Webb and Ingress Bell have been appointed architects to carry out the reconstruction of the buildings which form one side of Rose-crescent, and were altered a few years ago by the authorities of Caius College for "rooms" as attached to the college. At the Trinity-street end of Rose-crescent stands St. Michael's Church, opposite the new portion of the buildings, on the west side of Trinity-street, of Caius College. It is stated that the Master and Fellows contemplate the acquisition of the church to replace the present college chapel. The church was built in 1324 by Hervey de Stanton, who gave it to his foundation of Michael House, since absorbed in Trinity College. It is in the Decorated style, and has a massive square tower and a very long chancel. After a fire on November 11, 1839, a sum of 3,000l. was expended in repairs and improvements under the superintendence of Sir G. Gilbert Scott, who decorated the aisles and chancel and built the north



porch and a doorway on the south side of the tower. The chancel retains the old triple sedilia, piscina, and choir stalls of oak.

**CHURCH, HERFORD.**—St. James's Church, Hereford, which was destroyed by fire in December, 1901, has been rebuilt, and recently completed, from the plans of Messrs. Nicholson & Hartree, architects, Hereford. The new edifice has been built on the old foundations. Bath stone has been used for all the dressed stone, both exterior and interior. Campden stone is used for the pillars, and the arches of the arcades are of alternate Bromsgrove and Bath stone. Green Westmoreland slates form the roof. The floors of the gangways in the nave, aisles, transepts, and chancel are laid with tiles, the floor of the choir being laid with wood blocks, finished with oak curb. The whole of the roofs are in pitch-pine. The church is heated by a high-pressure hot-water apparatus, and ventilated by two of Boyle's ventilators. The contractors for the work were Mr. C. Cook, Hereford, builder; Messrs. R. L. Boulton & Son, Cheltenham, carving; Mr. T. A. King, stone; Messrs. J. Jackson & Co., Birmingham, heating; and Messrs. Goodwin & Sons, of Lugwardine, laid the tiles.

**REBUILDING IN PICCADILLY.**—An extensive clearance has been made between the Royal Geological Museum and St. James's Church by the demolition of Nos. 198, 199, and 200, Piccadilly, and Nos. 2, 3, 4, and 5, Church-place. The new buildings are being erected by Messrs. W. H. Lorden & Son, of Upper Tooting, contractors, from plans and designs prepared by Mr. R. Sawyer.

**WESLEYAN CHURCH, SOUTH WIMBLEDON.**—Plans and designs for a new Wesleyan church and schools at South Wimbledon have been made by Mr. R. J. Thomson. A site and the organ are given by a resident, and the scheme in its entirety will cost some 12,000l. The buildings will comprise a choir, vestry, and minister's vestry, a church parlour, a clubroom, two meeting-rooms, &c.

### FOREIGN.

**FRANCE.**—The Committee of the Société Nationale des Architectes has adopted for this competition this year a subject and instructions drawn up by M. Nautouil, for "A Large Restaurant in a Park."—M. Frantz Jourdain, the architect, has been elected President of the "Société Nouvelle Paris," the Vice-Presidents being MM. Albert Besnard and Félix Roussel. The jury for the annual competition in new façades is about to commence its labours. They will have to examine about a hundred house fronts erected during 1902.—The Department of Public Instruction has decided that female art-students between the ages of fifteen and thirty are in future to be eligible to enter into competition for the Prix de Rome.—The Baroness Nathaniel de Rothschild has left to the Académie des Beaux-Arts an annual "rente" of 5,000 fr. to be distributed among artists incapacitated by blindness or paralysis.—At the Durand Ruel Gallery there is an interesting exhibition of the "Société Nouvelle de Peinture et de Sculpture," which includes among its principal members MM. Eugene Vall, Lucien Simon, Griveaux, La Gandara, and Henri Martin. Among the sculptors is a pathetic work by M. Bartholomé, "L'Enfant Mort."—M. Chailoux, the sculptor, has just completed the model for a monument to Pasteur to be erected at Marnes near Ville d'Avray. The bust of Pasteur will be placed on a stele designed by M. Jaumin, architect.—M. Rousseau, architect, of Sens, has been commissioned to undertake the restoration of the church of Laroche-Saint-Cydoine.—A practical School of Commerce and Industry is to be built at Cuny (Saône-et-Loire), at an estimated cost of 400,000 francs.—The jury of the competition for a decorative fountain for the city of Rims has selected the following artists to take part in the second and final competition: MM. Deperthes (architect) and Roussel (sculptor); MM. Godefroy (architect) and Peynot (sculptor); MM. Larche (architect) and Larche (sculptor); and M. Narjoux (architect).—M. J. R. Pierre Litoux, architect, of Paris, has died at the age of 63. He was a pupil of Questel, and in 1870 obtained the second premium in the competition for the new church of St. Bruno at Grenoble. He was the architect of numerous mansions in the neighbourhood of the Madeleine and the Avenue du Bois de Boulogne.

### MISCELLANEOUS.

**PROFESSIONAL AND BUSINESS ANNOUNCEMENT.**—Messrs. Needham & Needham, architects, have removed their offices from 18, Lower Clapton-road, to 10, St. Helen's-place, E.C.

**WORKMEN'S DWELLINGS, MILLBANK.**—On the 18th inst. the King visited the new workmen's dwellings which the London County Council have erected at Milbank. Since the destruction of the old prison the estate has been divided between the Rate Gallery, the Guards Hospital, the School Board, and the County Council. For its eight-acre share of this estate the Council paid in December, 1896, after negotiations lasting many years, 2,500l. an acre. By 1898 roads were laid out, and by May, 1899, the first block of buildings was erected, and named Hogarth Buildings. Plans for Leighton and Millais buildings were completed in 1898, and

the buildings finished in July, 1900. Romney, Russell, Turner, and Ruskin Buildings were completed in April, 1901. In December, 1899, tenders were invited for Gainsborough, Reynolds, Lawrence, Macleise, Landseer, Mulready, Morland, and Wilkie buildings, and the last of these blocks was finished in August last year. Although a competition was held and premiums awarded for the best designs, all were found too expensive, and the work was eventually carried out by the Council's own architects, Mr. T. Blashill, and, later, Mr. W. E. Riley. A garden covering a space of 23,190 sq. ft. will soon be completed, and a piece of open ground, as yet not needed, will be made into a sand-pit for the children. One of the features of the buildings is the provision of fifty perambulator and bicycle sheds, let to tenants at the rate of 3d. a week. In the seventeen blocks on the estate there are two tenements of one room let at 4s. 6d. a week; 484 of two rooms, at 6s. to 8s. 6d.; 392 of three rooms, at 8s. to 10s. 6d.; 16 of four rooms, at 12s. to 13s.; and one of five rooms, at 12s. 6d. The actual cost of the land for the Milbank estate has been 23,221l.; of the approaches, roads, and open spaces, 23,900l., making a total of 45,201l. The approximate cost of the buildings has been 206,950l.

**TECHNICAL EDUCATION IN AMERICA.**—The Principal of the Northampton Institute, London, Dr. R. Mullineux Walmsley, is being sent on a three months' tour to the United States and Canada for the purpose of investigating the present position of technical education in those countries and its bearings upon industrial production in the subjects covered by the technological work of the Institute, but more especially in the engineering industries. "THE MAGAZINE OF ART," which has been the result of the new management of the *Magazine of Art*—the reduction in price and the increase in bulk—the circulation of the first three months has been exactly doubled, as compared with that of the previous quarter.

**WORCESTER MASTER BUILDERS' ASSOCIATION.**—The fourth annual dinner in connexion with this Association was held at the Hop Market Hotel recently. In the absence of the President (Mr. J. Sharnam Wood) who was indisposed, the Vice-president (Councillor J. Bromage) presided, and the hon. treasurer (Mr. J. Stokes) was in the vice-chair. The loyal toasts having been honoured, the Vice-Chairman gave "The Mayor and Corporation," to which Councillor A. H. Parker responded. The Chairman, proposing "Success to the Midland and Local Federation of Master Builders," said that although the Federation had been in existence some years it had only exhibited real life during the last five years. He explained some of the troubles leading up to its formation, and dwelt on the benefits which had been derived since. Not only did the Federation resist unreasonable demands from trades unions, but builders meeting together and rubbing shoulder to shoulder were enabled to do more good for the men and trade. In Worcester they had every reason to be thankful for the existence of the Federation. Every man now worked the same hours and had the same hours for meals. Formerly builders were not allowed to import worked stone, but now they were able to do what they desired in the best manner. Councillor A. S. Smith (Birmingham), replying, stated that he regretted the necessity of the Federation, but they existed not as an aggressive body, but for the purpose of resisting unreasonable demands. He warned them that unless they held together and used federation wisely and well, they would lose much of their importance. Mr. Phelps also replied, and said he was pleased to state that there had been an increase of seven in the membership of the Worcester Association, which now numbered thirty-eight. The amount of wages paid by members to their employees during the year was 53,400l. He was in the happy position of being able to state that locally there had been no disputes during the past year. By means of arbitration they had been able to complete rules with the plumbers. Notice had been given to the Malvern branch to bring their rules into conformity with those of Worcester, but as there had been no reply he concluded that the men saw the wisdom of adopting the suggestions. Arrangements had been made for regular hours during the summer and winter, so that at present, although trade was slack, there were fewer unemployed men than might be expected. Councillor J. Jones proposed "Trade and Commerce of the City," and Alderman W. Caldicott responded. Mr. H. Stokes proposed "The Architects of Worcester," coupled with the name of Mr. A. B. Rowe. Mr. Rowe, responding, said the architects were in full sympathy with the Master Builders' Association, but they existed not as an aggressive body, but for the purpose of resisting unreasonable demands. They desired to act honourably to both clients and contractors. The Vice-Chairman gave the health of the Chairman, who suitably replied.

**YORK MASTER BUILDERS' ASSOCIATION.**—The annual dinner of the York Master Builders' Association was held recently at the Old George Hotel, Pavement, when between forty and fifty members and friends assembled. Mr. Councillor Mansfield presided. After the loyal toasts were honoured, Mr. R. Dent proposed "The Yorkshire Federation of Building Trades Employers," and Mr. J. Dawson, of Huddersfield, responded, referring to the proposed amendment of the law relating to trade unions, and said that employers

throughout the country only wanted what was fair and equitable between masters and men, and it was quite just that the law which referred to trades unions should also refer to employers' associations. Mr. A. W. Sinclair gave "Success to the Association," and Mr. Councillor Mansfield and Mr. H. Coleman responded. In the unavoidable absence of Mr. George Mansfield, Mr. George Goodwill, Mr. Mayor of York, and the City and Trade of York, which was responded to by Mr. M. Leat and Mr. Councillor Moss. Other toasts followed.

**INCORPORATED CHURCH BUILDING SOCIETY.**—This Society held its usual monthly meeting on the 10th inst. at the Society's House, 7, Dean's Yard, Westminster Abbey, S.W., the Rev. Canon C. F. Norman in the chair. Grants of money were made in aid of the following objects, viz.:—Building new churches at Churchdown St. Andrew, near Cheltenham, 50l. for first portion; Radry St. John the Baptist, near Cardiff, 75l. for first portion; and Kewley All Saints, York, 80l. in lieu of a former grant of 60l.; towards rebuilding the churches of Kewley Regis St. Giles, near Birmingham, 100l.; Swascombe St. Peter and Paul, near Greenhithe, 75l.; and Walthamstow St. James the Greater, Essex, 130l.; and towards enlarging or otherwise improving the accommodation in the churches at:—Buckton St. Andrew, near Peterborough, 25l.; Mumby St. Peter, near Alford, Lincs., 100l.; Radnam St. Mary the Virgin, near Stokenchurch, Oxon, 15l.; Shotton St. Saviour, near Castle Eden, R.S.O., 50l.; and Swaffham Prior St. Mary, near Cambridge, 130l., in lieu of a former grant of 100l. The following grants were also paid for works completed:—Radley St. James, near Abingdon, Berks, 30l.; High Wycombe St. John the Baptist, Bucks, 100l.; St. Mary, near Bath, 35l.; and All Sutton Mission Church, Shropshire, 50l. In addition to this sum of 151l. was paid towards the repairs of thirteen churches from trust funds held by the Society.

**IRISH MINERALS AND BUILDING STONES.**—The Department of Agriculture and Technical Instruction for Ireland have taken steps to place on view for a period of three months at the Imperial Institute, London, the extensive collection of Irish minerals and building stones which formed part of their exhibits at the recent Exhibition in Cork. The exhibits will embrace samples of the varied building materials and of Ireland, and Ireland is particularly rich, and it is expected that the opportunity of examining these samples will be of advantage to those who are concerned in the many large building schemes now in progress in London and elsewhere in Great Britain. Besides Irish granites, sandstones, limestones, red, green, and black marble, and other ornamental stones of the country, the exhibit will also include specimens of clays, cement-making materials, and fine sand. The Mineral Expert to the Department will remain with the exhibit during the period mentioned, and all inquiries should be addressed to E. St. John Lyburn, F.G.S., Irish Mineral Section, Imperial Institute, London, S.W. The exhibition will be open free to the public from February 26, 1903, between the hours of eleven and five. Admission will be by the east public entrance of the Imperial Institute.

**ATMOSPHERE ON THE CENTRAL LONDON RAILWAY.**—At the meeting of the London County Council on Tuesday, the following Report of the Public Health Committee was submitted:—"We have been in communication with the Parliamentary Committee on this subject, and in connexion with the conduct of the Council's case with regard to Tube Railway Bills, they have obtained reports from the medical officer and the chemist as to the condition of the atmosphere in the stations, lifts, passages, and tunnels, as compared with the condition of the atmosphere in the streets outside the stations. Eighty-eight samples taken between March 10 and October 24, 1902, were submitted to chemical examination, and twenty-four samples taken between March 18 and June 10, 1903, were bacteriologically examined by Dr. Andrews. . . . The chemical examination consisted in the determination of the amount of carbonic acid in the air, and of the amount of oxygen absorbed from permanganate by the organic matter present in the air. It was found that the quantity of carbonic acid in the air of the Central London Railway varied considerably, while the quantity present in the outside air varied only to a slight extent. The amount of organic matter present in the air of the tubes and in the external air underwent considerable fluctuations. The general result of the chemist's examination shows that the quantity of carbonic acid was highest in the air of the carriages, and that, contrary to what might reasonably have been expected, the largest quantity, 14.7 volumes in 10,000 volumes of air, was not found in the carriages where smoking was allowed, but in an ordinary passenger carriage. The smallest quantity found (9.6 volumes in 10,000 of air) was in an empty carriage. The air in the passages leading from and to the carriages was generally better than in the lifts. On one occasion the air in the lift at the Oxford Circus Station contained 15.5 volumes of carbonic acid in 10,000 volumes of air, or about four times the quantity found in the fresh air outside the station. Several samples of air were collected at midnight or early in the morning, before the morning traffic had commenced, and before the morning traffic had commenced. The examination of these samples showed, in most instances, that a



very fair condition of the air had been produced by the ventilation, although it was still somewhat inferior to that of the outside air. Generally, about 78 per cent. of the samples collected contained more than twice as much carbonic acid as that found in outside air, and 66 per cent. contained more than 2½ times as much. The chemist considers that samples of air taken at any point on the railway should not contain more than 8 volumes of carbonic acid in 10,000 volumes of air—that is, not more than twice the amount which is generally found in the streets. He suggests this standard of purity in view of the fact that all the additional carbonic acid found in the air of the tunnels has been produced by respiration, and is therefore of a more objectionable character than that produced by the combustion of fuel in the locomotives, or of gas or oil for lighting purposes. . . . Dr. Andrews made bacteriological examinations of twelve samples of air from different points on the Central London Railway, and compared them with twelve similar samples taken at the same time from the fresh air outside. In summarising the results, Dr. Andrews concludes that while micro-organisms are present in tube air in a somewhat greater proportion (thirteen to ten) than in fresh air, the excess is not so considerable as to cause the tube air to compare unfavourably with the conditions known to exist in inhabited rooms generally, and although there was considerable excess of organisms capable of growing at the temperature of the body, this excess was due to non-pathogenic sarcine and allied species, and no pathogenic organisms were found in the tube air. The highest averages were found in carriages and lifts, i.e., in the most crowded places examined, while the platforms and passages came out actually better. The fresh air, and the tunnels were only a little worse. There was a direct correspondence between the amount and concentration of human traffic and the number of organisms in the air. . . . We have been informed that the Central London Railway Company are taking steps to improve the ventilation of the tunnels by installing a large rotary fan at the Shepherd's Bush end, which will be powerful enough to draw out all the tunnel air three times over in the three hours during which the traffic is stopped at night. They also state that they are installing at the Bank station an air-compressor, which will force compressed air drawn from the street level into the extreme end of the Bank sidings while the trains are in motion, and thus purify that part of the air.

**WAR MEMORIAL, NORWICH.**—It is intended to erect in Norwich a memorial of the men of Norfolk who fell during the Boer War. It is intended that the monument shall be erected on the ground to the north-east of the Shirehall, facing down the Prince of Wales-road, a site open to good view on three sides, and out of the line of general traffic. The design for the monument accepted are by Mr. George Wade, sculptor, and his brother, Mr. Fairfax Wade, architect.

## LEGAL.

## BUILDING DISPUTE AT EALING.

THE case of Wright v. Berry came before the Court of Appeal, composed of the Master of the Rolls and Lords Justices Romer and Cozens-Hardy, on the 18th inst., on the plaintiff's appeal from a judgment of Mr. Justice Byrne in the Chancery Division.

The action was brought by the plaintiff for an injunction to prevent the defendant erecting on a couple of plots of land in Regina-road, Ealing, which they had bought, buildings which it was alleged they intended to use as homes for poor aged persons. The plaintiff contended that this intention of the defendants was a contravention of the building scheme of the St. Kilda Estate. It appeared that in March, 1899, the St. Kilda Estate at Ealing was advertised and put up for sale. In the particulars and conditions of sale it was described as consisting of 133 large choice plots for the erection of private residences. There was also attached to the particulars a condition that no building of any kind other than a detached or semi-detached house, with appropriate offices and outbuildings appurtenant thereto, should be erected on any plot. The defendants purchased three days before this sale, purchased two of the plots, and in the conveyance the defendants covenanted with the vendor not to erect any buildings of any kind on the lots so purchased other than a detached or semi-detached house in the terms of the before-mentioned condition. The plaintiff afterwards purchased, under similar conditions of sale, four plots in the same locality, situated opposite to those purchased by the defendants, on which he built four private dwelling houses. The defendants did not build on their plots until Sept., 1900, when they put up a notice stating their intention to build a home for poor people, and asking for subscriptions. The plaintiff, on protesting against this, was informed that the defendants' proposed building would only be a private house. In November, 1901, the defendants commenced to build, on behalf of the Ealing Cottage Homes for the Aged Poor, a set of self-contained living-rooms for the accommodation of about fourteen families, with a common entrance, kitchen, sink, and offices, but otherwise independent of each other. The plaintiff's case was that such

an erection by the defendants would diminish the value of his property. The plaintiff then commenced the present action, and in March last applied for an interlocutory injunction to restrain until the trial the erection by the defendants on their plot of any building except a semi-detached or detached house. Mr. Justice Byrne, however, dismissed the application on the ground that what the plaintiff really complained of was the proposed use of the buildings in question, but that that was not the relief asked for by the notice of motion. The plaintiff then amended his pleadings and asked for an injunction to restrain defendants from using the houses otherwise than as private residences. Mr. Justice Byrne at the trial held that there was no such obligation on the defendants, and gave judgment for the defendants. Hence the present appeal of the plaintiff.

At the conclusion of the arguments of counsel their Lordships affirmed the decision of Mr. Justice Byrne, and dismissed the appeal with costs.

Mr. Mulligan, K.C., and Mr. Underhill appeared for the appellant; Mr. Levett, K.C., and Mr. O. Leigh Clare for the respondents.

## FALSE TRADE DESCRIPTION.

AT Greenwich Police-court recently, Mr. James Gladstone, of Catford Bridge, builders' merchant, was summoned by Mr. Lionel Harold Browning, secretary of the London Lime, Cement, Brick, and Slate Merchants' Trades Protection Association, for unlawfully using false or unjust measures or sacks, also for selling cement to which a false trade description as to its weight was applied. Mr. R. D. Muir was counsel for the prosecutor, and Mr. Llewellyn Davies defended. Charles Long said he was employed on December 20 by Messrs. Eastwood & Co. to go to the defendant's premises at Catford for a ton of cement. He saw the defendant and asked for a ton of cement, and received eleven sacks and an invoice for a ton. He took the sacks to Messrs. Eastwood's Well Hall depot. William Saunders, foreman at the depot, deposed to receiving the sacks, which he had sealed, and afterwards sent to Greenwich. Mr. Ernest Scragg, foreman at Messrs. Eastwood's Phoenix Wharf, Greenwich, said he weighed the bags, which in the total were 163 lbs. short. Sydney James Bolt, another carman, proved a further purchase, which Mr. Scragg said was 172 lbs. short. Albert Litchford gave evidence of a third purchase, which was said to be 205 lbs. short. Mr. Harry Le Marchant, managing director of Messrs. Martin, Earle, & Co., wholesale cement merchants, deposed that his firm supplied the defendant with cement. In the ordinary course eleven sacks to the ton would be supplied, but at the defendant's request he was supplied with twelve sacks to the ton. In cross-examination, witness admitted that many of the defendant's orders were eleven sacks to the ton, and he produced only three orders where twelve sacks were specified. Mr. Harold Anderson, director of the Associated Portland Cement Manufacturers, also deposed to the sale of cement to the defendant in ton lots contained in twelve sacks. For the defence, Mr. Davies said his client's instructions to his foreman were to supply the correct quantity, and if there was any deficiency to make it up. The defendant said he purchased the twelve sacks to the ton for the convenience of small dealers. His special instructions to his foreman were that if there were no eleven to the ton bags and any one wanted a ton, he was to break a bag and distribute it among the eleven, so as to make up the weight. His manager informed him that he had sold eleven sacks to the ton (this being the third purchase), and witness told him to go off at once and rectify his mistake. He had been in business for many years, and this was the first complaint he had received. Any shortness of weight was without his knowledge. Alexander Campbell, clerk to the defendant, said he told Mr. Gladstone about the purchase, and was sent to the carman's employer to rectify the error. Mr. Baggallay said there was clearly a false trade description, and the defendant had not proved that he was unaware of what was going on. He fined the defendant 10s. and ten guineas cost. Mr. Muir said he would not proceed with the weights and measures case.

## HARROGATE BUILDING DISPUTE.

THE hearing of the case of the Mayor and Corporation of Harrogate v. Dickinson was concluded in the King's Bench Division on the 21st inst. before Mr. Justice Wright, sitting without a jury. The case came before his Lordship in the form of a special case, from which it appeared that Mr. Dickinson is a builder who owned a plot of land in Walker-road and Bliton-drive, Harrogate. On October 1, 1894, he deposited plans showing eleven dwelling-houses and two stables and coach-houses proposed to be erected by him on the plot of land referred to. These plans, which were contained on one sheet, were approved on October 8, 1894, and certificates were given in respect of certain of the houses which were built. Section 27 of the Harrogate Corporation Act, passed on August 24, 1893, provides:—"The deposit with the Corporation of any plan of any street or building shall be null and void if the execution of

the work specified in such plan be not commenced within the following periods—that is to say, as to plans deposited after the passing of this Act within three years from the date of such deposit, and as to plans deposited before the passing of this Act within three years from the passing of this Act; and at the expiration of these respective periods fresh notice and deposits shall, unless the Corporation otherwise determine, be requisite." On January 3, 1902, defendant commenced to build the second stable and coach-house, and on the 18th the inspector employed by the Corporation gave him notice that he was to discontinue building and deposit fresh plans, the old ones not complying with the new by-laws in several particulars.

Mr. Danckwerts, K.C., and Mr. Wm. Mackenzie appeared for the plaintiff, and Mr. Colefax for the defendant.

Mr. Danckwerts having read the special case, his Lordship said he would like to hear what was the point of the other side.

Mr. Colefax said that the case did not entirely refer to what was called the second stable. It went beyond that, because the second stable was being built, and also the houses Nos. 6 to 11. After the expiration of the three years Nos. 4 and 5 were commenced, completed, and certified, and No. 5 included the party-wall of No. 6. It was not until after the new by-laws came into force in 1901 that defendant began to build the stables. The foundations of the party-wall of No. 6 had been built since the expiration of the three years, and Nos. 4 and 5 were completed before the new by-laws came into effect. These were the facts, and he did not think there was any doubt about them. What defendant submitted was this, that, subject to the Section of the Act of 1893, he was entitled to continue to build under the by-laws which were in force at the time when the plans were passed. The learned counsel submitted that this would be so because of the last clause of the new by-laws, Clause 117, which said that from and after the date of the confirmation of the new by-laws all by-laws relating to new streets and buildings were repealed, and regarded any work commenced before the date of the confirmation, or any work not so commenced but of which plans had been either approved before that date or had been sent to the Surveyor one month before such date and not disapproved by the Council.

His Lordship: This is not work commenced before the confirmation of the by-laws.

Mr. Colefax submitted that it was, and called the attention of the learned Judge to a decision of Vice-Chancellor Hall in a case heard in the Palatine Court of Lancaster, where it was held that the work was begun with the deposit of the plans, though the whole of the work had not been commenced.

His Lordship: The deposit of the plans is the commencement of the work?

Mr. Colefax: Yes.

Mr. Danckwerts: I can shorten the matter by saying that but for Section 27 of the Act of 1893 the defendant would be entitled to go on with these buildings.

His Lordship: Under the old by-laws?

Mr. Danckwerts: Yes.

Mr. Colefax: Then that means that within the meaning of this By-law 117 we have commenced the work before the passing of the new by-laws.

Mr. Danckwerts: No.

Mr. Colefax (continuing): Contended that on the words of By-law 117, "or any work not so commenced," the case came within the judgment of Vice-Chancellor Hall. In that case plans had been deposited before the date of the new by-laws, but some of the buildings had not been commenced, and the Vice-Chancellor decided that inasmuch as some of the houses on the plan had been built, that was a commencement of the whole work.

His Lordship, in giving judgment, said that no doubt this was a most important question, on the one hand to the individuals concerned, and on the other to the Local Authority, who were bound as far as they could to see that all the latest improvements were carried into effect. The point here was whether the old by-laws or the new by-laws applied. The builder said that the old by-laws applied because No. 117 of the new by-laws, repealing the old ones, excepted two classes of cases, and it was argued that the buildings now in question formed one or other of both of these exceptions, and were therefore governed by the old and not by the new by-laws. In fact, the whole case was based on the view that these plans, which were approved in 1894 by the then Sanitary Authority, were one plan. If they were one plan for the whole of the purpose of this case, then there was no question that the work was commenced on that plan, and that the approval of the Corporation was still in force. He did not think that the grounds which had been advanced were maintainable. It seemed to him that these were simply a number of plans for convenience put on one sheet of paper in order to show the Sanitary Authority what the general scheme of arrangement was to be. The old by-laws provided for a plan of each building, and if the present was not a plan of each building, then he very much doubted whether the by-laws had been complied with at all. He could not agree with the argument that because some of the buildings had been commenced therefore all had been commenced



As regarded the decision of Vice-Chancellor Hall, it did not touch this case. It really proceeded on a proviso which did not exist in the present by-laws as to the validity of work done under the old by-laws. If he was right in his view, they had several plans before them, and not one plan, and Section 27 of the Act of 1893 provided expressly that deposited plans became null and void after three years. As regarded the particular houses now in question, the three years had elapsed without anything being done upon them, and judgment must therefore be for the plaintiffs.

Mr. Danckwerts asked whether the costs would follow the judgment.

His Lordship: The plaintiffs are to have their costs if they wish to ask for them; at the same time they might properly think fit not to press for them. This is quite an arguable case.

Mr. Danckwerts said that the Town Clerk was present in Court, and he would convey his Lordship's wishes to the proper quarter.

## PATENTS OF THE WEEK.

### APPLICATIONS PUBLISHED.\*

3,597 of 1902.—J. CRAWFORD-MOORE: *Opening and Closing Doors.*

A door-closing apparatus consisting of a cylinder or tube made to be placed in or nearly in a vertical position on the door or door frame, with a rod turned downwards connecting the piston rod with the bracket.

2,705 of 1902.—J. J. CUNLIFFE and F. G. GUNHOUSE: *A Draught and Dust Preventer.*  
A draught and dust preventer fixed on the inside of the door and moved perpendicularly by means of a chain, cord, and a weighted lever.

4,356 of 1902.—G. C. MACKROW and H. G. CAMERON: *Elevating or Hoisting Apparatus.*

This consists in the combination with upper and lower sheaves of an endless chain, hooks attached to the said chain for carrying the load and means whereby the hooks, before they pass around the upper sheave will be turned so as to run on the inner circumference of the said upper sheave.

4,979 of 1902.—H. BROOKFIELD: *Water Waste Preventers for Flushing Purposes.*

This consists in the arrangement of a small air or siphon pipe, leading from the crown of the siphon into and in combination with a small, open-topped, vertical cylinder with a closed water-tight end fixed on the bottom of the cistern.

5,345 of 1902.—F. W. BAKER: *Casement Stay and Window-faster Combined.*

This consists of a grooved and pierced arm or stay, pivotally attached at its one end to a bracket piece and back plate, said arm or stay engaging a fastener consisting of a back plate, a rest and retaining pins, with a spring-governed bolt and finger-piece, all operating together to secure the casement or window in a closed or open or half open position.

5,589 of 1902.—W. DEFRIES and V. I. FEENEY: *Hinges.*

A butt hinge, consisting in providing the knuckles with inserted wearing surfaces, such as truncated cones or ball and socket-meeting faces fitting one over the other.

6,976 of 1902.—THE BRITISH URALITE CO., LTD., and J. H. FRISWELL: *Manufacture of Flexible Fire Resisting Material.*

The manufacture of flexible fire resisting material, wherein a pulp prepared of finely-divided asbestos, with or without a filling material, is formed into sheets which are treated with a solution containing an alkaline silicate and a substance capable of decomposing the said alkaline silicate, the said solution being of such strength as to leave in the sheets from 3 to 7 per cent. of silica, whereupon the product is dried at a temperature of about 105 deg. C., and if desired, suitably treated to remove the by-products resulting from the decomposition of the said alkaline silicate.

1,208 of 1902.—M. J. QUINN and T. F. McMAHON: *Automatic Flushing Apparatus.*

Automatic flushing apparatus, consisting of a discharge pipe, and a float valve normally closing the said pipe, in combination with a float adapted to raise the said valve when lifted by water flowing into the tank, locking mechanism adapted to hold down the said valve and means for tripping the locking mechanism to release the float.

6,879 of 1902.—G. C. MARKS (W. H. Cook): *Door Catches.*

This consists in the combination, with a sliding door, of a checking device consisting of a bolt provided with an elastic cushion at one end, and supported in the path of movement of the door in position to be struck thereby when the door has partially completed its opening movement, a strap surrounding the said bolt, and means for varying the pressure of the said strap upon the bolt.

\* All these applications are in the stage in which opposition to the grant of a Patent upon them can be made.

8,047 of 1902.—W. WILLIAMS: *Chimney Cowl.*

A device for use with a chimney cowl for causing an up-draught therein, consisting of a fan adapted to revolve therein at or near the mouth thereof in combination with a fan adapted to revolve outside the chimney or cowl, and to be driven by the wind or other means, and connected to the first mentioned fan.

9,348 of 1902.—S. BARRACLOUGH and D. PRIESTLEY: *Removable Refuse Traps, Dirt Collectors for Sinks, Lavatories, Baths, Dye Vats, and the Like.*

This invention relates to removable refuse traps and dirt collectors for sinks, lavatories, baths, dye vats, and the like, and consists of a hollow tapered tube, provided with a hinged grid or perforated cover, and within such tube is a second removable and self-adjusting grid, preferably in the form of a box or chamber perforated at the top and bottom, the perforations in the bottom being preferably smaller than those in the top, so that dirt or refuse passing through the hinged grid, will be retained within the hollow box, which can be lifted out or removed for cleaning purposes.

9,557 of 1902.—A. NEWMAN: *A Flushing Rim Urinal or Women's Use.*

A basin of special shape and to be fixed in a special position for use as a urinal for women, particularly in public "free" lavatories.

12,355 of 1902.—J. BURTON and W. BURTON: *Pottery Kilns and Ovens.*

A pottery oven or kiln constructed with a central chimney connected internally only with bottom flues placed below the floor, a number of bottom flues radiating from the central chimney with apertures opening through the floor into the kiln, and a number of branch flues connecting the bottom flues together, and also connecting the fire mouths with the bottom flues and with the central chimney, which can be opened or closed as required.

21,287 of 1902.—W. HARRISON: *Chimney Tops.*

A chimney top comprising a plurality of sections or parts mounted one above the other and consisting of a lower vertical section resting on and secured to the chimney or stack, a second section secured to said lower section, and consisting of domed, tapering, and vertical portions, and two or more upper vertical sections, the lowermost extending over the second section and connected thereto so as to leave an annular space between their walls, said upper sections extending into or over one another and being so connected together and spaced as also to leave annular spaces between their respective inner and outer walls.

4,824 of 1902.—J. W. T. BRAIN and M. J. McNAMARA: *Water Closet and Similar Flushing Cisterns.*

This consists in the use of a floating bell as a water displacer for starting the siphonic action, the said bell being arranged to surround and enclose the stand pipe of the cistern and being so constructed that within it is provided an air-space to which the water in the cistern has access, and within which air is trapped to render the said bell buoyant and easy of depression.

21,508 of 1902.—H. H. LAKE (Peck Bros. Co.): *Wash Basins.*

This consists in the combination with a wash basin of a waste plug, an operating head and a waste pipe-head formed with an inclined bearing sleeve, a hub located in the said sleeve, two operating pins carried by the hub and co-acting with the said operating head to lift the plug, a stop pin or projection carried by the hub, and two stop shoulders located within the said sleeve for co-action with the said pin or projection which prevents the hub from more than a quarter turn in either direction, whereby the pins are alternately brought into operation for lifting the plug above its seat.

24,822 of 1902.—J. EVANS: *Apparatus and Appliances to Prevent Down Draughts in Chimneys.*

A method of constructing a wind screen or guard to envelop or surround the top of a chimney, the sectional area of each guard to be made of certain dimensions in relation to each chimney top to which it is to be fitted.

5,118 of 1902.—J. G. MAARDT: *Insulating Material.*

A material suitable for insulating purposes made from cork dust, cork waste, peat dust, small peat, or like material, by saturating same with water glass, pouring the resulting mass into moulds, and finally hardening it by boiling in a solution of chloride of salt or salts.

5,140 of 1902.—C. H. THOMPSON and THE CRYSTAL-LINE CO., LTD.: *Manufacture of Glass Tiles and Glass for Decorative Glazing and other purposes.*

The manufacture of wavy, undulating, or rippled glass tiles or glass in sheets consisting in placing the glass tile or sheet upon a bed, formed or provided with projecting points or irregularities so that the glass tile or sheet is supported at a number of points, and then subjecting it to heat so that the glass tile or sheet will collapse at the unsupported parts.

5,866 of 1902.—J. G. STINDER: *Method of Making and Constructing Opal, Glass, or other Tile Partitions.*

In one modification of this invention tiles are made having two or more dovetailed projections on the back of and in one piece with the tile. These tiles

are firmly secured back to back with a locking key of cement surrounding the dovetailed projections on the backs of the tiles.

In another modification of this invention slabs are made of cement or other material having dovetailed holes or openings at the back and extending through the thickness of the cement slab. Cement bonding blocks are provided having a hole through the centre of equal diameter to the small hole of the dovetailed opening in the slab. Cement bonding rods are also provided which may be strengthened when necessary with a rod of iron extending from end to end of the said cement bonding rod.

6,130 of 1902.—G. DIETRICH and W. DIETRICH: *Manufacture of Mosaic Plates or Structures.*

A machine for use in manufacturing mosaic plates or structures, the blocks of which are connected together by metal keys or strips, comprising a reciprocating carrier for bringing a securing strip or key into position before the longitudinal grooved edge of the previously formed row of blocks, a device for pressing the strip into the groove, and a pressure actuated cross bar adapted to feed the next row of grooved blocks against the previous row, whereby the metal strip secures the two rows together. The invention further relates to a mosaic plate or structure formed of a number of blocks of wood or other material, provided on at least two parallel sides with lateral grooves, in which metal strips or keys are inserted to hold the adjacent rows of blocks together.

6,378 of 1902.—G. P. WALLIS: *Steam Chambers for Production of Artificial Stone.*

A steam chamber for the production of artificial stone, consisting in the use of a cover for closing the end thereof, in combination with a jointed ring projecting inwardly through the periphery of the chamber and having slots therein for the passage of the cover to the interior of the chamber.

16,704 of 1902.—J. T. SIMPSON and M. N. SHOE-MAKER: *Fire Proof Partition Structures.*

This consists in the combination with upright main supporting bars, and diagonal bracing and binding members, passing across and attached to the same, of metal clips secured between the bars, and ceiling or floor materials to secure and change the direction of the diagonal members, and metallic fabric or body secured thereto and against which the plaster is applied so as to embed and protect all parts of the metal frame against fire and securely hold the plaster or plastic material.

## MEETINGS.

FRIDAY, FEBRUARY 27.

*Institution of Civil Engineers (Students' Meeting).—* Mr. E. Falk on "The Relative Advantages of Single Screws, Twin Screws, and Triple Screws for Marine Propulsion." 8 p.m.

SATURDAY, FEBRUARY 28.

*Builder's Foremen and Clerks of Works' Institution.—* Annual Dinner, King's Hall, Holborn Restaurant. 6 p.m.

*Royal Institution.—* Rt. Hon. Lord Rayleigh, M.A., F.R.S., on "Light; its Origin and Nature." 1 p.m.  
*Builders' Foremen's Association (Memorial Hall, Finsbury).—* Mr. A. S. E. Ackerman on "Sanitary Arrangements and Testing." 8.15 p.m.

*Edinburgh Architectural Association.—* Visit to the Usher Institute of Public Health.

MONDAY, MARCH 2.

*Royal Institute of British Architects.—* (1) Special general meeting to elect the Royal Gold Medalist for the current year. The Chairman to move—"That, subject to His Majesty's gracious sanction, the Royal Gold Medal for the promotion of architecture be presented this year to Mr. C. F. McKim, of New York, U.S.A., for his executed works as an architect." (2) Ninth general meeting (business) to elect candidates for membership. (3) Discussion of the London Building Acts Amendment Bill which is being promoted by the London County Council. 8 p.m.  
*Liverpool Architectural Society.—* Mr. S. K. Greenslade on "Libraries in America." Lantern views. 6 p.m.

*Society of Engineers.—* A Topical Discussion on "Road Traffic in and near Large Cities," to be opened by Mr. W. Worby Beaumont, Past-President. 7.30 p.m.  
*Society of Arts (Cantor Lectures).—* Prof. I. A. Fleming, M.A., D.Sc., F.R.S., on "Hertzian Wave Telegraphy in Theory and Practice." 7.15 p.m.

TUESDAY, MARCH 3.

*Royal Institution.—* Sir William Abney on "Recent Advances in Photographic Science." 11. 3 p.m.  
*Institution of Civil Engineers.—* Paper to be further discussed "Mechanical Handling of Material," by Mr. G. F. Zimmer. 8 p.m.

*Institute of Builders.—* Special Finance Committee. 3 p.m.  
*Parliamentary Committee, 337 p.m.; Council Meeting, 4 p.m.*  
*Glasgow Architectural Association.—* Mr. A. Wright on "Italian Architecture." 8 p.m.

WEDNESDAY, MARCH 4.

*British Archaeological Association.—* Dr. Phleg, F.S.A., on "Similarity of Hill and Rock Cuttings in Greece, Africa, Italy, and Britain." 8 p.m.  
*Royal Archaeological Institute.—* Viscount Dillon, F.S.A., on "Armour." 4 p.m.  
*Society of Arts.—* Mr. J. C. Medd on "Education in Holland." 8 p.m.

*Edinburgh Architectural Association.—* Mr. J. Glen on "Town and Street," illustrated by Lime-light Views and Drawings. 8 p.m.  
*Institute of Sanitary Engineers, Ltd.—* Special Council Meeting. 7 p.m.

*Imperial and International Communication.—* Illustrated. 8 p.m.







(For some Contracts, &c., still open, but not included in this List, see previous issues.)

[See also next page.]







LLANWRDA.—For building a shooting-box at Pump-saint, for Colonel Methuen. Mr. David Jenkins, architect, Llandilo.—  
David Davies, Bryn-crach Pump-saint,  
Llanwrda, R.S.O. .... £1,562 16

LONDON.—For new congregational church, Denmark Hill, London, S.E. Mr. Alfred Conder, architect, Palace-chambers, Westminster.—

	Fences, Gates, &c.	Tower.	Church.	Total.
Staines & Son.....	£	£	£	£
Lascelles & Co. ....	255	1,470	7,995	9,748
Brown & Sons .....	258	1,251	7,111	8,559
Blower & Co. ....	258	1,278	7,171	8,597
Grover & Son .....	260	1,295	7,140	8,594
L. H. & R. Roberts ..	253	1,305	7,073	8,542
Colls & Sons .....	220	1,275	7,048	8,523
Stimpson & Co.....	262	1,247	6,950	8,447
Courney & Fair- bairn .....	230	1,200	6,960	8,420
Rider & Son .....	235	1,262	6,907	8,399
Kingerlee & Sons .....	260	1,177	6,848	8,240
McCormick & Sons ..	218	1,150	6,677	8,087
Akers & Co. ....	192	1,077	6,529	7,947
Henry Young & ...	213	1,149	6,491	7,823
		1,117	6,447	7,777

† Accepted with modifications.

STREET (Somerset).—For the execution of water-supply works, for the Urban District Council. Mr. A. P. I. Cotterell, C.E., 28, Baldwin-street, Bristol.—

	£	s.	d.	£	s.	d.
C. F. Johnson .....	—	—	—	2,804	15	0
Thos. Jackman .....	—	—	—	1,761	8	1
H. W. Pollard .....	8,474	0	0	4,935	0	0
Gled Bros. ....	7,523	5	0	4,009	2	6
Wills & Son .....	7,340	0	0	3,789	0	0
Dart & Pollard .....	6,959	0	0	3,661	0	0
Cooke & Co. ....	6,850	0	0	4,300	0	0
W. & J. Bennett .....	6,682	5	2	2,998	11	4
R. W. Barker .....	6,520	0	0	3,950	7	0
J. & T. Binos .....	6,412	6	4	2,542	11	8
R. Wood .....	6,214	0	0	3,504	0	0
Marshall Lovell .....	6,050	0	0	3,762	7	8
F. Huish .....	6,020	0	0	2,912	15	0
Reid Bros. ....	6,000	0	0	1,800	0	0
H. Roberts .....	5,960	0	0	2,000	0	0
Crawford & Son .....	5,851	15	0	2,285	2	11
Lloyd & Son .....	5,587	15	7	3,230	11	2
Hole & Roberts .....	5,450	0	0	1,830	0	0
T. Vale .....	5,387	14	1	1,990	0	0
S. Ambrose .....	5,250	0	0	1,755	0	0
Ross & Crabtree .....	5,092	17	3	2,443	17	4
C. T. Perkins .....	4,997	10	0	2,797	10	0
Smith & Marchant .....	4,446	8	1	2,897	3	3
Meredith & Co. ....	4,236	10	9	1,643	6	10
Wright & Son .....						

FARNHAM.—For the erection of a house at Farnham, Surrey. Messrs. Clare & Ross, architects, 1, West-street, Finsbury Circus, E.C.1, and Chelmsford. Quantities by Mr. H. M. Messenger, 16, Great George-street, Westminster, S.W.1.—  
Godard & Sons..... £1,334  
Harris & Son ..... 1,293 | H. Roffey, Putney, S.W.2. .... | 1,124 |

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## PUBLISHER'S NOTICES.

THE INDEX (with TITLE-PAGE) for VOLUME LXXXIII (July to December, 1902) was given as a supplement with the number for January 1903.

CLOTH CASES for Binding the Numbers are now ready, price 2s. 6d. each, also.

READING CASES (cloth), with Straps, price 6d. each.

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\*Stamps must not be sent, but all sums should be remitted by Postal Order, payable to J. MORGAN, and addressed to the Publisher of "The Builder," Catharine-street, W.C.

Advertisements for the current week's issue are received up to THREE o'clock p.m. on THURSDAY, but "Classification" is impossible in the case of any which may reach the Office after HALF-PAST ONE p.m. on that day. Those intended for the Outside Wrapper should be sent by TWELVE noon on WEDNESDAY.

ALTERATIONS IN STANDING ADVERTISEMENTS OR ORDERS TO DISCONTINUE same must reach the Office before TEN o'clock on WEDNESDAY MORNING.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, &c. left at the Office in reply to advertisements, and strongly recommends that the advertiser should send them.

PERSONS advertising in "The Builder" may have Replies addressed to the Office, Catharine-street, Covent Garden, W.C. free of charge. Letters will be forwarded if addressed envelope is sent, together with sufficient stamp to cover the postage. Unpaid stamps are returned to advertisers the week after publication.

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FOR ALL THE PROVED KINDS OF  
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London Agent:—Mr. E. A. Williams,  
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Asphalte.—The Seyssel and Metallic Lava  
Asphalte Company (Mr. H. Glenn), Office, 42,  
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# The Builder.

VOL. LXXXIV.—No. 355.

MARCH 7, 1905.

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### The Church of Abu Gosh and the Mosque of Hebron.



LABORATE plans, sections, details, &c., of the Church of St. Jeremiah, or Abu Gosh, which stands on the main road between Jerusalem and Jaffa at about five miles distance from the Holy City, were made by M. de Vogüé about the year 1850. These drawings are included in his great book on "Les Eglises de la Terre Sainte," a work of enthusiastic labour and of the greatest utility to the student of Early "Gothic," although his attempt to realise the mediæval appearance of many of the Crusading monuments, such as St. Sepulchre, Jerusalem, is certainly much too imaginative and untrustworthy in the light of more recent studies. De Vogüé describes the church under the name of the Arab village "Kariath el Enab." His plan is very inadequate, and his drawings, like the usual French drawings of the period, are evidently too much the result of rough sketching, assisted by a recollection of what was seen on a hasty visit. In his description of the building he refers to its exceptional character, but does not seem to have noticed its resemblance to the fortress churches described above. He suggests that the upper portion, or clearstory, may have been "refait à une époque postérieure"—a fact which seems probable. He even goes so far as to associate the details of the brackets supporting this upper construction with the style of "les maisons de Damas élevées aux XV. et XVI. siècles." The Palestine Exploration Fund's Survey of Western Palestine also contains a plan and view of this church, but the drawings are equally inadequate—they belong to the period of R.E. surveying. A very good external view of the building is, however, reproduced in a drawing from a photo.

St. Jeremiah's still stands very much as M. de Vogüé saw it fifty years ago. Its

history is as obscure as that of most buildings 600 or 700 years old. It would seem to have been built, as were so many of the Crusading churches (see Rey—"Architecture Militaire en Syrie"), to serve as the base of a fortified keep. These "keep" churches had living rooms over them, and the extensive terrace platform covering all commanded the curtain wall surrounding the property, and at the same time allowed of a water supply being collected during the torrential winter rains to fill the immense cistern which was usually constructed underneath the church or basement floor. Such churches were provided with very little light—mere unglazed arrow slits sufficed; they were probably used in war time for many quite secular purposes, and in peaceful intervals they served to some extent as parish churches.

The Church of St. Jeremiah differs from the type above described in possessing a somewhat more ecclesiastical than military appearance. Its walls are sufficiently thick—about 9 ft.—to admit of passages through their thickness; but the church does not appear to have possessed the upper stories usual in a keep. A small, feeble, natural spring of water in a crypt supplies the place of the more usual cistern in such buildings.\* A still more ecclesiastical character is conferred by the presence of the clearstory, which, however, is not visible from the outside. The surrounding enclosure walls or outbuildings—if they ever existed—are now too much ruined for identification, but excavation in the rubbish heaps and squalid village which surround the building might reveal the original intention of this somewhat unique monument. At present there does not seem to be any prospect of such investigation.

The building (fig. 1) stands in a state of the most complete ruin and dilapidation. The vaulting over its nave and two side aisles is, however, complete, in spite of the grass-grown surface of its flat roof, which is, of course,

\* According to Le Strange ("Palestine under the Moslems"), Nasir-i-Khusrau writes in his Diary (1047): "In the village of Kariyat al Inab there is a fine spring of sweet water gushing out from under a stone, and they have placed all round troughs, with small buildings contiguous for the shelter of travellers."

cracked in all directions. The sheltered position of the building in a valley protected from the north has perhaps preserved it through the centuries from the natural effects of frost, but this vaulting may have a later origin than the main building of the church, as M. de Vogüé suggests. Christians of several kinds have probably occupied the building during the centuries intervening between the Mohammedan conquest of the Holy Land and the present day. Even the Franciscan Order maintained possession of it during the sixteenth century, and traces of mural painting of an Italian style remain upon its walls from that period.

The genuine incontestable evidences of the thirteenth and fourteenth centuries remaining are the ground plan (fig. 2) and the surrounding wall, which, from its monumental thickness, was clearly intended to withstand the ordinary experiences of a siege. The architectural pretensions of this building are—as is the case with most of the Crusading remains—comparatively unimportant. The interior consists of a nave 50 ft. high and two side aisles, all of equal width, each terminating in semicircular apses, and separated from each other by pointed arcades supported on plain square piers with simple capitals; the whole very suggestive of the Tuscan Mediæval style (e.g., S. Trinita, Florence). There is a vestry built within the thickness of the apses to the north-east of the nave in the usual position in such buildings, and the crypt, 17 ft. high, which is merely a chamber occupying the position of a cistern in the foundation, is entirely without architectural detail. The external entrance up into the church and the doorway (now a mere jagged hole) down into the crypt are close together at the same point in the north wall, and were probably protected by some outside defence now no longer traceable. Two curious passages lead westwards from the crypt, as may be noticed on the plan. The southern of these probably communicates with the staircase in the west wall; but the whole of the crypt and the passages are filled in an unaccountable manner with stones and débris in such a way as to preclude investigation.

The Church of St. Jeremiah is an interest-





Fig. 1.—Church of St. Jeremiah at Abu Gosh, Palestine.

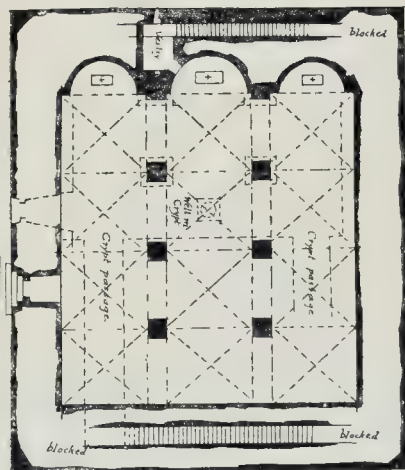


Fig. 2.—Plan of Church at Abu Gosh.

ing example of the fortified sanctuary of the Middle Ages, if it was not intended to form the centre of a fortress in the style of so many in North Syria. The great thickness of the walls, the evident intention of profiting by the presence of a natural spring, and the form of the building, all suggest, however, the probability that the original scheme may have been to build a fortress on the Jaffa road, which in after years was modified into a more ordinary ecclesiastical building, and the clearstory method of lighting the building is probably due to this modification, perhaps at a very much later period in the last years of the Latin kingdom.

During the long mediæval period succeeding the era of the Crusades, which is represented by a particular literature called the "Pilgrims' Books," the Church of St. Jeremiah is hardly mentioned. At a later period, when "Milord Inglese" wrote the account of his travels in the East, the church had become celebrated as the stronghold of a band of brigands, whose leader was a certain Abu Gosh, a kind of chief and director of a system of blackmailing and robbery of the earlier species of tourist on his way to Jerusalem. Abu Gosh was apparently recognised in an unofficial way by the Turkish Government of the period, and his memory still lingers in connexion with this curious ruin. In a precisely similar way, but with some modifications, the modern tourist visiting Jericho is expected to pay a fee to the sheik of Abu Dis to ensure exemption from indiscriminate plunder on the road. Few, if any, evidences remain of this singular use to which the old

church was put in the first half of the nineteenth century; the neighbouring peasants have removed every trace of human habitation, and although the general structure of the building is entire, heaps of stones and rubbish block up the entrances, and yawning holes in the walls show where quarrying has taken place to supply the materials for the village huts.

The building is now in French possession, and under the immediate protection of the French Consul\* of Jerusalem, and there seems some probability of its being "restored." Such a fate, unfortunately, means the complete destruction of every element of interest about the venerable ruin. The innumerable tourists in the Holy Land during the past twenty years have been impressed as much as their pilgrim predecessors with the appearance of this almost unique example of a Crusading church still surviving in such a comparatively perfect condition—but, alas! this remarkable landmark is doomed to perish and be replaced with one of the frightful creations of a Parisian architect executed by Arab workmen, whose ignorance of the most ordinary rules of construction is only equalled by their coarse method of stone cutting and want of mason-craft.

Architectural remains of the Crusading epoch in a fair state of preservation are exceedingly rare in Palestine, although a considerable number remain in Northern Syria. This Church of St. Jeremiah is one of the very few examples which retain the

vaulting complete of the Middle Ages, for although this feature in the building may be a later addition or restoration, still it is perfectly mediæval in character. Only one other example of the "fortress church" still exists in fair preservation in the Holy Land, and that is the Crusading church built within the ancient Roman enclosure of the famous Mosque of Hebron. This church bears some resemblance to St. Jeremiah's; in a similar way, it is built over a vaulted crypt, and its three aisles are lighted by a clearstory concealed behind the massive surrounding walls. Thanks to its being turned into a mosque, the monument has been preserved in an interesting manner. It is to be regretted, perhaps, that St. Jeremiah's did not share the same fate, and thus escape that "restoration" which the French monks are now bent upon accomplishing, regardless of the interesting associations attaching to this striking and unique landmark. Every pilgrim and tourist to Jerusalem during the past 600 years must have gazed with particular interest upon this deserted fragment of a passed-away order and institution.

The plans of Abu Gosh and of the Mosque at Hebron (fig. 3) are here reproduced with the intention of comparing the two churches of contemporary date, and of representing them in a more accurate and intelligible manner than has hitherto been attempted. The Mosque at Hebron still remains closed to ordinary investigation, but enough has been discovered about it to admit of a very clear idea being formed as to its mediæval appearance as a fortress enclosing a church. The Palestine Exploration Fund published a plan made on the occasion of the visit of the young English princes (the present Prince of Wales and his brother) and although certain romantic details were suggested on this occasion,\* there is no doubt that the whole of the Crusading church of Hebron is very well preserved as the present mosque. These fortress churches owe their preservation to the presence of the massive walls surrounding them, and in some ways the presence of the church may have tended to preserve this central feature (the keep) of the fortress. There are no churches of the Crusaders of an ordinary parochial or country description preserved anywhere in Palestine, although they must once have existed all over the land in the same way as in mediæval Europe, and they are abundantly recorded in documentary history.

In the year 1110 the fortress of Hebron was bestowed by Godfrey de Bouillon in fief on Gerhard d'Avennes.

It appears from the account of Hebron, written by Ali of Herat (1172), that the mysterious "cave" had been restored in the year 1119, in the days of Baldwin II., King of Jerusalem, and that the sepulchres of the Patriarchs were then reinstated. Probably this represents the building of the Gothic church (and consequent construction or restoration of the subterranean chambers under it), which constitutes the mosque of

\* Suggestions were made that in the crypt beneath the Hebron church a number of Crusaders' effigies still exist upon tombs, which have been mistaken for the bodies of the Patriarchs by such few Moslem travellers as have from time to time penetrated the mysterious so-called "cave" beneath the mosque. There can be no doubt this "cave" is merely an ordinary crypt covered with masonry vaulting, which has even been repaired since the first Moslem occupation, and as there are no records of Crusading interments in the crypt, nor would it have been the custom to bury in such a position at that period, we must put the "sculptured effigies" legend down to an Eastern imagination.

\* The French Consul took possession of the ruin in 1875.



the present day. The date of this reconstruction is confirmed by similar statements in the chronicle of Ihu al Athir.

During the Crusading period Hebron was a place of pilgrimage as at present, and the traditions regarding the Cave of Macpelah as underneath the Haram, or square enclosure of what appears to be Roman masonry, were continued. The six cenotaphs of the three Patriarchs (Abraham, Isaac, and Jacob) and their wives probably occupied the same relative positions as at present, but only those of Isaac and Rebecca were included under the new church. Travellers who have penetrated within the mosque of recent years seem to agree that the buildings over the other four tombs are of Moslem origin.

The Mosque of Hebron is described in the "Palestine Exploration Survey of Western Palestine" as having a nave with two side aisles lighted by a clearstory with three

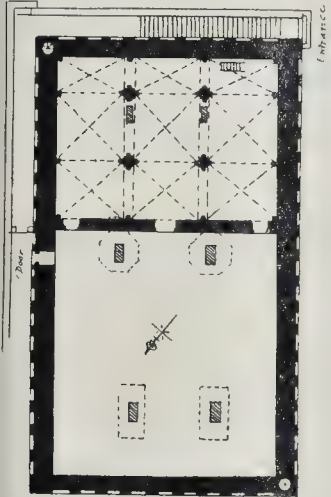


Fig. 3.—Plan of Church of St. Abraham (Great Mosque), Hebron.

windows on each side. There is a low-pitched gable at the west end, having a large window with slightly pointed arch, above which is a round window.

James Fergusson, who was one of the few foreigners who have been permitted to inspect the interior, states ("Holy Sepulchre and the Temple") that he ascertained with certainty that there is nothing within the enclosure older than the Crusades. All the visitors who have described this building agree in considering it a Christian church of the twelfth century, although the form and plan are very unusual for such a purpose. The square east end, formed with a narrow kind of transept bay, is carried up to the general level of the nave roof. The aisles, of 10 ft. span, seem to be on the scale and proportions of the once splendid Church of St. Sepulchre, in Jerusalem.

**NEW MORTUARY, BLACKPOOL.**—A new mortuary has been erected at Blackpool from designs by the Borough Surveyor, Mr. J. S. Brodie. The building as cost altogether about 600l. Messrs. Dryland & Weston, of Blackpool and Littleborough, have been the general contractors. Mr. Thos. Hartley has executed the joinery work, and the plumbing has been done by Messrs. Coulston & Son.

#### PUBLIC LIGHTING.

**T**HE last decade of the nineteenth century witnessed a remarkable improvement in the lighting of streets and other places of public resort during the hours of darkness, and it is gratifying to observe that progress in this direction continues unchecked. It is true that in London the flickering glimmers provided in the trams and omnibuses remain to remind us of mediæval civilisation, while Chancery-lane still serves as an interesting illustration of the appearance of the Metropolitan streets at the period when gas was first adopted for public lighting.

Even in London, however, there are already indications of reform, for some of the most energetic members of the London County Council have recently had the temerity to suggest that the nightly scrimmages which take place at Blackfriars Bridge and elsewhere for a seat in an evil-smelling, dimly lighted, horse-drawn car might with advantage be abolished in favour of a common-sense traffic system, and cars lighted and actuated by electricity. Fortunately, British prestige is ably upheld by many of our less important towns, such as Bournemouth and Southport, which have long been provided with comfortable and brilliantly lighted electric trams.

In the matter of street lighting London has, however, made noteworthy progress during the last ten years; and although much improvement must be effected before many of the London side streets will bear comparison with those of some provincial towns, the main streets are for the most part comparable with those of any other well-lighted city.

The issue of a bulky treatise on Public Lighting,\* by Mr. W. J. Dibdin, formerly Superintending Gas Examiner and Chemist to the London County Council, is a welcome indication of the increasing attention which this subject is attracting. This book discusses in great detail the subject of photometry, and the utilisation of gas and electricity for public lighting. It contains more than 200 illustrations, but of these many are already familiar to those who glance through the advertisement pages of technical periodicals, and might, we think, have been omitted with advantage. For example, the front view of an ordinary ten-light meter, depicted as in fig. 36, is neither beautiful nor instructive. Mr. Dibdin's long experience as a photometrist enables him to deal in a very able manner with photometry, and the chapters on this subject would alone form a most useful handbook. They may, in fact, be regarded as an up-to-date edition of the author's admirable work on "Practical Photometry."

It is to be regretted that Mr. Dibdin has devoted so much space to the demonstration of the fact that gas of high illuminating power may be more economical for use with flat-flame burners than low-grade gas supplied at a cheaper rate, for if gas companies were dependent at the present time upon the gas supplied for use in flat-flame burners they would already have ceased to earn dividends. It is the gas supplied for incandescent lighting, and for heating, cooking, and power purposes that to-day makes

\* "Public Lighting by Gas and Electricity." By W. J. Dibdin, F.I.C., F.C.S. London: The Sanitary Publishing Co. 1902.

gas manufacture a profitable industry, and it is greatly to the credit of the London County Council that it has promoted a Bill to reduce the illuminating power standard of the gas supplied by the Gas Light and Coke Co., and to compel the company to make a commensurate reduction in the price charged for gas.

The quality of gas most suitable for distribution in any specific district is dependent upon the relative values of bituminous coal coke, and oil. In London coal-gas costs from 12d. to 15d. per 1,000 cubic ft. delivered into the gas-holder; while plain water-gas costs only 3½d., or less. The water-gas yields a non-luminous flame, but, when used with incandescent mantles, has practically the same illuminating efficiency as coal-gas. If the surplus coke obtained as a residual product in the manufacture of coal-gas be used, therefore, to produce water-gas for admixture with the coal-gas, a low-grade mixture as serviceable for public or private lighting as pure coal-gas may be sold at a considerably lower rate. In view of these facts we fully agree with the protest recently made by Professor Lewes that "it is manifestly unfair that the consumer of average intelligence, who is willing to utilise the benefits given by the incandescent mantle should have to pay for a quality of gas only rendered necessary by the inertia of those who decline to march with the times."

The fair comparison of the relative costs of lighting by gas and electricity is by no means an easy task, for it is impossible to ascertain the average intensity of light obtained by the consumer from a unit of gas or electricity; but the following figures, taken from the table given by Mr. Dibdin, are probably as close an approximation to the truth as any similar figures which have been published. The figures do not include cost of maintenance:—

#### COST OF PRODUCING 1,000 CANDLES OF LIGHT DURING ONE HOUR.

16-Candle Coal-Gas at 3s. per 1,000 cubic ft.	d.
Flat-flame burners .....	13'8
Welsbach mantle .....	21
"Intensified" mantle .....	1'2
Electricity at 4d. per B. of T. Unit.	
Arc-lamp .....	2'2
Incandescent electric lamp .....	12'5

These figures afford striking evidence of the folly of consuming gas for illuminating purposes in flat-flame burners; and, in view of the fact that there is little or no difference between the lighting efficiency of mantles heated by coal-gas and that of mantles heated by a cheaper low-grade mixture of water-gas and coal-gas, it is impossible to support those who advocate the supply of high-grade coal-gas in preference to the supply of a lower-grade gas at a reduction in standard price of one penny per 1,000 cubic ft. for every reduction of one candle in the illuminating power.

The value of gas for illuminating purposes is now dependent mainly upon the calorific intensity of the flame it yields, while the value of gas for heating purposes is dependent upon its calorific power. We note with satisfaction that in Southport, where the gasworks are owned by the Corporation, the illuminating power, and consequently the price, of the gas has recently been reduced; and that the heating power of the gas is now tested regularly, and the results included in the records submitted to the Town Council. The determination of



the calorific value might with advantage be included in the daily tests made by gas examiners in other districts.

Mr. Dibdin's book includes, we are glad to observe, a description of the apparatus employed for determining the heating power of gas, and gives tables showing the comparative calorific values of most of the gases which are extensively used for industrial or domestic purposes. It also contains descriptions and illustrations of all the burners and accessories commonly used for street lighting, and will, therefore, form an exceedingly useful work of reference for all who undertake the superintendence of public lighting.

The last ten chapters of the book are "intended to assist the general reader to form a fair idea of the processes involved in the production of electrical energy, and to point out the road to those who may be desirous of following the technical intricacies of the subject further." It is also stated that some of the points, "such as those relating to potential, have been considered from a new standpoint." We think that a great deal of the matter introduced into this part of the work might have been omitted with advantage. Popular definitions of abstruse quantities like "potential" had better be left to mathematicians like Kelvin or Raleigh. To define it as a "latent power capable of producing an electromotive force" can be only misleading to the engineer, and is probably quite unintelligible to the general reader. Later on, potential and pressure are regarded as synonymous terms, and so the thoughtful reader would try and think why pressure was "latent power," and why you got true power when you multiplied it by electric current. However popular a work may be, it is advisable to point out the limitations in the analogies between dynamics and electrical theory.

In several places the author talks of "a current of 'x' volts and 'y' amperes" as if a knowledge of the pressure were necessary to define the current. Again, at the beginning of the chapter on the alternating current transformer it is inferred that the volt-ampere and the watt are the same. As a matter of fact, with alternating currents the volt-amperes are always greater than the watts. For example, when a condenser load is connected on to the alternator terminals, the volt-amperes in the circuit may be one hundred times greater than the watts.

Figs. 171 and 173 are decidedly misleading, as the lines of force are drawn as if the armature cores were made of non-magnetic material. Also it is wrong to talk about "quantity of current" being generated during the revolution of the armature. What is generated is electromotive force, and the current depends on the resistance of the outside circuit. In fig. 186 a diagrammatic sketch is made of what purports to be the principle of an "induction" motor. It is stated that the ring inside must rotate at a slower speed than the frequency of the current magnetising the ring. It could not possibly work like this. Possibly it might run as a synchronous motor, making one revolution every period of the alternating current, but once it fell out of step it would stop dead and stay with the plane of the ring coil perpendicular to the lines of force.

It is stated that the field magnets of induction motors are laminated to avoid hysteresis loss. This is not the case, as they are laminated to avoid eddy-current

loss. We are not aware that the lamination has the slightest effect on the hysteresis loss. The slip-rings on the rotor of those machines we have seen are not intended for regulating the speed; they are only used to introduce a resistance in the rotor circuit when the motor starts, so as to diminish the starting current. The limits of speed regulation for economical working can only vary between very narrow limits. One or two of the diagrams illustrate the principles of star-connected polyphase machines fairly well, but as polyphase systems are practically only used for power transmission, an account of them in a book on public lighting is rather out of place.

We were disappointed with the chapter on the photometry of glow-lamps and arc-lamps. The data are for very old-fashioned lamps. Besides, in some cases the mean horizontal candle-power of glow-lamps has been got by taking a mean of two readings. As they often vary 20 or 30 per cent. in different directions, owing to the bulb acting like a concave mirror, trustworthy results cannot be obtained from two readings. This can easily be verified by holding a sheet of paper in various positions round a glow-lamp, when bright bands will be noticed on it in several positions.

It is suggested that glow-lamps be run for some time before their candle-power is taken, as the initial reading is generally too high. Our experience is that the lamp attains its maximum candle-power after running about fifty hours. Some lamps take 200 hours to attain their maximum candle-power.

Brief descriptions are given of the electric-lighting stations at Watford, Gloucester, &c. These may be of some slight assistance to the expert, but data about rectifiers, boosters, feeder mains, &c., can be of little interest to the general reader.

#### NOTES.

The London Building Act Amendment Bill.

SEENING the opposition which the proposal to introduce the Bill to amend the London Building Act has aroused, the decision of the County Council to withdraw this measure will be received with satisfaction. The Council will, however, introduce a new Bill next Session, but it is to be hoped that in its new form it will be less comprehensive, have greater reference to certain matters which admittedly require supervision and amendment, and also, when it seriously affects vested interests, it will be less arbitrary, and will give those affected by its provisions an appeal, in serious questions, to a higher tribunal. In the Bill now withdrawn factories were excluded from its operation, yet, as we have recently seen from the case of *Toller v. Spiers & Pond* (commented upon in the *Builder*, December 27, 1902, p. 599), the Factory and Workshop Act, 1901, has a serious omission in its provisions in the case of factories let in flats. Repeated piecemeal legislation is to be deprecated on all grounds, and we therefore trust that when a Bill on this subject is again introduced it will be a well thought-out measure, only dealing with matters of necessity, but as to such matters comprehensive in its nature.

Landlord and Tenant.

THE current number of the Law Reports contains two decisions of interest to landlords and tenants. In *Blore v. Giulini* a

lease of a house for a term of fourteen years contained a clause giving the lessee the optional right to determine it at the end of seven years, in which event the indenture "and any clause matter and thing therein contained" was to "cease and determine and be void;" and since there was no clause preserving the lessor's rights for existing breaches of covenant it was contended that the lessor was left without any remedy for the lessee's neglect to repair the premises. To those who are firmly imbued with the idea that the "law is a hass," it will come as a surprise that the Court, as a matter of common sense, declined to adopt a view so unreasonable. The second case, *Lord Mostyn v. Fitzsimmons*, is the converse of the above, as it related to a covenant which gave the lessee the right to renew the lease for a further term of years at his own cost, upon payment of a fine calculated upon the number of years unexpired and the full improved annual value of the premises "as calculated by the landlord's surveyor or at the option of the lessee by the award of two referees or their umpire." The Court of Appeal, reversing the Court below, have held that this covenant imposes the costs, properly and necessarily incurred in the arbitration and award, on the lessee who selects that method of assessment.

Municipal Corporations' Reproductive Undertakings.

THE Parliamentary Return relating to the so-called reproductive undertakings of Municipal Corporations contains much information of interest, and is far more comprehensive than the Return of August, 1898. Out of a total of 317 Municipalities, 299 carry on undertakings which in their nature should bring in profit, but the annual average result over the past four years is a net profit of 378,281*l.* on a capital of about 101,000,000*l.* or about  $\frac{1}{3}$  per cent. The advocates of municipal trading may, however, point to the repayments of principal, but even allowing for this sum, which amounts to 1,264,544*l.* the profit shown is only about 1*½* per cent. Certain undertakings, such as baths and wash-houses, cemeteries and markets, seem to be undertakings within the proper sphere of municipal enterprise, but those under municipal management, with the exception of markets, all show a loss, and in the case of baths and wash-houses, if the repayments of principal and interest had been entirely suspended, a loss of 52,699*l.* would still be shown on a capital of about 1,500,000*l.* Gasworks appear to be the most lucrative of the undertakings, markets and waterworks being next in order. Harbours and docks and electric lighting show heavy losses, yet 102 Corporations engage in electric lighting and 43 act as harbour and dock authorities. The outstanding amount of borrowed capital is 100,786,404*l.*, the population of the 299 Boroughs in question is 13,093,870, and the assessable value 55,076,203*l.* Particulars are given in relation to each Borough, and the results summarised on the same principle as the figures are given in each particular instance, so that the statements made by the parties on either side on the question of municipal trading are now capable of easy verification. It would, however, appear that the working capital now engaged in these undertakings could certainly be employed to great advantage for the community at large.



**Compensation for Interest in Glebe Lands.**

A CASE of an unusual character, in relation to compensation for lands taken compulsorily, was heard by Mr. Justice Farwell on the 17th ult. The Great Western and Great Central Railways had acquired certain portions of the glebe lands at Swinderton for the purposes of their undertakings, and had paid the agreed price of 1,600*l.* into Court. A new line was being constructed over part of the land so acquired, which passed within 50 yards of the rectory, and an existing line within 130 yards was being widened, and in the execution of these works two temporary lines crossed the roads which formed the only means of access to the rectory. In respect of the inconvenience thus caused to him, together with the noise occasioned by the works, the rector, an old man of eighty years of age, claimed to be entitled to 100*l.* of the above sum by virtue of Section 73 of the Lands Clauses Consolidation Act, 1845, which gives the Court of Chancery discretion to award "any tenant for life or for any other partial or qualified estate" compensation for injury, inconvenience, or annoyance sustained by him independently of the value of, or damage to, the lands taken. The Court granted the application, whilst commenting on its unusual character.

**New Gasworks, Edinburgh.**

ON the 27th ult. the new gasworks erected at Granton by the Corporation of Edinburgh were formally opened. The average annual increase in the output of gas for some time prior to the introduction of electricity into Edinburgh in 1895 was at the rate of 3·3 per cent., and since that date the average annual increase has been 51,000,000 cubic feet or 3·6 per cent. This fact has induced the Corporation to buy a site having an area of over 100 acres for a new gasworks, and to erect thereon plant of the most modern design for the production of gas and the treatment of by-products. The expenditure has already exceeded 500,000*l.* Not only have labour-saving devices been adopted wherever possible, but locomotive sheds and workshops equipped with forges, power hammers, punching and shearing machines, drilling machines, lathes, screwing machines, &c., have also been erected to enable all repairs and simple constructional work to be undertaken on the works. Covered coal stores have been provided to contain 15,000 tons of coal, and have been fitted with mechanical appliances which enable one man readily to handle 20 tons of coal per hour. The steam generators are of the Stirling boiler tubular type. The gas engineer, Mr. W. R. Herring, and the Edinburgh and Leith Corporations' Gas Commissioners may be congratulated upon the successful achievement of a notable undertaking.

**Leakage of Electric Currents.**

THE paper on "Network Tests and Station Earthing," read last week by Mr. A. M. Taylor to the Birmingham local section of the Institution of Electrical Engineers, treats of a subject which is deserving of the most serious attention. We have pointed out on several occasions that the pressures between the mains and earth on several of the London supply companies' circuits are much higher than the pressure of supply. Mr. Taylor is very careful never to allow the potential of any of his mains to rise above

250 volts. Hence, even when testing their insulation resistance he keeps the earth connexion on the middle main in its place. He does not trust to the official record of the leakage current on the Board of Trade ammeter, but recognises that this record is of small value, and only measures part of the leakage current. By making an artificial leak on one of the outers, it is easy to make the Board of Trade ammeter read zero. Therefore a diminution of the current officially recorded may mean that the leakage currents have actually increased. In Mr. Taylor's station the average value of the current continually pouring into the earth from the middle main is four amperes. We consider that this is satisfactorily small, and we hope that the damage it does is microscopic, since it is spread over acres of underground pipes of all kinds. Earth currents from the supply stations in London of ten times this amount are by no means unusual. Occasionally, when there is a bad "short circuit" there are thousands of amperes straying underground. It would be too much to expect that these currents never do any damage. We know of one case where they fused the mains of another supply company, and the numerous explosions last year in street boxes will still be remembered. We can recommend Mr. Taylor's paper to all electrical engineers who wish to know how to measure leakage currents, and how they depend on the insulation resistance of the network.

**The Nerst Lamp.**

ALTHOUGH it is five years since Professor Nerst invented his electric lamp, yet, owing to the stringency of the patent laws in civilised countries, it is only now that these lamps can be obtained in this country. The English company who had secured the right to make and supply them to a few of our colonies and South America, although they made certain improvements and, in our opinion, manufactured a better lamp than those made in Germany, have now given up making them. All the lamps supplied in this country are made by the Allgemeine Electricitäts Gesellschaft of Berlin, who have turned out enormous numbers of them during the last two years. Mr. J. Stöttner exhibited some forms of these lamps and read an interesting historical paper on them to the Institution of Electrical Engineers last week. Their efficiency is about twice as high as that of glow-lamps, but as a rule their life is shorter. Care also has to be taken when putting them in the socket-holder to see that the current flows in the proper direction. Hence the agents usually supply the purchaser with pole-finding paper to enable him to find the proper way to put them in the holders. Mr. R. Hammond described the experiment he made of lighting a mile of street in Hackney with 100 candle-power Nerst lamps placed every 40 yds. He found that for street lighting their average life was 300 hours, and that the annual cost, including interest, depreciation, &c., was 5*l.* 17*s.* 9*d.*, which he considered too high, and so he had reported against their being used. Mr. Solomon, who has made some wonderfully good lamps for the English company, described the marvellous regulating effect of the iron resistance which is placed in series with the filament, and suggested that a Nerst lamp would do admirably for a light standard.

This resistance was referred to by some of the speakers as the "bolstering" resistance. We would suggest that it be called the ballasting resistance.

**"A Revolution in House-building."**

COUNCILLOR J. B. COLTON, Deputy-Chairman of the Liverpool Corporation Housing Committee, has recently given some particulars of a method about to be adopted by the Corporation in the erection of cheap houses to accommodate the dispossessed slum population—a method which, in his opinion, will "create a revolution in house-building." Concrete made from refuse-destroyer clinker and cement is the material, and the only peculiarity appears to be in the mode of its application. Monolithic concrete walls, floors, and roofs, laid *in situ*, have often been adopted, and so also have concrete slabs or blocks of various shapes and sizes. The peculiarity of the new method lies in the use of very large slabs: the fronts, sides, floors, and roofs of the houses, we are told, are "all to be made in single individual parts, hoisted into position, and then bolted together." The buildings are to be of three stories, and the estimated cost is one-half that of brick buildings of the same size. Councillor Colton declares that the houses can be erected at the rate of one a day. His definition of the word "erected" would be interesting. It clearly does not take into consideration the time required in the casting and maturing of the slabs, or in the internal finishing of the houses, and we are inclined to think that, both in time of construction and in cost, the estimates will be considerably exceeded. So many claims have been made in favour of concrete construction for houses, and so few have been substantiated in practice, that we look with a certain amount of doubt on the new scheme. As we have not seen the drawings, we cannot say what the external appearance of the houses will be; but our imagination pictures something the reverse of beautiful. Cheap houses are a necessity, and the experiment is worthy of a trial; but we are not enthusiastic about its chances of success.

**A STATUTE of 1877 for making St. Edmund Hall over the site and property of the Hall has just come into effect. The proposed statute for establishing a complete union of Queen's College and St. Edmund Hall would bring about the absorption of the Hall in the College and the extinction of the now last-remaining academic Hall appertaining to the University. The greater portion of the buildings of St. Edmund Hall, in Queen's-lane, were erected in the middle of the seventeenth century; they constitute three sides of a quadrangle, partly covered with ivy, whilst their quaint and irregular outlines present a very pleasing and characteristic effect. The chapel and the library were built mainly at the charges of Stephen Penton, Principal of the Hall in 1675-84; the ante-chapel, of two stories, has a doorway flanked with two Corinthian columns that rise up through both stories and carry a pediment, the upper story forms the library; the chapel, which on the north and east sides abuts on the gardens of New College, has an east window filled with coloured glass designed by William Morris. The Hall takes its name, reputedly, from Edmund**



Le Riche of Abingdon, Archbishop of Canterbury in 1234-45, and afterwards canonised, who gave lectures in some old schools on that site. In 1269 the Canons of Osney bought the buildings, and, appointing a principal, devoted them to purposes of academical teaching. At the Suppression Henry VIII. granted the Hall to two citizens of Oxford, who sold the property to William Dennis, Provost of Queen's, who in 1557 devised it to the College. Two years afterwards Queen's College secured the right in perpetuity of appointing to the principalship. Dr. Moore, who has been Principal since 1864, and has just been appointed to a canonry at Canterbury, was the occupant of an office which has continued in an unbroken succession extending over more than 600 years. The records for the interval 1276-1307 of Osney Abbey are lost; John de Cornubia is cited as Principal of St. Edmund Hall in 1317; Queen's College was founded in 1340 by Robert de Eaglesfield, confessor to Philippa, the Queen Consort of Edward III.

The Canal  
Bridge,  
Maida Vale.

WE learn that proposals are made by the Regent's Canal Co. and the Paddington Council for the rebuilding, with improved abutments and approaches, at a computed cost of 10,000*l.*, of the bridge across the Regent's Canal, opposite Warwick-road, which is now unsuitable for existing requirements. That portion of the canal, as projected by Nash, the architect, was constructed in 1812-4, James Morgan being the engineer, and extended to the Regent's Park basin; the continuation to Limehouse was opened six years afterwards. The total length of about 8½ miles has a tunnel at St. John's Wood and another tunnel at Pentonville. The twelve navigation locks constitute an aggregate fall of some 90 ft. On the morning of October 2, 1874, the Macclesfield bridge in Regent's Park, at the south end of Avenue-road, was completely destroyed by the explosion of a cargo as it passed under the bridge. The Grand Junction Canal, which the Regent's Canal joins at Maida Vale, was opened from Uxbridge to Paddington in June, 1801, and for a long period was used for a daily passenger service between London and Uxbridge. Macclesfield Bridge, shattered to pieces by the explosion of five tons of gunpowder, was designed by Morgan, who had been one of Nash's pupils, and assisted him in laying out Regent's Park. Some years ago the Regent's Canal, City, and Dock Railway Co., as incorporated in 1882, obtained an Act for constructing a railway from Paddington to Limehouse, parallel to the canal, with a branch to the City, near Barbican. Ten years afterwards they changed their name to that of the North Metropolitan Railway and Canal Co.

The Town  
Church,  
St. Andrew's, N.B.

A SET of sketch-plans and designs has been prepared by Mr. P. Macgregor Chalmers for a Committee who have undertaken to collect the funds, estimated at 23,500*l.*, for the proposed restoration of the Town Church of St. Andrew's. The scheme provides for the preservation of the tower, the rebuilding of the body of the fabric in accordance with the original plan as far as it can be ascertained, the removal of the galleries, the lowering of the aisles to

their former height, and a reproduction of the old clearstory. The church, in South-street, formerly known as Holy Trinity, was originally established by Bishop Turgot in 1112. In 1798 most of the structure, with the exception of the tower and spire, was rebuilt in a plain and ungainly style, with room for more than 2,000 sittings. It contains an elaborated and lofty monument, in white marble, to commemorate James Sharp, Archbishop of St. Andrew's, with a bas-relief representing his murder by the Covenanters on Magus Muir.

Royal Academy  
Lectures.

PROFESSOR AITCHISON'S fourth and fifth lectures to the students of the Royal Academy were mostly taken up with the description of the various coloured tiles and marbles, beautiful examples of which were arranged round the lecture-room. Mr. Brindley lent a fine collection of precious marbles, noticeable among which was a large piece of American marble. The Professor made no remark upon this, and it seems as though the great beauty and comparative cheapness of American marbles is not yet appreciated in this country. An instance of their use is the buffet at the Criterion Restaurant, which is a most successful piece of decoration. Professor Aitchison spoke of the uselessness of using coloured marbles in the London atmosphere for outside decoration; he deprecated also the use of granite for similar reasons, referring, we suppose, to polished granite, for in its rough state it is an exceedingly effective building material. The discussion of suitable building materials for London must be almost endless, owing to the lack of a local material other than London bricks; perhaps the solution may one day be found in some kind of glaze upon these. As an example of interior marble decoration the lecturer pointed to the Brompton Oratory, a good enough example of fine material and weak design. It is to be hoped that the late Mr. Bentley left working designs for the marble decoration within the new Roman Catholic Cathedral at Westminster. The interior effect without it is magnificent for its gloomy grandeur; when covered with marble and mosaic, though the increased richness of detail will add to the scale, much of the atmospheric effect will be lost unless it is all from the mind which conceived the whole. Marble decoration at present, as the Professor pointed out, is chiefly confined to public-houses and dairies; it might, however, be much more largely used than it is for the entrance vestibules of town houses; it would give to narrow passages and lobbies light and a decoration independent of the rough usage of constant traffic.

#### LETTER FROM PARIS.

THE Commission for the Société Centrale des Architectes Français has passed the following resolution concerning the rights of authorship in architecture—"The architect has the right to forbid the reproduction by photography of any public or private building of which he is author, unless, of course, an agreement to the contrary has been made between him and the owner of the building. In the case of any reproduction of the building by photography and the sale of these reproductions, the architect has the power to exact the fees due to his right of authorship. The mention of his name and his quality as architect is obligatory on all reproductions."

The Académie des Beaux-Arts has just published its Report on the work sent in during

1902 by the students at the Villa Medici. The Report justly praises the work and endeavours of M. Bigot; speaks in severe terms of the work of M. Tony Garnier, who, it will be remembered, showed in the work he sent in in 1901 and 1902 an utter disregard for the Classic traditions of the Ecole, and called down much displeasure on his very modern and unclassical designs. The Report reminds M. Duquesne that his contribution of last year was very incomplete, and requires this student, as well as M. Garnier, to keep to the strict rules this year. A good word is said for M. Chiffot, who sent in some very important and careful work.

The construction of the metropolitan railway will necessitate some important operations just in front of the façade of the Opera-house, for at this point a very deep excavation is to accommodate three lines one above the other—that from Courcelles to Menilmontant, that from the Palais Royal to the Place du Danube, and that from Auteuil to the Opera-house, which will have its terminus under the Boulevard des Capucines near the Chaussée d'Antin. As a result, an immense workyard surrounded with palisades, leaving only a narrow passage for carriage traffic on each side, occupies the axis of the Boulevard from Rue Auber to Rue Halévy. As the work will occupy the whole year, there is a good deal of grumbling at this obstruction to the traffic; but it is unavoidable, as the subterranean lake at this point, which gave Garnier so much trouble in building the opera-house, has to be dealt with by the engineers. The three crossing tunnels are to be enclosed in massive masonry construction which will keep out the water, but the work requires great precaution, and the surface of the Boulevard is subsequently to be carried on steel girders. In order to avoid still further interruption of the surface traffic, the delivery of materials on the work is to be carried on through an underground passage under Rue Auber, entered near the Gare St. Lazare.

The *Journal Officiel* contains the decree authorising the formation of the much-discussed provincial schools of architecture. The towns in which these schools will be established have not yet been absolutely decided upon, but the utility of forming such centres for the study of architecture in the provinces is fully recognised. The school programmes will be similar to those of the Ecole des Beaux-Arts at Paris, and the necessity for students to come to Paris in order to follow up their studies in architecture and obtain their diploma will thus be avoided. M. Guadet, Chief Inspector of Government Buildings, who represented the interests of the Commission formed to study the subject, stated that the creation of provincial schools of architecture was necessary to obviate the various dangers which beset the future of architecture in the provinces. The real practical utility of provincial schools was one which left no room for discussion. In the other arts the quality alone of the artists was the most important, in architecture the number was more important than the quality, for the architects were the preservers of the largest portion of the patrimony of the country as regards building property. It was calculated that 6,000 architects were necessary in France and that the Ecole des Beaux-Arts could not turn out that number. The Commission considered, however, that the new schools should exist in a small number only, and should be placed only in towns which could materially assist the creation and working of the schools—towns which also possessed a university providing the students with scientific, historical, and literary knowledge. The provincial schools will follow exactly the same programmes of study as those of the section of architecture at the Ecole des Beaux-Arts, and will confer the same degrees. Their pupils would participate in the various foundation competitions, such as the Rouveign, Godeboeuf, Blouet, and American Prix competitions; the only difference being that the money prizes going with these competitions would not be awarded at the provincial schools.

The Société des Artistes Français has composed its committee for the year 1903 of the following members:—President, M. Bouguereau; Vice-Presidents, MM. Scellier, Gisors and Bartholdi; Secretary, M. Albert Maignan; Treasurer, M. Boisseau; and MM. de Richemont, Lemaire, and Pascal as secretaries of the sub-committees. M. Tony Robert Fleury has been nominated President of the Jury for the Section of Painting at the Salon of 1903, M. Bartholdi President of the Jury for



Sculpture, and M. Albert Maignan for that of Decorative Arts.

It has been decided to hold in July next, at the Grand Palais des Champs Elysées, an exhibition of model dwellings and building industries. The exhibition will comprise seventeen sections, and will include three classes of dwellings—grouped dwellings; isolated dwellings; and collective dwellings, with sub-sections illustrating dwellings for families with children, married couples without children, and bachelors. The other sections will comprise various exhibits concerning improvements in heating, ventilation, lighting, sanitation, water-supply, furnishing, and the interior and exterior decoration of the dwelling.

The Société du Nouveau Paris, formed for the purpose of furthering the interests of modern art design at Paris, has elected its committee as follows: President, M. Frantz Jourdain; Vice-Presidents, MM. Albert Besnard and Rousseau; Secretary, M. Georges Bâs; and Treasurer, M. Emile Strauss.

A series of very fine photographs of the Louvre and the Tuileries, dating from the time of the work which was done to unite the two places, has been offered to the Carnavalet Museum by the heirs of M. Lefuel, the celebrated architect, who, in 1834, succeeded Visconti as architect to the Louvre. Lefuel reconstructed the portals of the Carrousel in 1869, and the Pavillon de Marsan after its destruction by fire in 1870.

An interesting historical building, the old Hôtel de Chasteleux at the corner of the Rue de Varenne and Rue Vaneau, has been condemned and is to be pulled down. This house was the dwelling of Cardinal de Polignac, the successor of Bossuet at the Académie Française. A number of interesting objects of art, such as old bas-reliefs in the chimney-pieces, representing some fine allegorical compositions, have been reserved and will be handed over to one of the Paris museums.

The City of Paris has just received from M. Bartholomé, the sculptor of the "Monument aux Morts" at Père Lachaise, the gift of a very interesting series of drawings executed by his uncle, the late architect, Bartholomé, for the decoration of the chapel of the Invalides, and for the pulpit for the same chapel, together with the scheme of decoration for the apartments of his friend the Duc de Feltre at the Invalides.

An examination of the building and park of the Château de Chantilly has revealed an urgent necessity for repairs. The grand staircase descending to the gardens is to be restored at once, and the work has been entrusted to M. Saint-Ange, architect to the Château.

M. Barrias, the eminent sculptor, has been awarded the Prix Lheureux, which was founded in order to be awarded in alternate years to a sculptor or an architect, author of the finest monument or the finest edifice inaugurated during the two years before the date of awarding this prize. This award was made for the first time in 1901 to Dalou for his monument entitled the "Triumph of the Republic," and in 1902 to M. Girault for his building, the Petit Palais. This year the prize is attributed to M. Barrias for his monument to Victor Hugo, inaugurated last February.

The pulling down of the last buildings remaining from the 1900 Exhibition in the Champ de Mars, is now being undertaken, and in about six months' time the whole of the ground will be cleared.

M. Jambon, the painter, is at present occupied over the production of a number of small models of the interiors of the most interesting rooms in the historical monuments. The rooms in the Château de Versailles are now being reproduced, and, besides the reproduction in miniature of the interior decoration, the whole will be furnished with small reproductions of the furniture and hangings in their original styles. These reproductions are intended to illustrate lectures in the State schools on the Decorative art of the various epochs.

At the last meeting of the Institut de France, M. Lucas Beltrami was elected a corresponding member of the Académie des Beaux-Arts, and M. Caird, professor at the University of Oxford, corresponding member in the section of philosophy at the Académie des Sciences. M. Beltrami is well known at Paris; he was for some time inspector of the work at the Hôtel de Ville under M. Ballu; he is an old pupil of the Ecole des Beaux-Arts, and is at present at Milan, where he is restoring the Ducal Palace.

The formalities for handing over to the City

of Paris the foot-bridge which crosses the Seine between the Pont d'Iéna and the Pont de l'Alma, built for the purposes of the 1900 Exhibition, are now completed. M. Picard will sign the agreement, and M. Bouvard, Architect to the City of Paris, will now complete the ends of the bridge and hand it over for public use.

M. Vernon, the sculptor, has just completed the wax models of the "plaquette," destined to commemorate the centenary of the installation of the Académie de France at the Villa Medici at Rome. On one side is represented the façade of the Villa Medici, on its right a grove, the favourite walk of the "Prix de Rome" students; in the grove is shown a fountain, and on the pedestal of the fountain the Muse of the Villa Medici is seen engraving the names of the most celebrated of the winners of the Prix de Rome in the last century—Baudry, Berlioz, Carpeaux, Garnier, Gounod, Ingres, and Rude. On the reverse is shown the figure of a young student leaning on the balcony of a terrace overlooking the wonderful panoramas of Rome. This "plaquette" will be offered to the winners of the Grand Prix de Rome during the coming centenary fêtes.

M. Bartholdi is preparing his models for the large monument to be erected at Montmartre in memory of the aeronauts of the siege of 1870. The allegorical group in bronze which forms the lower portion of the monument will be surmounted by an immense balloon constructed entirely of mica, about 14 ft. in diameter, with its summit at about 50 ft. above the Place Pigalle, on which the monument will be erected, the spot from whence the balloonists started on their dangerous journeys. This globe will be brilliantly illuminated at night-time, and will be visible from most parts of Paris.

The ugly iron column which commemorates on the Place de Breteuil the first artesian well sunk at Paris has been condemned, to give place to the monument to be erected to Pasteur on this square. The water coming from this well, although of a constant temperature of 28 deg. C., has up to the present only been utilised for flushing the public sewers; it will, however, now be employed for the supply of a bathing establishment to be established by the Municipality at Grenelle. The "Vieux Paris" Committee has made a weak protest against the demolishing of this monument, but to no effect.

A competition is opened between architects for the construction of a municipal school for children, and a "crèche," at Fontenay-sous-Bois, the cost of which is estimated at 6,500l.

There is serious talk in artistic circles of the establishment of a third Salon of Painting and Sculpture, to be held during the last quarter of the year; a time when there is little going on in Paris, and artists have no opportunity of exhibiting their works. A society has been formed to carry out this idea, presided over by M.M. Besnard and Carrière, the painters, with M. Frantz Jourdain, the architect, as Vice-President; and it is expected that the first "Salon d'Automne" will be opened in October, in the basement galleries of the Petit Palais.

The exhibition of the "Peintres Orientalistes" has been opened in three rooms of the Grand Palais, but does not present much that is of interest, and more notice is attracted by the exhibition, at the Durand Ruel Gallery, of the "Société Nouvelle de Peintres et de Sculpteurs," which has already been mentioned in our columns. The principal interest of this little exhibition is centred in the works of M. Jacques Blanche, who exhibits a series of portraits of great merit, based more or less on the style of Gainsborough, whose work the artist has made a special study. At the Bernheim Gallery an exhibition of the works of M. Carrière attracts a good deal of attention, especially as it illustrates the progress and change of style and manner which this remarkable painter has passed through since his name and works first came under public notice. In his later works the design, always fine in its general lines, seems to disengage itself from a kind of pervading mist, with an effect which is poetic, no doubt, if rather too mannered. Another minor exhibition is that formed by the Lorraine artists—"L'Ecole de Nancy," as they call themselves—in the Musée des Arts Décoratifs. The exhibition, which is to be open for a month, includes some fine stained glass by M. Emile Gallé, who exhibits also some delicate work in ebony; carved furniture by MM. Majorel, Gruber, and

Valin; and various admirable work by M. Victor Prouvé. The collection as a whole is notable not only for originality but for the sober and restrained taste which pervades it.

The Luxembourg Museum has re-opened its doors after some important rearrangements. Among the new works on view are the portrait of Paul Adam by M. Blanche, the "Maison du Soleil" of M. Henri Martin; landscapes by MM. Harpignies, d'Irwill, and Binet; "L'Hiver en Norvège" by M. Thaulow; "La Justice du Cherif" by Benjamin Constant; and in sculpture, the "Pensée" of M. Rodin and the "Violettes" of M. Larche. In one room are collected some interesting works by John Lewis Brown and G. Boudin. The former include drawings, etchings, lithographs in colour, and pastels of military and equestrian subjects. Among the sea-pieces of Boudin the "Vue de la Rade de Villefranche" illustrates the best qualities of this artist.

The Colonial Office is completing the installation of the Colonies Museum in the Palais Royal, where it will occupy the whole of the rooms bordering on the Galerie d'Orléans. It is a bad site, however, and the museum will want unity and coherence, and is lacking also in exhibits of original interest, consisting as it does chiefly of photographs representing the localities and types of various French colonies; and it is doubtful whether such an exhibition will give any new life to the nearly deserted galleries of the Palais Royal. The site ought to be connected with Rue Richelieu and Rue Vivienne by removing the old houses which stand between them, so as to give a better access to the Palais Royal than by the present narrow lanes.

The demolition of the Marché du Temple is shortly to be commenced, and the "Vieux Paris" Committee is in hopes that some interesting discoveries may follow, since upon that site there stood, up to 1790, a monastery of the Order of St. John of Jerusalem, near to one of the ancient fortifications of Paris. The excavations are to be carefully carried out under the direction of an experienced architect, M. Soudée. Parliament has been occupied also with the passing of an Act for the demolition of the expiatory chapel built on the site of the cemetery of La Madeleine, where the bodies of Louis XVI. and Marie Antoinette were interred at the time of the Revolution. Curiously enough, the "Vieux Paris" Committee has passed a resolution in favour of the preservation of this monument, the demolition of which was first proposed to the Municipal Council by the founder and first President of the Committee, M. A. Lamoureux. Political feelings, it should seem, are not always in accord with archaeological tastes. The demolition seems at all events uncalled for, and the destruction of the work of Percier and Fontaine will be a loss for Paris and for art.

The death is announced, at the age of seventy-six, of M. Hubert Ponscarne, the eminent medallist, and Professor at the Ecole des Beaux-Arts. He was a pupil of Vauthier, Oudiné, Galle, and Dumont, and was the real reviver of the art of medal engraving which is now held in so much honour in France. The number of his works is considerable. We may mention especially the medal commemorating the enlargement of Paris (1859); that of the Exhibition of 1867; and the medal portraits of Louis Blanc, Jules Ferry, de Lesseps, Turgot, Jules Simon, Edgar Quinet, and other eminent men.

#### COMPETITIONS.

CORPORATION BUILDINGS ON THE GEORGE'S DOCK SITE, LIVERPOOL.—The period allowed to architects in which to send in competitive designs for the new tramways, offices, baths, and general offices, for the Liverpool Corporation, expired at noon on the 2nd inst. The buildings are to be erected on a portion of the old George's Dock site, and the competition for the premiums of 300l., 200l., and 100l., which were offered by the Corporation for the best designs sent in has elicited some twenty sets of plans. The assessor is Sir William Emerson.

WESLEYAN CHURCH, LLANGOLLEN.—The foundation-stone was laid on the 27th ult. of a new English Wesleyan church which is being erected at Llangollen. The church, which will be in the Gothic style from designs by Messrs. Morley, of London, will accommodate 400 worshippers. It is being built with Cefn slate at a cost of 4,000l.



THE DECORATIVE ART OF THE  
JAPANESE.—III.  
TEMPLE DECORATION—SYMBOLICAL  
ORNAMENT.

THE first two designs figured this week (see lithograph) have a great likeness to some of the elementary ones already given. They are, however, essentially different, and are some of the simplest of the diapers in which mystic symbols are used. It is, of course, common knowledge that religion made use of art for spreading the faith which it taught by symbols. It is a pretty theory that the priests should make use of the art which adorned the walls of the temples for instilling into the people the elements of faith—much too pretty a theory to upset. Yet I have often doubted whether the order of development was not the other way about—that art invented the symbols, and not the symbols the art. And then, again, it is doubtful whether the symbols did more than remind the people of an elemental philosophy, suggesting thoughts such as of the profundity of things, or of their continuity, or of their completeness or perfection. But we may leave such recondite subjects and consider simply the influence of symbols on the art of the East.

Here are two well-known symbols which are responsible for a great deal of ornament—the *svastika* and the *pakua*.

The complete *pakua* is composed of a series of these forms, but for art purposes, however, it is not necessary to notice more of the symbol than its characteristic element. The essential difference between these two symbols lies in the returned ends; in the *pakua* they both face the same way; in the limbs of the *svastika* they face in opposite directions. These characters are preserved in the designs which have developed from them. Fig. 1 (lithograph), though it looks so like the lozenge patterns given in the last article, is really an extension of the *svastika*. The ends of each limb are produced and returned as far and as often as they will go, the dazzling effect being the result of the limbs of the symbol being set at an acute angle. In fig. 2, the four component lozenges are separated, floral forms being introduced alternately. A lozenge arrangement is the essential feature of all the *svastika* diapers. Those developed from the *pakua* are of a very different nature. Fig. 4 is a diaper well known to all who have even the slightest acquaintance with Eastern art. It is known to them as the "cloisonné pattern," because in a great number of the simpler enamels the cloisons which contain the background are arranged in this way. The pattern, too, is frequently to be met with in Chinese silks. It is, in fact, the highest developed form of the diapers which owe their origin to the *pakua*. In the simplest of these the *pakua* elements are arranged back to back in pairs, the pairs being afterwards set face to face with their returned ends locked. This, and another variety in which the arrangement is half back to back, are shown in the illustrations in the text. Fig. 3 is the next development in which the pairs are arranged at right angles. These diapers have already formed the subject of a paper read before the Japan Society of London, and are figured in the proceedings. It is impossible to repeat them all here, and unnecessary; three examples alone are given to show the different effects from different artistic treatment. In fig. 3 the lines of the design are in triangular fillets of wood set on a flat ground. These fillets, of course, correspond to the triangular gauging already noticed in the last article. Fig. 5 is a wooden grille. In fig. 6 the pattern is sunk. For the better understanding of these and other designs which the reader may come across, I give the gradual evolution of the *pakua* element.

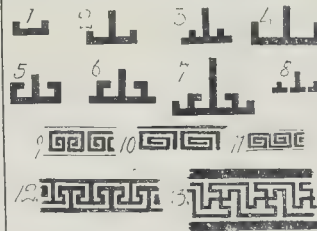
In fig. 6 there is a reversion to the lozenge diaper, the design in each being the complicated pattern which arises at the junction of the limbs of the element in fig. 4. All the other illustrations this week are different forms of wave and cloud design.

Most of my readers will pronounce the following designs to be varieties of the Greek key; as a matter of fact they are different forms of the Japanese or Chinese key.

I shall only deal with the subject very lightly, because it formed the subject of the paper already alluded to, which is to be found in the "Transactions" of the Japan Society; but it is impossible to pass it by, as it is so integral a part of the subject now in hand.

The conclusion I have arrived at is that the key developed in China, and thence, of course, passed to Japan, independently of its development in Greece. The coincidence of the design existing both in Early Eastern as well as Early Western Art may, of course, have a historic explanation. But to make it fit we must go back far beyond the time when the Dutch merchants dwelt on the Island of Desima, and the chalice of Ignatius Loyola brought comfort to the native martyrs: to times, indeed, wherein the memory of man does not run. And this being so, it seems inevitable that coincidence merely has led the designers of East and West to the same conclusion. The point I wish to insist on is that the method of the development of the key in the East is fairly clear.

We may imagine the typical designer, having covered his wall with a beautiful diaper, not quite satisfied with the result. The abrupt ending of the diaper at the junction of the wall and roof would not satisfy his æsthetic eye, and very early the idea of a "border" must have occurred to him—manifestly a much less crude way of finishing things, for the eye, instead of being so abruptly cut short in following the pleasant meanderings of the lines of the pattern, would be beguiled by another pleasant object of contemplation. Perchance this is the connotation of that peculiarly inartistic expression that a thing "looks more finished" with a border. Now the most natural border is one which has a definite relation with the design of the thing bordered. The change is less abrupt; the mind can, so to speak, continue the train of artistic thought which the eye has set up.



I think that the most superficial reader will have noticed some mysterious connexion between the key patterns given above and the *pakua* diapers given in the page of illustrations, more especially in the most complicated one, No. 5. And the process of their development I believe to be this, that they were borders cut from the *pakua* diapers. We have already seen an example of this development of a border from a diaper in the last article; the origin of the "star-border" from the fine diaper needing really no demonstration. Of course, when the key-border came to be developed, it would be treated as an independent design, and would be amplified on its own lines by elongation, or continuation of the lines, as was done in the case of the *svastika* in fig. 1. But if the reader will examine this

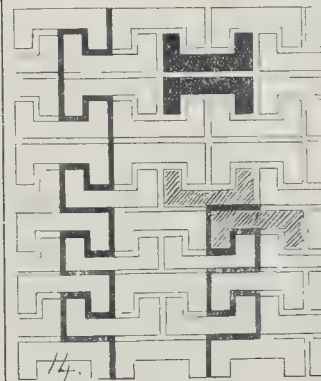


figure (No. 14 in the text), he will see in the upper part the simple back to back arrangement of the *pakua* element, making a simple

cloisonné diaper as above explained; and in the lower part the second diaper referred to, made by the "half back to back" arrangement. The construction of the key-pattern by a cross slicing of the pattern is not difficult to follow. And apart from the individual development of the patterns just mentioned, the fact which I leave to the consideration of my readers is, that by cutting a slice from any *pakua* diaper you can get a key-border, and that you can, from any key-border, by producing its lines and doubling its breadth, get to a *pakua* diaper. This I have done in fig. 15 in the text,



taking a Greek key from Owen Jones's "Grammar of Ornament," which gives No. 5 of the *pakua* developments. I think I have therefore shown some warrant for the faith that is in me, which is that this slicing of the diapers to get the key border is exactly what the Eastern designers did. F. T. P.

#### ARCHITECTURE AND THE AGE.\*

I suppose the seniors among us have given up that dream of early years—the evolution of a new style from the two main branches of Past architecture—many vain efforts to turn this dream into reality have disillusioned us, and acknowledging defeat we have at length settled down to the sedate practice of what at one time we treated so disrespectfully. Though able to do many things the men who wrought out these styles could not accomplish, it is not for us to regard them with compassionate toleration, for their work has both the freshness of an early time never again to occur in the history of architecture, associated with a maturity which we are, perhaps, too fain to consider the exclusive privilege of our own day.

Architecture, in possessing an ancient lineage, has an advantage over the various mechanical and constructive powers of our time. Railways, bridge building, irrigation schemes, and water supply, with steam and electricity, are modern in their application, and though some of them may have been anticipated in the far past, such forecasts were mere shadows of a shade, compared with the antecedents of present architecture, which very early in history attained remarkable development.

But while architecture may have the advantage of antiquity, the constructive arts and mechanical powers have a virility which our noble art has to take into account. An age so fertile in scientific invention and successful mechanical work requires us seriously to consider whether the architect is keeping abreast of this realised energy, and accomplishing all he can in his sphere.

The desire has gone over the civilised world for better equipment of brain and hand to meet the changed conditions of modern times.

We are no longer in circumstances like those who lived in the placid days of the eighteenth century, or even of the early part of the nineteenth. The railway and steam ship have made the world much smaller and widened human outlook. They have linked us with Colonies and lands which, having no ancient art to create and foster sentiment, have shown us aspects of construction and design largely, if not quite, independent of the architectural antecedents that are so marked a feature of the older civilised countries.

A conspicuous feature of present-day architecture is its practicalness. If the engineers and mechanics are saturated with this quality, the architect has a share of it too. Life's incessant motion tends to it. In the easy times of a century ago, things passed muster that no architect would venture on now.

It is interesting to study the plans of the mansions erected during the eighteenth century as published in the large folios, so

\* A paper read at a meeting of the Northern Architectural Association, Newcastle-on-Tyne, on February 25th, by Mr. G. S. Aitken, architect, Edinburgh.



fashionable a form of architectural literature of that period, and compare them with those of our modern mansions. In the earlier instances ostentatious dignity prevailed. Great entrance-halls and suites of rooms suited to state purposes and show places, but hardly for everyday life. They were without the quality of domesticity.

All seemed to be for display and striking of attitudes. Passages of communication were often an unknown quantity, room entering from room. Convenience was sacrificed at the shrine of symmetry, and if it was necessary for external effect there should be a portico or other similar feature, the rooms behind must be content with a diminution of light, and be thankful they were no worse off. These mansions had the advantage of solidity, so much so that the lower floors were often vaulted, and if the superior inmates were compelled to lead an exalted rather than comfortable life, the servants passed their time in conditions as depressing. If we pass from the Palladian buildings of those times, and look at mansions of an earlier period, whether of styles of the sixteenth century or of the pointed domestic, the faults in planning are similar, and no modern client, unless an extreme devotee of early domestic architecture, would dream of expecting his architect to reproduce such work in a new building, however appropriate it might be in making additions to an old one.

Of course there are instances where this has been done, but the majority of men are wise enough to look at these things from a modern point of view.

In our reasonable satisfaction at this change in domestic architecture, we would be doing injustice to those earlier men if we did not recall the crude and unsettled, and in some measure insincere or artificial life of the earlier times. The devisers of such houses could do no better than what their age demanded, and although it may seem incredible to some people, a later age—if the world endures so long—may see a race which shall look compassionately back on the contentedness which enabled us of the twentieth century to do without the comforts of a future which we, of course, have not yet imagined, and therefore do not know the want of.

One reason of the advancement is not only the excitement and friction of the time, but the frankness with which the plans of our domestic buildings are—thanks to professional journals—submitted to the study of those interested. This opportunity is one of the pleasures of the profession, and if Lord Avebury had been an architect, he might have added the study of a good domestic plan to the list of the pleasures of life. In looking on such a design, we sympathetically follow the house dweller from entrance to garden. The hall is comfortably furnished as a reflection of the hospitality that awaits the visitor; in it there is probably some quaint or costly, or if not expensive, some tasteful ornament which the ordinary person can only see in a museum. Flowers or groups of herbaceous plants judiciously placed, give that kindly effect which Nature always so generously affords, whatever the season—autumn or winter, spring or summer. The householder may be musical, and if the dwelling be large, it is not unlikely there may be an organ in the upper gallery of a two-storied hall, its notes appealing to another gateway of knowledge—reminiscent, by the way, of the ancient minstrel gallery with its viol and lute.

From the hall or perhaps less conspicuous place ascends the staircase, which is sure to have glass in its windows surpassing that to be found in the houses of the olden time, and perhaps a gallery in the floor above opens up one of those artistic vistas which a skilled architect can introduce without cost to his client.

If the entrance to the house be so engaging, the other parts are no less interesting. The drawing-room graceful and delicate in its details, with refined hand-wrought plaster ceiling, walls covered with fabrics only possible to modern loom, or other machinery, arranged in panels to suit the choice examples of modern water-colour art; the mantelpiece in harmony, with its metal fire enclosure framed in delicate marble, and with superposed shelves cunningly arranged with shafts and cornice to receive choice articles of virtue. The room may be arranged so that one of the windows opens into a conservatory, thus affording a perennial source of delight.

The dining-room also is interesting in its own way, and designed in a more subdued

manner for its purpose, with examples of ancient and modern masters on the walls, and served from the offices by an immediate, instead of the circumlocutory plan of the eighteenth century with its far-removed kitchen.

And so might we go over the residence, and note its careful provision for the accommodation of the stores which the lady of the house cares for. Its kitchen with appurtenances so unlike—we will not say the monastic kitchens of Durham and Glastonbury, but even those devised and fitted up by the skilled brain of Sir William Chambers or the brothers Adam. Here also, to go no further, we have matter for consideration not only in the difference between the social life of the higher, but also of the serving, class, and that which obtained in earlier times—good old times we call them.

We might complete our visit to the mansion by passing into the garden with its formal border near the house, and more picturesque parts beyond, and if we choose to compare it with the famous examples attached to some of the early houses, would probably not, in some respects, find much general difference; but this we may note—there are many plants and trees which only the enterprise and means of travel afforded by later times have been able to secure, and short of those which need to find shelter in the artificial climate of the hot-house there may be everything, or, at any rate, examples, of the chief classes, which temperate climes of all other parts of the world furnish.

We referred to the improved social conditions of the time, and the provision made to meet these, and may, before leaving the domain of our imaginary mansion, fittingly extend our visit to the not far distant stables, where we with pleasure observe the well lit and ventilated places provided for the dumb animals that, in past time, had scant consideration shown them.

While some may, and do, say that this care for the lower animals should preferably be extended to the human dwellers in the city slums, it so happens that this age of care for man's helpers is also one that is beginning to devote its attention to the sordid life found in the dense parts of our large cities, which concerns municipalities.

This latter-day problem naturally suggests civic life and the various administrative departments housed in our town halls. Town halls, cloth halls, and so forth, there were long ago, and various other buildings devoted to special incorporations. With the latter we need hardly meddle as they do not reproduce themselves or find imitators in the present day. But the municipal life, with its concrete habitation, is with us, and in a more elaborate form than that of the Middle Ages.

Our cities are paved and drained, streets lit by gas and electricity, their affairs administered by bodies of men elected by the people, who, meeting in more or less sumptuous chambers, transact business in the ear of the public; are called on occasionally to entertain the great ones of the earth; and possibly sometimes consider it their duty to provide rational entertainment for the people, either physical, which may suit the younger section, or musical, that pleases all healthy minds. Or it may be that a Corporation, as that of Edinburgh, possesses a well-situated observatory, to which the citizens may resort for the examination of astronomical appliances or the study of other worlds.

The cost of all this, met by rates to cover capital outlay, implies a treasurer's department, to take charge of finance, and town or city clerk to exercise general control.

Municipal buildings in our cities and towns are the result, and in them is a fertile source of plan interest, entirely peculiar to our time. No precedent for such structures is to be found in the beginning of last century, and so by a course of evolution we have, say, the old Town Hall of Manchester, begun in 1822, succeeding the Georgian-looking borough-reeves house, which stood in an obscure court off Market-street. This hall of 1822, quite out of date by the sixties, was replaced by the present magnificent building, which has been the pioneer of so many fine town halls all over the kingdom. Some, as in Edinburgh, tied by old associations, are simply the ancient buildings with modern accretions.

In the early instance of Manchester we note the lingering desire for stateliness at the cost of convenience; erected some time after the revival of the study of Greek architecture, it is a beautiful example of Greek Ionic, happily spared by the Corporation and turned into a

free library. But no architect would now think of designing a town hall which makes the approach so extensive in proportion to the business parts of the building. In our time the divisions are proportioned to each other, but that does not prevent the realisation of such fine marble halls and staircases as the City of Glasgow and other municipal buildings present, which, notwithstanding their magnificence, are grouped in a practical way with the rooms and halls intended for reception, the town clerk's and other departments; each series complete in itself and easily accessible to the other sections.

One great charm of the plans of both houses and city halls is their variety. As sites differ so do arrangements; the fact of an area being square, oblong, triangular, or any other intermediate shape, makes all the difference in the scheme of a municipal building; and the needs of a client, the idiosyncrasy of the architect, or the aspect of the spot, will be the means of creating a type of dwelling-house quite different to any devised before. And this may at the same time be done with all deference to past work, while expressly suited to modern times.

Yet sometimes knowledge and intimate study of old architecture do not always make for good planning, the power of association being sometimes too strong. Is it wrong to say of the London Law Courts, the late Mr. Street's greatest work, that knowledge occasionally weighed too much with the designer, precedent counting for more than it ought, and, yet, withal, how interesting the grouping and beautiful the detail, old in spirit, yet modern in expression, the work of a genius shaping everything to accord with his great learning. It has been referred to as possibly the final illustration of the use of Pointed architecture in a public building. But why should this be so and the style fade away? Beauty, vigour, and freshness are there, and reaction will be sure to set in at some future time in favour of the resumption for secular purposes of so fine a field of architecture.

Somehow the London Law Courts suggest church architecture, and this, I suppose, because their distinguished designer was essentially a church architect. With a knowledge of and sympathy with old ecclesiastical work that have been the lot of few, he has given many varied hostages to church art. Gladly would some of us have seen him entrusted with the erection of St. Mary's Cathedral in Edinburgh; the result from his hands would have been interesting. The present building is good, but the distinguished author of it is already in evidence in several parts of Scotland, and Street has left nothing in the North, except the private chapel at Dun Echt and an obscure chapel at Dundee.

But the field of Episcopal church architecture that Scott, Street, Pearson, and Butterfield occupied, and which is still filled by able living men, represents probably only one-half of religious life in England; the other, being covered by Nonconformist church architecture, that devised to meet a different form of worship, has created, so far as plan is concerned, another phase of church meeting-place. Preaching, and not ritual, has to be considered, and hence the auditorium instead of the long-drawn processional aisle. But while this is so, mediæval architecture has for a long period influenced and will probably for a considerable time to come control the design of Nonconformist edifices. This influence cannot be due to any power of religious associations which it is undoubtedly in possession of, because these associations are adverse to the spirit of Nonconformity, and at the time of the Reformation in Scotland led the Presbyterians to adopt a form of church far removed from that in which Catholicism and Erastianism found a home.

We must look in some other direction for the reasons which give Pointed architecture so powerful a hold on organisations utterly opposed to the hierarchical and ritual mode of worship to which its genesis and development are due.

One reason sometimes adduced for the inclination that most of the forms of Christian belief have to the use of mediæval church architecture for their places of worship is the upward, aspiring tendency of its lines, in contrast with the earthward trend of Classic architecture, and their consequent elevating effect on the religious emotions of the worshipper. But this is an opinion resting only on the surface, not going so far as to furnish us with a



principle. If we could present an argument which has reason for its basis, we would at once arrive at the cause for the preference. And this we are most likely to find in the general principles on which the Creator has carried out His works of Nature. They are two in number: first, inward, or centripetal force; second, outward, or centrifugal; or their architectural equivalents—vertical and oblique pressure. We are safe in assuming that it must have been from these already existing principles that man, imitating his Creator so far as he could in his finite way, derived his foundation for architectural work. And of the two, he was at first more likely to choose the most elementary—the vertical or inward—as best suiting the early stage of art thought and building capacity which he had reached, and hence the architecture complying with the laws of vertical pressure, as we have it in the post and lintel of Egyptian and Classic art.

But as time went on the other principle, by the law of evolution, presented itself to his service. Tired of early forms, his mental and spiritual outlook, wider and higher, finding this unused system of outward or oblique force ready to his hand and suited to his new mood, it provided him with the forms of Pointed architecture. And it is in Pointed art, as the result of this second law of construction, that we must find the reason for the preference by modern church builders, Episcopal and Non-conformist alike.

But there is another argument for the preference of Pointed to Classic architecture which appeals to Episcopal and Nonconformist alike, and that is the superior ethical qualities that appear in the former. This is shown, for one thing, in its endeavour to secure effect at a minimum of constructional outlay.

It is remarkable what an effort Greek architecture makes before it realises itself in a successful work of art. One of the finest buildings in the country, if not the best example of modern Classic architecture—St. George's Hall, Liverpool, notwithstanding—is the Royal Institution, Edinburgh. It is in the Greek Doric style, designed by its architect, W. H. Playfair, from a modern point of view. If we imagine all detail removed that is not necessary to construction, how bald an affair it would be—its porticoes, wings, and lateral rows of columns would have to go. We could not apply this process of "thorough" to a Pointed building. Every part is there as a constructive necessity, and can furnish an ethical reason for its presence, and that is partly what gave Pugin's "First Principles" their force.

And this ethical reasonableness is invaluable in grouping and detail. If a building is so equivocally designed as to require explanation, there must be something morally wrong with that design. If an architect in his wish for something new constructs an arch in a façade that depends for its stability on a concealed girder, that arch ought never to have been so formed. It has no visible means of resisting thrust; offends the mind not seared to the difference between right and wrong; it makes an ordinary observer feel uneasy at the designer's temerity—in short, it has to be condemned for its ethical shortcomings. This objection would not, of course, apply if the girder appeared as part of the façade, nor does it bear on a visibly tied hammer-beam roof, Italian porch, or baldacchino. The Italian porch might have been designed to make the ties needless, but it is straightforward in its wrongness.

Perhaps we may put the difference between Classic and Pointed thus: Classic has intellectual beauty, Pointed has both intellectual and moral beauty. At the same time, no one would desire to have had the Edinburgh building other than it is. It is a masterly piece of composition, and is sure to afford pleasure to any cultured observer who approaches it from the north and notes the clever way in which outline is gained by the annexed wings and the statue of her late Majesty on the pediment. These secure it a form singularly beautiful and dignified, with its mass effectively broken by the light that passes through the wings, and the deep shade behind the columns.

I do not know whether it was the possession of buildings like this, and the aversion from reproducing them in more recent times, that induced an Edinburgh citizen to say there were no longer any great architects. But, perhaps, an architect is none the less great when in his desire to secure useful qualities in his work he deliberately sets a style aside which might win reputation to him in the eyes of those who

look no further than the superficial of a building. But the criticism will do service if it leads us to design in a large manner, whatever the style may be.\*

#### CARPENTERS' HALL LECTURES:

WHERE TOWN AND COUNTRY MEET.

THE lecture of the Carpenters' Company's spring lectures on matters connected with building was given at Carpenters' Hall, London-wall, on Thursday evening last week, by Dr. G. V. Poore, whose subject was: "Where Town and Country Meet." Mr. Percy Preston, Senior Warden, presided over a large audience, and briefly introduced the lecturer.

Dr. Poore said the question of getting our crowded population into the country from the towns was very much in the air just now, and the question was: how to bring about that very desirable end. Some people talked as though there were no difficulties in the way of doing this, but that was not so. That it was desirable to get people into the country was certain, though some people declared that London was the healthiest place there is. Considering its size, the health of London was good, though it was difficult to come to any definite conclusion as to the real state of health in London compared with rural districts. One of the difficulties was that as soon as London people were taken ill they ran away to the country, and invalids, especially chronic invalids, were sent out of our great cities into healthier parts. According to the statistics of the Registrar-General, in healthy districts, out of every 100,000 children born 15,000 die in the first five years of life, but in unhealthy districts—say, the old Manchester township, the old city, the city proper, where there are a great many poor houses and the conditions of life are very undesirable—there, according to Dr. Tatham, barely 65,000 were left at the end of five years, so that the mortality was twice as great in the unhealthy as compared with the healthy district. Again, a child born in a healthy district had a life expectation of thirty-two years, but in Manchester city only twenty-eight years. If it survived the first five years its life expectation was nearly thirty-six years in the healthy district, but in Manchester it was about forty-three years. The expectation of life in a healthy district of a man aged forty-five years was about thirty-two years, but in the unhealthy district it was only sixteen. But there was one curious exception to this rule: if a person lived to be eighty in Manchester city his expectation of life was greater than that of his fellows of the same age living in the other districts—perhaps because he was such a tough customer to have lived so long in such an unhealthy district. Dr. Shirley Murphy had prepared some "mortality figures" for the year 1893, taking the mortality of the whole of London as 1,000. Reducing everything to that standard, the mortality figure for England and Wales was 860. In London districts, corrections having been made for age and sex, Hampstead was 673, Paddington 762, Wandsworth 726, Lewisham 704; but in the centre of London the figures were very much higher. The highest figure of all was in the Strand, where the people died largely of tuberculosis and respiratory diseases—though now the Strand was being greatly altered, and its population reduced by expensive street improvements. The injury to health and development by residence in large cities was shown in the difficulty there was in getting from the great towns recruits for military service. There was not only congestion of population in a great city like London, but there was also the expense of living. London was really a most elaborate, highly-finished, and expensive machine, with its supply of water under pressure, its sewerage system, paving, gas-pipes, electric-wires, &c., and all these facilities meant increased rates and taxes. The rental of the house he occupied in Marylebone, when he first came to London thirty years ago, was 180l. per annum, and the municipal rates were 30l.; now, without any increase in accommodation, the rental of that house was 250l., with proportionately increased rates. The City of London had, in consequence of the facilities he had mentioned, rather recklessly allowed an increase in the cubic contents of the majority of houses in its centre, and office

accommodation for 1,000 people might now be provided on a site which formerly accommodated 300 or 400 people. It followed that there was crowding in the streets and increased traffic difficulties, for we had increased the cubic contents of our houses without proportionately increasing the width of our streets. London was a place full of excitement, and was tolerable for a man in the prime of life, but it was a terrible place for children, and it was difficult to say how they existed in some of the overcrowded places in London. Houses which were formerly occupied by single families were now let in tenements, and those tenements seemed to be crowded by children. It was true the streets formed an excellent playground for the children, but still children living in darkness and squalor and dirt were at a great disadvantage. One of the expenses of London was the dirt—the dirt and dust and "blacks." Excepting manufacturing cities, probably there was no other city in the world so dirty as London. Conifers grew with great difficulty in such places as Regent's Park gardens and even Kew, for their leaves got coated with the soot of London.

The advantages of living in the country were many, and the first was increase of health as indicated by the statistics. Then children were obviously benefited, for there was not that physical and moral contamination for them in the country that there was in overcrowded towns. Then as to education; there were good primary schools everywhere, happily, but in the country there was the education of living there, and children learnt from nature what they could not learn in towns. Some children got to believe that the world was all paving-stones and barrel-organs. The liveliness of London that was sometimes referred to soon palled, but the properly educated person ought never to be dull in the country. Where there was any element of rurality left in a city, it should be cherished as a great possession. The taxation of unoccupied spaces at site value would result in more houses being erected, to the detriment of the health of the people. Where a garden existed, public or private, it was a benefit to all the houses around, for it kept them apart. The best defence of the system in vogue for centuries for disposing of the dead was that it necessitated open spaces, often covered with herbage and trees, and the cemeteries of London had done more good than harm, though he did not approve of the piling up of vaults in city churches.

As to getting into the country, there would always be a difficulty, for the difficulty of widening streets to take trams, &c., was great, but London must be taken as it is. It had come down to us from our ancestors, and on the whole we must be thankful for it; but in South Africa new cities were being laid out every year, and all these problems should be thought out. One of the difficulties of residence out of town was as to trains; one had to break away from one's work to catch them, sometimes to find that there was a breakdown, or that the train was late because of fog. The expense of a motor was very great at present. In the old days a City merchant lived over his shop, but then there were excellent gardens attached. What probably had a lot to do with the abolition of the garden in that part of London was the New River Company, for when the New River was brought into London there was no longer any necessity for a well, and that was one thing which did away with city gardens. As to the Garden City movement, that must command everybody's sympathy, but unfortunately one did not see how it was to be realised. The thing was on too expensive lines, and the attempt to take into the country all the conveniences we have in the city would lead to such high rentals that the garden city would be a place for the rich alone. On the other hand, some of our big manufacturers had made model villages for their workpeople, but they did not disguise the fact that, as a building speculation, it did not pay; that the rents charged did not pay a sufficient interest on the money expended; but no doubt it paid indirectly. Still, it was not to be expected that philanthropists generally would provide model villages, and the great problem was how to get the labouring man or artisan a house and a garden at a rental which would pay. As to a garden, he defined that as a place that was productive. At Regent's Park just now could be seen a beautiful lot of crocuses and hyacinths, and this was one of the luxuries one got for an almost ruinous rental; but it was no

\* To be concluded in our next issue.



gardening as he understood it. Gardening to him meant tilling the soil and gathering the crops.

Dr. Poore then described his experiences some years ago in a village in the Thames Valley. The rates went up from 4s. 2d. in the pound when he first went there to 8s. 7d. when he left, when they were still rising. The authorities borrowed 77,000*l.* for sewage works, which was increased to 135,000*l.*, and they produced with the money an evil-smelling, fly-breeding marsh. Why he was called upon to pay the rates he did not know, for he dealt with his own sewage and refuse in his garden without troubling the authorities at all. Though the authorities were having trouble with their sewage works, they went on encouraging building operations, so adding to the resident population. In his opinion, there ought to be an equitable adjustment of sanitary rates, and he thought that that could be arranged in some way. Sewage schemes, if properly manoeuvred, were sure to be adopted, for so many people thought they were going to be benefited. Unfortunately, there were those who were not benefited, and it was hard that the interests of one class should be considered and the interests of another class ignored. In the village he was referring to there were nice gravel paths when he first went there, but the authorities came and spoilt them by putting down great Swedish granite curbs and a patent pavement—a ridiculous extravagance, which caused the rates to go up. When the sewers had been put in, the speculative builder arrived, and a number of houses were erected, and “into this rural spot came an amount of vulgarity which was most undesirable.” Then there were the model by-laws. It was quite right to have the by-laws, but the speculative builder adopted the minimum of 25 ft. for the back garden in hundreds of these houses, and then said it was what the Local Government Board recommended. These back places were yards, not gardens, and they were part of what he must call suburban slums—it was not much of an improvement to take people from the towns, and put them into such places. There could never be a garden city where there were sewers. The wholesale urbanisation of rural districts was, if possible, to be avoided, for, while it might be to the advantage of some, it was to the disadvantage of others.

On the motion of the Chairman, the lecturer was accorded a hearty vote of thanks, and the meeting terminated.

#### BUILDERS' FOREMEN AND CLERKS OF WORKS' INSTITUTION.

THE annual dinner of the Provident Institution of Builders' Foremen and Clerks of Works was held on Saturday last week, in the King's Hall, Holborn Restaurant. Mr. F. Higgs (Messrs. F. & H. T. Higgs) occupied the chair, supported by Messrs. E. B. l'Anson, C. V. Hunter, C.C., E. J. Brown (President, London Master Builders' Association), H. J. Treadwell, A. Tanner, Major L. Whitehead, and others, the company numbering 541.

The loyal and patriotic toasts having been honoured (Mr. Hunter proposing, and Major L. Whitehead responding to, “The Imperial Forces”).

The Chairman proposed the toast of the evening, “The Provident Institution of Builders' Foremen and Clerks of Works.” He said that every good foreman should be careful, accurate, and shrewd, and should have patience, forbearance, and tact, personal magnetism, organising power, fidelity to duty—in fact, character. That was an ideal which could be striven for, though never altogether attained to, perhaps. The clerk of works should be honest in purpose and action, disinterested, fair and unbiased in judgment, open-minded for new methods and ideas, not wanting in a due sense of proportion, and able to see two sides to a question. That, too, might be the ideal, but he thought it was not unattainable. It should not be forgotten that those who had striven towards the attainment of the ideal had always been the world's regenerators. The ideal foreman and clerk of works did not quarrel, but pulled together, for though there might be two ways of looking at a work, it must not be forgotten that there was only that one work. Their calling was an honourable and ancient one, and their Institution itself was becoming quite venerable, having just passed its diamond

jubilee, and membership of the Institution was a certificate of capacity and character. The Institution provided for the future, and granted pensions without waiting for the Government to do so. The builder's foreman's life was a strenuous one, and from the Institution he could get comfort in retirement. Moreover, the Institution promoted thrift, and generosity towards those who were unfortunate. In accepting the chairmanship he had imposed the condition that a big effort should be made to enlarge the scope of the Institution, for the membership was very small. The number of members this year was only 142, and their subscriptions amounted to 244*l.* From outside subscriptions and donations was received last year 370*l.*, and the income from investments was 266*l.* Thirty cases had been relieved, the amount of the pensions and grants given was 523*l.*, the cost of management was 131*l.*, and there was added to reserve (now 6,627*l.*) the sum of 227*l.* As a result of his suggestion, a circular setting forth the advantages of membership was sent to firms who might have builders' foremen and clerks of works. Why the Institution had not a greater membership he did not know, for in London there were 2,000 builders, to say nothing of those in the country, and yet there were only 142 members of the Institution! There ought to be a membership at least ten times as large. Architects should support the Institution, for they were entirely dependent on clerks of works and foremen for the proper interpretation of plans and ideas, and their interests, to say nothing of the clients, were entirely in the hands of clerks of works and foremen. Builders, also, owe a great deal to their foremen, and sometimes to the clerk of works. The employer's entire interests—financial as well as executive—were in the foreman's keeping. The wage paid did not make things equal, and he would give little for the foreman who thought that he was working just for the money he received: there was something more than that to be thought of. Clients and merchants should support the Institution, but, above all, foremen and clerks of works should support it themselves, if only because one day they might require its aid.

Mr. J. Beer, corresponding secretary, who responded, said there was a feeling abroad that the Institution did not wish to increase its membership, and that they wished to be very exclusive. Such was not the case, though years ago, perhaps, such a belief may have been correct. It was now exceedingly easy for a craftsman to become a member if he were a worthy man. All a candidate had to do now was to get a subscriber to propose him, and if he were a suitable candidate he would be elected. Then it was said that the Institution had too much money, but it was entirely owing to the reserve fund that they were able to do the good they were doing. They were always glad to receive suggestions, but unless they were to alter the rules every year they could not always adopt the suggestions they received. The chairman had stated that there were 2,000 builders in London; only thirty-three subscribed, and the Institution derived most of its support from merchants and friends.

Mr. J. Carmichael then proposed “The Architects and Surveyors.” He had, he said, learnt greatly to appreciate the ability, the high attainments, and the integrity of the architects and surveyors of London, though, of course, there were architects and architects and surveyors and surveyors. The architect of to-day had not only to be an architect in the ordinary sense of the term, but he must have a knowledge of engineering, electricity, the value of land, ground rents, and he must also be something of a lawyer to understand the Building Act and other regulations. With the toast he coupled the name of Mr. E. B. l'Anson.

Mr. l'Anson, in response, said he supposed that in a few years' time the architect-surveyor would cease to exist, but an architect carrying on practice east of Temple Bar found it necessary to know something of both professions. His practice had taken him all over the country, and with few exceptions the foremen and clerks of works he had met had been men of resource and integrity, and had been of great assistance to him.

The Chairman here announced that the sum of 227*l.* 15*s.* had been collected or promised as donations towards the funds of the Institution. Last year money came in until the end of March, and he hoped it would be so this year.

Mr. H. J. Treadwell then proposed “The

Builders and Contractors.” In speaking of foremen and clerks of works, he said that if difficulties occurred between them they should compromise and not quarrel. So far as the builders he was acquainted with were concerned, speaking as an architect and as one having the clients' interests at heart, he must say that they carried out their work in an excellent manner.

Mr. E. J. Brown having suitably responded, Mr. F. Hann, financial secretary, proposed “The Governors, Trustees, Donors, the Subscribers, and Visitors.” Last year they spent all they received from both members' subscriptions and the subscriptions of donors and subscribers. The chairman that evening had headed the list by subscribing 25*l.*

Mr. A. Tanner, in reply, said that engaged as he was with the London Building Act he might be allowed to say a few words on the London Building Acts (Amendment) Bill. The Bill is designed for the purpose of minimising the effects of fire on almost all classes of buildings, dwelling-houses, shops, warehouse, and factories, it being held by numerous authorities that the present building provisions for the prevention of fire were insufficient in view of the disaster which occurred at the Queen Victoria-street fatality. The provisions proposed by this Bill were somewhat drastic and far-reaching, and enormously precise and particular, and he thought it would be well for the owners of property to be alert and vigilant to represent their claims and objections by petition before the Committee of the House or otherwise prior to the Bill becoming law. It was possible the House of Commons would not pass the Bill as at present drafted, but it had to be remembered that there is a strong feeling that something should be done without delay to increase the power of the prevention of fire clauses embodied in the present Building Acts. It seemed that a few simple precautions of an immensely useful character could be passed by the London County Council without the enormous labour and the worrisome espionage to all concerned which this Bill would entail; such, for instance, as the absolute prohibition of the use of wood match-boarding for ceilings, walls, and partitions, unless in the case of walls fixed solid on to the work in any building small or great. As a District Surveyor he always shuddered when he observed a match-boarded ceiling being fixed in the ordinary way in any room of a dwelling-house, and he should refuse to sleep in a room over such a ceiling. Then, again, all floor boards in every building beyond a certain size could be nailed solid on to concrete at every floor level. Two such provisions as these would be very efficient, not unreasonable and inexpensive in application, and tend very much to preserve life. Great safety was already secured by the requirements alone of the insurance societies, and more might be done in this direction. Those societies had one salutary regulation, among many others, double iron doors in warehouses being required to be 6 ft. apart, whereas the Building Act is satisfied with 2 ft.

The toast of “The Chairman” having been honoured (proposed by Mr. J. Stapleton, Treasurer), and the Chairman having replied, the proceedings terminated.

#### THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, Sir J. McDougall, Chairman, presiding.

**Loans.**—On the recommendation of the Finance Committee it was agreed to lend Shoreditch Borough Council 10,243*l.* for electric lighting; Camberwell Borough Council 5,250*l.* for channelling and sewer works; Woolwich Borough Council 800*l.* for works at storeyard, Barnfield-road, Plumstead; and Lambeth Borough Council 4,784*l.* for sanitary conveniences at Loughborough Junction and Stangate.

**Theatres, &c.**—The following proposals were agreed to:—

“Covered way, West Brompton entrance, London Exhibition (Mr. A. O. Collard)."

One-story buildings for the accommodation of thirty-five native Bishareens at the London Exhibition (Mr. A. O. Collard)."

Alterations to lavatory and the second-circle entrance at the London Pavilion (Messrs. Wylson & Long)."

**The Distribution of Fog.**—It was agreed “That the Secretary of the Meteorological



Office be informed that the Council regrets that it does not see its way to incur any further expenditure for the continuance of the inquiry into the occurrence and distribution of fog."

Mr. Phillimore suggested that it was a penny wise and pound foolish policy to refuse to spend the 200l. asked for in going on with the inquiry.

Lord Monkswell said the General Purposes Committee saw little, if any, chance of getting 200l. worth of advantage for their money.

**Street Widening and Tramways.**—Considerable discussion took place over a proposal of the Improvements Committee to contribute two-thirds of the net cost of widening a portion of King's-road, Chelsea.

Mr. Benn moved an amendment to add the following words:—"Subject to the Borough Council undertaking to give consent when required to a tramway along King's-road."

The amendment was carried on a division by seventy-two votes to thirty-four. Subsequently, the amended resolution was referred back to the Committee to allow of negotiations taking place with the Local Authority as to the exact wording of the condition.

**The Works Department.**—The Highways Committee recommended: "That the expenditure on capital account be authorised of a sum not exceeding 21,700l. for the erection of the sub-stations and workshops at New Cross and Camberwell, required in connexion with the electrical working of the County Council tramways; that the work be carried out without the intervention of a contractor."

Mr. E. White, in moving that the recommendation be referred back, said the proposal was an entirely new departure, for it had always been understood that the estimate should be based on drawings, specifications, and bills of quantity. Now it was proposed by the Highways Committee to estimate the price on cubing, and to pay 5 per cent. above the priced bills of quantities of the Mill-lane Lodging-house. A lodging-house was a very different building from a car shed, and he submitted that instead of an increase there ought to be a decrease in the estimate for the car shed.

Mr. Gaskell seconded the amendment.

Mr. Cousins remarked that the policy of the Works Department was becoming most extraordinary, and it was now suggested that they should be given work on a basis which was certainly not fair to the ratepayers.

Mr. Benn said the essence of the proposal was rapidity of erection, and the contract was made on the advice of their architect.

The amendment was defeated and the recommendation agreed to.

**The London Building Acts (Amendment) Bill.**—The Parliamentary Committee reported as follows:—

"We have given our most careful consideration to the course to be adopted with regard to this Bill, which has now been read a first time in the House of Commons. Instructions to us to promote the Bill were given by the Council on November 4 last, and time did not permit of our ascertaining the views of the various authorities and bodies concerned before submitting the Bill to the Council for approval. We have not at the present moment been furnished with the views of some of the more important technical bodies, but, from such observations as we have received, and from information which has reached us from various quarters, we regret that we are driven to conclude that the Bill will, if proceeded with in Parliament, encounter very considerable opposition. We are advised that many of the suggestions which have been received would form bases for useful amendments of the Bill in detail, and that, had time permitted, the Bill might with advantage have been in some particulars differently drafted. It is with great regret that we arrive at the conclusions embodied in the recommendations which we submit concerning a measure for the protection of human life and property from the perils of fire, and in doing so we are influenced by the knowledge that the Council will, with more time at its disposal, be in a position, if it adopts our recommendations, to place before Parliament in the session of 1904 a more complete and perfect measure. It is important that any step in the direction of withdrawing the Bill should be taken without delay in order that such authorities and bodies as may wish to take action with regard to the Bill may not be put to any unnecessary expense and trouble. We accordingly recommend—(a) That, notwithstanding any previous resolution of the Council, a Bill to amend the London Building Acts be promoted in the next session of Parliament, instead of in the present session; and that the London Building Acts (Amendment) Bill, 1903, be not further proceeded with. (b) That the Bill, as at present drafted, be referred to the Building Act and Parli-

mentary Committees with a view to their advising the Council, after consultation with such persons and authorities as may be desirable, as to the ultimate form the Bill should assume."

The Fire Brigade Committee also reported as follows:—

"We have had under consideration the report which the Parliamentary Committee are presenting to the Council with regard to the London Building Acts (Amendment) Bill and, as the Committee responsible to the Council for the duty of protecting life from fire in London, we desire to state that we disagree with the recommendations contained in such report, and that we endorse the opinion which we understand the Building Act Committee have expressed that it is highly desirable in the public interest that the Bill should be proceeded with in the present session of Parliament. In the event, however, of the recommendation 2 (a) of the Parliamentary Committee's report being carried, we are unanimously of opinion that the Fire Brigade Committee should be associated with the Building Act Committee and Parliamentary Committee in the further consideration of the Bill, and we have, therefore, asked our chairman to move an amendment to recommendation 2 (b) to effect this object."

This gave rise to a long discussion, and the Chairman of the Parliamentary Committee (Mr. Radford) refused to move the reception of the Report.

Dr. Napier, in moving the reception of the Report, said the agitation which was going on against the Bill would not have affected them did they not consider it would be in the interests of the Bill that it should be withdrawn for a time. The Parliamentary Committee believed the Bill would have little chance of success in its present form. With increased experience and additional expert experience, the Bill might be presented to the House of Commons in a form which would substantially carry out the objects of the Council, and be accepted by Parliament.

Mr. Radford moved as an amendment "That the recommendation be referred back to the Committee, with instructions to proceed with the Bill in the present Session." He contended it was the duty of the Parliamentary Committee to carry out the instructions of the Council. The reasons for proceeding with the Bill were as cogent now as they were when it was first introduced. Question 18 submitted to the jury in the Queen Victoria-street fire was as to whether, had proper exits been provided, the loss of life might have been partly or wholly prevented; and the answer of the jury was, "Yes, altogether prevented." And the jury considered that the provisions of the Act as to means of escape from fire in high buildings should be made retrospective, and it was to carry out that recommendation that the Bill had been introduced, though the recommendations of the jury had been improved upon in that it had been decided to make the limit of height 50 ft., and not 60 ft. It had been said that this was panic legislation, but he hoped that no attention would be paid to that. Legislation was prompted in order to remedy some evil which had been proved by experience to exist. The Home Secretary had advised that the Council should undertake legislation, not in the form of an amendment of the Factory Act, as was first proposed, but by way of an amendment of the Building Act, and on that intimation the Building Act Committee had taken the matter up. Great care had been taken in promoting the Bill, and he did not think there was sufficient reason for withdrawing it. They had not heard from the Home Secretary that he considered the Bill dangerous, and as to the opposition of owners of property, of course that was to have been expected. If they always gave way to opposition of that kind they would never get fresh legislation. The Bill was a good one, and if persevered with he believed it would pass, and if passed, it would be the means of saving many lives.

Mr. Taylor seconded the amendment. He remarked that they might have several fires before next year, and who would be responsible if lives were lost? There were thousands of dangerous buildings in London—buildings which had been erected for one purpose and converted into another. Many of these buildings had been erected for residential purposes, some of them a century ago, and they had been converted into warehouses, with only one staircase. At the Queen Victoria-street inquest the City said that the Council should have done this and that, but now that the Council had promoted a Bill to rectify the evils which existed the City took up a very different line. The District Surveyors had been consulted,

and the only objection to the Bill that they had was that it was not drastic enough.

Dr. Napier said he had a sheet of recommendations from the District Surveyors.

Mr. Taylor said the Surveyors' Institution might be opposed to the Bill, but he did not think the District Surveyors were. There were some premises in London the top story of which was used as dormitories for the assistants, and underneath there was a large amount of inflammable material, and the assistants had no means of escape in case of fire.

Mr. Hardy said that the Bill was badly worded and had been prepared in a hurry. The meaning given to the wording of the Bill by the Superintending Architect of the Council was different from that of the opponents of the Bill.

Mr. Shepherd observed that there was a strong opposition, not to the principle of the Bill, but to the various details from the beginning to the end. He wanted the provisions contained in the Bill as much as any one, but the Council would be more likely to succeed if they postponed the Bill than if they went on with it. The District Surveyors had brought objection after objection to the Bill, though they said that they wanted something like the Bill under discussion. So far, nothing had been heard of the views of such important bodies as the Royal Institute of British Architects and the Surveyors' Institution, and the Council was courting disaster if it proceeded. There was no chance of getting the Bill through unless they threw up the retrospective clauses, and he would rather withdraw the whole Bill than do that.

Mr. Saker considered there were three reasons why they should not proceed with the Bill. First, it was a hopelessly bad Bill; secondly, it was contrary to the wishes of every community in London; and thirdly, it was a Bill which would never pass into law. Many parts of the Bill were very stringent. For instance, notices had to be served upon the owner, and if he did not comply with the requirements within twenty-four hours the place might be shut up! The occupier was not informed.

Mr. McKinnon Wood said they were not asking the Council to go back on its policy of improving the safeguards from fire, but the recommendation was merely a question of tactics and prudence. The building in which the Queen Victoria-street fire took place was a case of a building being adapted as a factory and not being properly used. Before the Bill could pass there would have to be conferences with the architects and surveyors, as well as others. The indefiniteness of the Bill was its great danger; it was so indefinite that people were more afraid of it than they need be.

Mr. Cousins said that he had heard from a well-known architect that to carry out the structural alterations necessary, according to the Bill, in some buildings would entail a cost of over 3,000l.

Mr. Howell J. Williams said that the building trade objected to the Bill because it was entirely in the hands of the Building Act Committee, which they felt was dominated by one or two men. Architects and builders felt that some alteration in the law was necessary, but they objected to such a Bill being sprung upon London without the people most concerned having had something to say about it. If the Bill had been drafted as suggestions, and had been sent round to the various bodies concerned, asking for their assistance and co-operation, the Council would have received help.

Mr. Alliston said the opposition came from the City because the City was chiefly affected. There was no need for such drastic and tyrannical legislation. They were anxious to protect people from fire, but the Bill went beyond anything that was required, and would inflict great injury on a number of people.

Mr. Allen said the Fire Brigade Committee had a serious responsibility laid on them with regard to preventing loss of life from fire, and they thought the Council would be well advised to go on with the Bill. The Chief Officer of the Fire Brigade had many times said that an amendment of the Building Act was required.

Mr. Dickinson said that property was sacred in the House of Commons, and that being so, he was in favour of postponing the Bill.

On a division the amendment was rejected by 66 to 27.

The recommendation of the Committee having been amended, so as to include the



Fire Brigade Committee in (b), it was agreed to.

**Subway for Shallow Tramways.**—On the recommendation of the Highways Committee to expend 208,000l. on the construction of the tramways subway authorised between Southampton-row and Victoria-embankment,

Mr. Beachcroft said that owing to the action of the Finance Committee 70,000l. for the payment of the cost of the acquisition of the necessary lands and easements in connexion with the construction of the subway had been struck out. It seemed to him it was false economy to take power to spend 208,000l. and not take the power for the 70,000l. It would be better to postpone the whole matter, and he moved that the recommendation be referred back.

Mr. E. Collins seconded the motion.

Further discussion on the matter stood over for a week.

The Council adjourned at seven o'clock.

#### ARCHITECTURAL SOCIETIES.

**LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.**—A meeting was held on the 26th ult. of the members of the Leeds and Yorkshire Architectural Society, presided over by Mr. Butler Wilson, at which a paper was read on street improvements in Leeds, by Mr. Fredk. Musto. Mr. Musto claimed that as citizens, and still more as architects, they were concerned in whatever made for the improvement of the city with which they were connected. Leeds had much improved, but it still missed the mark for whilst streets had been made wider, they still remained throttled at their necks through lack of a scheme. The fact was that the laying out of the lines for the main streets and public buildings of the city should not be left to chance and spare moments. Leeds did not make a very favourable impression upon those who entered it. He did not think of comparing the town with Oxford or Warwick, or a city like Bristol or York, which made up for the absence of dignity by the presence of old-world charm. But he fearlessly declared that in the aspects of its streets and most of its buildings Leeds was far behind Manchester, Liverpool, and especially Glasgow. There was an air of something almost amounting to squalor about the town that even the City-square and Boar-lane could not destroy, and that Briggate would certainly not reduce. City-square served to provide a good first impression, and he hoped it would be long ere its dignity was spoiled by the ceaseless careering of trams round it as a general changing station. It was far better than Foster-square at Bradford, though the vista from the latter up Market-street was very fascinating. But City-square badly needed the statue, which would help to mitigate the bad effect of the Post Office buildings; and he thought the circular balustrade, enclosing nothing and cutting off the sight of the base of the new buildings, was an absolute waste of money. The widening of Infirmary-street to 75 ft. was not a crying need. Though it was too narrow, Park-row was a street of which they might well be proud, happy in the diversity of its buildings and the way they were caught "end on" together with the appearance of the Exchange, which he considered the second best building in the town. The Cathedral was to be moved, and the vista, he was afraid, closed by a gradually diminishing line affording a flank view of shops. Great George-street had now arisen from its desolation, and was becoming an important street, with at least one building in it which would be an object of pride to architects. In time he considered it would form part of an important "through line" east to west, relieving the upperhead-row, and connecting with Quarry-hill. The widening of the lower part of Woodhouse-lane was commendable; but what were the authorities aiming at? Was there any scheme or definite line, and, if so, how far did it reach? Guildford-street had been getting widened for years past. Of course, the wretched shanties at Albion-street corner were doomed; but what lines were to be pursued? If some of the money which had been spent on making some of that back street, and s'-lane, rather less of a back street, had been spent in improving Guildford-street, the gain in appearance would have been as great as in point of convenience. Briggate possessed all the materials for an effective appearance some day. There was the promise of a build-

ing on a good scale in the Grand Central Hotel; but when they thought of Corporation-street, Birmingham, or Lord-street, Liverpool, what a contrast! Boar-lane, though presenting no single building of which the design was a pleasure to contemplate, was in the sum total far more worthy and dignified. The Vicar-lane scheme was good; but had they noticed its rise and fall and snake-like windings, and how, when approaching from North-street, the new market buildings hid their face. A straight line would have left the Dispensary intact, and run beyond Kirkgate and the Corn Exchange to Swingate. He did not see how the new street from Briggate to Albion-place could relieve Commercial-street or be a success. It began badly, and was not quite in line with Albion-place. With regard to what might be done, he suggested a line of access from the end of Roundhay-road to Woodhouse-lane, near Carlton-hill. Most of the line existed already, but there was no leading thoroughfare. He would like, too, to see a street cut in prolongation of Oxford-place by Park-square to Park-place; and a better access to the Yorkshire College and Grammar School than was provided by the present College-road, with its plentiful supply of back areas and middens. As for Victoria-square, he would leave that in their hands. It rested with the authorities to say if Leeds was always to be left behind by other and smaller cities, or whether, by doing things in a bold way and going straight forward, and having an ample and properly worked scheme, they would attain the position due to the size, population, and prosperity of the city. At the close, a vote of thanks was accorded to the lecturer, on the motion of Mr. G. F. Bowman, seconded by Mr. W. H. Thorp.

**EDINBURGH ARCHITECTURAL ASSOCIATION.**—At a meeting of the Edinburgh Architectural Association, held in the Association's Rooms, 117, George-street, on the 25th ult., Mr. A. Hunter Crawford, the President, in the chair, Mr. Daniel Macfie read a paper on "Artificial Lighting in the Nineteenth Century," which was illustrated by limelight views. Alluding to the street lighting of Edinburgh, Mr. Macfie said it was little short of a scandal that in twentieth-century Edinburgh a unique installation of an antiquated and effete style of gas-lamps existed side by side with the electric arc lamp. It was true that in some six thoroughfares throughout the city there were specimen installations of incandescent gas-lighting, but these and the thirty-eight miles of electrically-lit streets served only to bring into stronger relief the 150 miles of streets within the city boundaries which were still lit with an effete style of gas-lamp. The juxtaposition of electric arc lamps and an effete type of gas-lamp consuming only 2 cubic feet of gas per hour, doing eight-candle duty, was not matched in the United Kingdom, and it was not creditable to the powers that be that, while they had widely and generously adopted the electric arc lamp for street lighting, no sustained effort had been made to improve a system of gas lighting already existing. There need be nothing but praise for what had been done in electric lighting, but as it appeared to be generally conceded that on account of the cost a halt must be called in that direction, it might not be unprofitable to inquire what steps might be taken, and at what cost, to improve the 150 miles of gas-lit streets in Edinburgh to-day. As a first step towards that end, the present globe lamp with its blow-hole should be abolished, and with all convenient speed. To replace these, square-tapered lanterns might be substituted at a slightly increased cost, and these could be of a type that would suit equally well with an enlarged flat flame burner or a Welsbach incandescent burner. The only method worthy of serious consideration for use for important streets was the adoption of the incandescent burner—preferably in a square, tapered lantern, as suggested. Already incandescent gas lamps were installed in several quarters of the city, lighting about one and a-half miles of streets, but "the man in the street" might be excused if he came to the conclusion that no serious or well organised attempt was made to keep these lamps and their burners in the best condition. Edinburgh was at present only spending about 2,030l. more for the gas lighting of 15½ miles than it was spending on the electric lighting of thirty-eight and a-half miles. No one would suggest that what had been done in electric lighting was not well done; but it was most reasonable to suggest that the time had come to improve some portion of the

remaining three-fourths of their streets, which had been denied the luxury of electric lighting. A modest beginning might be made with, say, fifty miles of the more important thoroughfares with 3 ft. incandescent gas-lights at a cost of say 34s. 7d. per lamp, an extra of 15s. each, or an additional charge of 46l. 15s. per mile per annum, with lighting power five times increased. To this would have to be added the cost of mantle and renewals and the initial cost of new lanterns, but those globe lamps displaced could be used for the outlying districts until such time as the globe lamps were finally superseded. The 100 miles of streets still remaining might at once have burner tips consuming 3 cubic ft. per hour substituted at a merely nominal cost, while the increased charge for gas would only amount to 10s. per lamp per annum, giving a light 75 per cent. better. Such globe lamps as remained in use might have a metal lifting flap for the covering of the present blow-hole.—On the motion of Mr. Thomas Ross, Mr. Macfie was awarded a vote of thanks.—The Associate Section held a meeting on Wednesday, March 4, in the rooms, 117, George-street, Mr. J. D. Trail in the chair. Mr. James Gillespie read a comprehensive paper on English spires and towers, which took the form of a review and criticism. In the course of his paper he dwelt first upon the importance of towers and spires in architectural design; pointing out how their use on a building at once adds to it that stateliness and dignity which elevation always conveys. He contended that for good outline and beauty of detail none could be found to excel the Gothic spires of England. The position and uses of the central and western towers was explained. The history of spire growth was next dwelt upon, beginning with the simple pyramidal capping of the Norman period, then the "broach" form of spires, with all their variations and developments so commonly employed in the Early English period, and, finally, the Decorated and Perpendicular towers and spires. Numerous examples of each class were shown and discussed. The paper concluded with some Renaissance and some Scotch towers and spires, with special reference to Edinburgh towers and spires. The lecture was illustrated by a splendid series of limelight views and measured drawings.

#### THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A SPECIAL general meeting of the Royal Institute of British Architects was held on Monday at No. 9, Conduit-street, W., Mr. Aston Webb, A.R.A., F.S.A., President, in the chair.

The Chairman announced that the meeting was convened pursuant to by-law for the purpose of electing the Royal Gold Medalist for the current year, and moved in accordance with notice that Mr. Charles F. McKim, of the firm of Messrs. McKim, Mead, & White, of New York, U.S.A., be elected for the honour. Whereupon it was resolved, *nem. con.*, that, subject to his Majesty's gracious sanction the Royal Gold Medal for the promotion of architecture be awarded this year to Mr. Charles F. McKim, of New York, for his work as an architect.

This concluded the business of the special meeting.

The ninth general meeting of the session was then held. The President, referring to a circular recently issued to architects and others, headed "A Government Diploma for Architects," announced that the Council were still opposed to any such scheme of registration as that set forth in a previous Bill dealing with the same subject, but when the details of the proposed Bill were before them and had been duly considered, the Council would be prepared to give their definite views as to the course to be taken.

The following candidates for membership were elected:—*As Fellows*, Sir R. Rowand Anderson, LL.D., F.R.S.E., Edinburgh; and Messrs. W. Ainslie; T. E. Cooper; H. Davis, Scarborough; J. Macintyre Henry, Edinburgh; W. Stirrup, Blackburn; W. Angelo Waddington, Manchester; J. H. T. Wood, M.A., Cantab; A. W. Yeomans, Chard, Somerset.

*As Associates*, Messrs. R. Bennett, Buxton; W. E. Brooks; F. B. Chester; W. St. Leger Crowley, Cardiff; W. Greenwood, Blackburn, Lancs.; J. H. Higson, Blackburn;



J. Holt, Wilmslow, Cheshire; C. H. Hopson, Canada; H. J. B. Hoskins, Birmingham; J. I. Price Jones, Cardiff; J. M. Lethbridge; T. F. Macleannan, Edinburgh; T. McLaren, Montreal; C. E. Monro, Glasgow; G. S. Nicol, Birmingham; C. E. L. Parkinson; F. G. Richardson; N. T. Salmon, Reading; S. Towse; W. H. Watkins, Bristol; H. White; F. Carr Wrigley.

*As Hon. Corresponding Member, Constant Moyaux, Member of the Institute of France, President of the Société Centrale des Architectes Français, Paris.*

The meeting then proceeded to a discussion of the measure for amending the London Building Acts, and upon the invitation of the President Mr. J. Douglass Mathews, Chairman of the Practice Standing Committee, briefly reviewed the provisions of the Bill and dealt with the alterations suggested by his Committee. The impracticable nature of the measure in various respects having also been pointed out by other speakers, the Chairman announced that the Council would take the necessary steps to oppose the Bill should it come before Parliament.

A vote of thanks to the Practice Committee for their labours in connexion with the Bill was passed by acclamation.

The proceedings then closed, and the meeting separated.

### Illustrations.

#### DESIGN FOR A TOWN CHURCH.

**T**HIS is the design submitted for the Soane medalion this year, under the title "New Era," by Mr. F. J. Horth, of Hull; a design which, as we observed in our general review of the students' drawings a few weeks ago, we thought might well have deserved a "Medal of Merit" or an "Honourable Mention" in the competition.

The following is the author's description of his intentions in the design:—

"For the town church design it was my endeavour to give the greatest possible congregational area, free from all obstructions in the form of columns, &c., and the dome form of plan with shallow apse struck me as being the best way out of the difficulty. The arrangement of choir and bringing forward of altar was suggested in Mr. Emerson's paper, which we were advised to follow. The interior is finished in marble and mosaics; the exterior faced with stone and narrow bricks, with 3-in. white joints, and the twin towers and concrete dome I thought would form a pleasing effect in light and shade, and perhaps add somewhat to the skyline of the town."

#### BUSINESS PREMISES, JERMYN-STREET

The illustration shows Messrs. Stenden & Co.'s new premises, erected at the corner of Jermyn-street and Wells-street. The building is faced with Portland whitened brown stone, backed with stock bricks.

The contractor was Mr. John Greenwood, of London; Messrs. J. & A. Crew were the masons, and Messrs. Measures Bros. did the constructional steel work. The ground floor is fitted up with wainscot oak fittings and offices. The joinery on the upper floors is of pitch pine.

Mr. Reginald Morphew is the architect.

#### "TENANT TREES."

In the absence of a plan, which in this instance the architect is precluded from furnishing, the arrangement of this house can hardly be read from the view which we give; it may be, however, sufficient to say that the nucleus is a large sitting-room hall from which the staircase is separated by an open screen, and which has the bay shown in the view, and an oratory on opposite sides of it. The offices run towards the back, and at right angles to them, forming a "Z" on plan, is the stabling. A forecourt, with paved pathway, is on the entrance front. The porch is of three stories, the upper constructed of timber and, like the greater part of the work above the ground story, is covered with rough-cast.

The house was erected by Mr. Kite, builder, Salisbury, from the designs of Mr. C. E. Ponting, architect.

#### JAPANESE ORNAMENT: PLATE IV.

THESE illustrations are given in connexion with the third serial article on Japanese ornament, which will be found on another page; they are there referred to and described.

#### ENGINEERING SOCIETIES.

THE INSTITUTION OF CIVIL ENGINEERS.—At the ordinary meeting of this Institution on the 24th ult. Mr. J. C. Hawkshaw, M.A., President, in the chair, the paper read was "Mechanical Handling of Material," by Mr. G. F. Zimmer, Assoc. M. Inst. C.E. Mechanical appliances for the conveyance of material from one point to another were undoubtedly of the first importance owing to the economy which they effected; and, in round figures, the saving of one man's wages warranted an outlay of 1,000l. in machinery. The paper treated only of such methods as dealt with material continuously, that was, which received and delivered it in an uninterrupted stream; and passed over such methods as light railways, ropeways, &c. The appliances were described under three heads, viz.: (a) Appliances for lifting in a vertical direction, or from one level to another, called elevators; (b) appliances for moving material in a horizontal direction, called conveyors; (c) appliances which combined the two former operations. Elevators in a primitive form had been known and used for a considerable time, and since their introduction had undergone little alteration except in details. They consisted of endless belts or chains, to which suitable shaped buckets were attached, and which ran over two terminal pulleys, fixed at different levels. Grain-elevators were usually vertical, and were encased in wooden and iron trunks; while mineral elevators were generally in a slanting position at an angle of 45 deg. to 60 deg. Grain elevators were fitted with leather or textile bands, while mineral elevators had malleable- or wrought-iron chains as support for the buckets. Grain elevators, travelling at a speed of 250 ft. to 350 ft. per minute, according to the size of their terminal pulleys, could deliver satisfactorily if in a vertical position, while mineral elevators, which travelled at the rate of only 50 ft. to 160 ft. per minute, required the inclined position, so as to discharge their load clear of their own buckets. Inclined elevators were more easily driven than vertical elevators, on the principle of the inclined plane. In vertical elevators, in order to effect perfect discharge, the centrifugal force must be sufficient to overcome the gravity of the material; so for a specifically heavy material it was necessary to have a higher centrifugal force—that was, greater speed of elevator—than for a specifically lighter material. While it was usual to run coal-elevators at 90 ft. to 130 ft. per minute, according to the friability of the coal, coke-elevators ran at only 50 ft. to 90 ft. per minute. On the other hand, minerals which did not deteriorate through breakage could be elevated at the rate of 120 ft. to 160 ft. per minute. A very rational form of elevator was that fitted with a continuous chain of buckets. It was of much larger capacity than an ordinary elevator of the same dimensions. It received and delivered the feed more uniformly, and as the buckets need not plough intermittently through the contents of the elevator-well, slightly less driving-power was required. The types of conveyor were numerous, and some of them were of great antiquity. The oldest type was undoubtedly the Archimedean screw, worm, or spiral conveyor. It consisted of a continuous or broken blade screw described round a spindle, revolving in a suitable trough, and thus propelling the material slowly from one end of the trough to the other. The ratio of the diameter to the pitch of all worms, depended upon the kind of material to be conveyed. It ranged from a pitch of one-third of the diameter to a pitch equal to the whole diameter of the worm, and even more. The greater the pitch, the greater the driving-power required. A detail of great importance in all worm conveyors was the intermediate bearing. This, if cumbersome, obstructed the passage of the material, a result which was to be carefully avoided. Delivery of the material from a worm-conveyor could be effected at a number of points: it was only necessary to provide a suitable outlet. The principal advantages of the worm-conveyor were its simplicity and small first cost; it was, moreover, of great service where a mixing of the material to be conveyed was desired. The chief disadvantage was the large amount of driving-power required, and the breakage of the material conveyed. Conveyors of the Drag or Push-plate type consisted of a fixed open trough. The material to be conveyed was deposited in this trough, and was pushed or dragged along by a

series of plates attached to an endless chain. The speed of travel ranged from 60 ft. to 180 ft. per minute. The cable conveyor consisted of a V or U shaped trough through which was dragged a wire rope with disk-like attachments. The speed of travel was 100 ft. to 120 ft. per minute. Band conveyors had been introduced a little more than twenty years ago, and were now one of the best means of conveying large quantities of almost all kinds of material, especially for long distances. They consisted of a band which ran over two terminal pulleys. Early band conveyors had been almost entirely used for conveying grain. The tightening of a band conveyor was done in a similar manner to the tightening of elevators. In long conveyors the tightening-gear consisted of a pulley held in tension by weights over which the belt passed. The tight side of the band was the one which should preferably be used for conveying the material. To withdraw the feed of a band-conveyor at an intermediate point, a throw-off carriage was employed. The speed at which band-conveyors for grain were run, varied from 150 ft. to 600 ft. per minute. The lower speed was for oats or other grain which contained a quantity of chaff that would be blown off the band at a speed exceeding 500 ft. Maize, beans, and heavier seeds were conveyed at the highest speed of 600 ft. per minute. Band conveyors for heavy materials, such as coal, coke, minerals, &c., were very similar to those previously described, with the exception that all the fittings were much more substantial. The principal advantages of band-conveyors were the small amount of power required to drive them, and the fact that they did not injure the material conveyed. The disadvantages were that a great many small bearings had to be oiled and kept in repair. The continuous trough or travelling trough-conveyor consisted of an endless trough, the sections of which were riveted to the links of suitable chains. The endless trough travelled over two terminal pulleys. These conveyors travelled at 75 ft. to 100 ft. per minute. They were in their construction very similar to the push-plate conveyor, but each section of trough took the place of a push plate on the endless chain. The travelling trough conveyor was the latest type, and consisted of troughs which received the material at one end and delivered it to the other by means of a succession of suitable backward and forward movements of the troughs. These might, therefore, be classed together with the two previous types, the band and the travelling-trough conveyors, as in all three the material was, so to speak, conveyed in a trough without the action of a stirring or pushing element, as was the case with worm-, push-plates, and cable conveyors. It was obvious that all kinds of materials which deteriorated through rough treatment should be conveyed on appliances of the last three types. The support of the trough in its reciprocating motion had been effected by flexible legs in an oblique position. For considerable lengths and capacities the conveyors were balanced. The load could be fed into or withdrawn from any of these conveyors at any number of points, without cessation of work. The material travelled at the rate of 40 ft. to 70 ft. per minute. Under the heading (c) there were only two types to be mentioned—the travelling or tilting bucket conveyor and the pneumatic conveyor. The former consisted of two endless chains or ropes held at certain distances apart by suitable bars which were fitted with small rollers at each end. Every link, and sometimes every second link, carried a bucket, so that the whole was an endless chain of buckets, which were not, however, fixed like an elevator bucket, but were movable, and suspended above their centre of gravity, so that they were always in an upright position, whether they were moving horizontally or vertically. Each bucket carried its load to the point at which delivery was required, and here it was met by an adjustable device which tilted each bucket in its turn and thus emptied the contents. The material to be conveyed was not injured in the least. Such conveyors required little driving power, and one main drive was sufficient for a whole installation. The second and last appliance under this head was the pneumatic elevator. Mr. F. E. Duckham, M. Inst. C.E., had designed the apparatus which had been in use at the Millwall Docks and in docks of other ports since 1895. The plant consisted of an air-tight tank from which a pipe was connected to the bulk of material to be conveyed. The air was withdrawn from this tank by means of

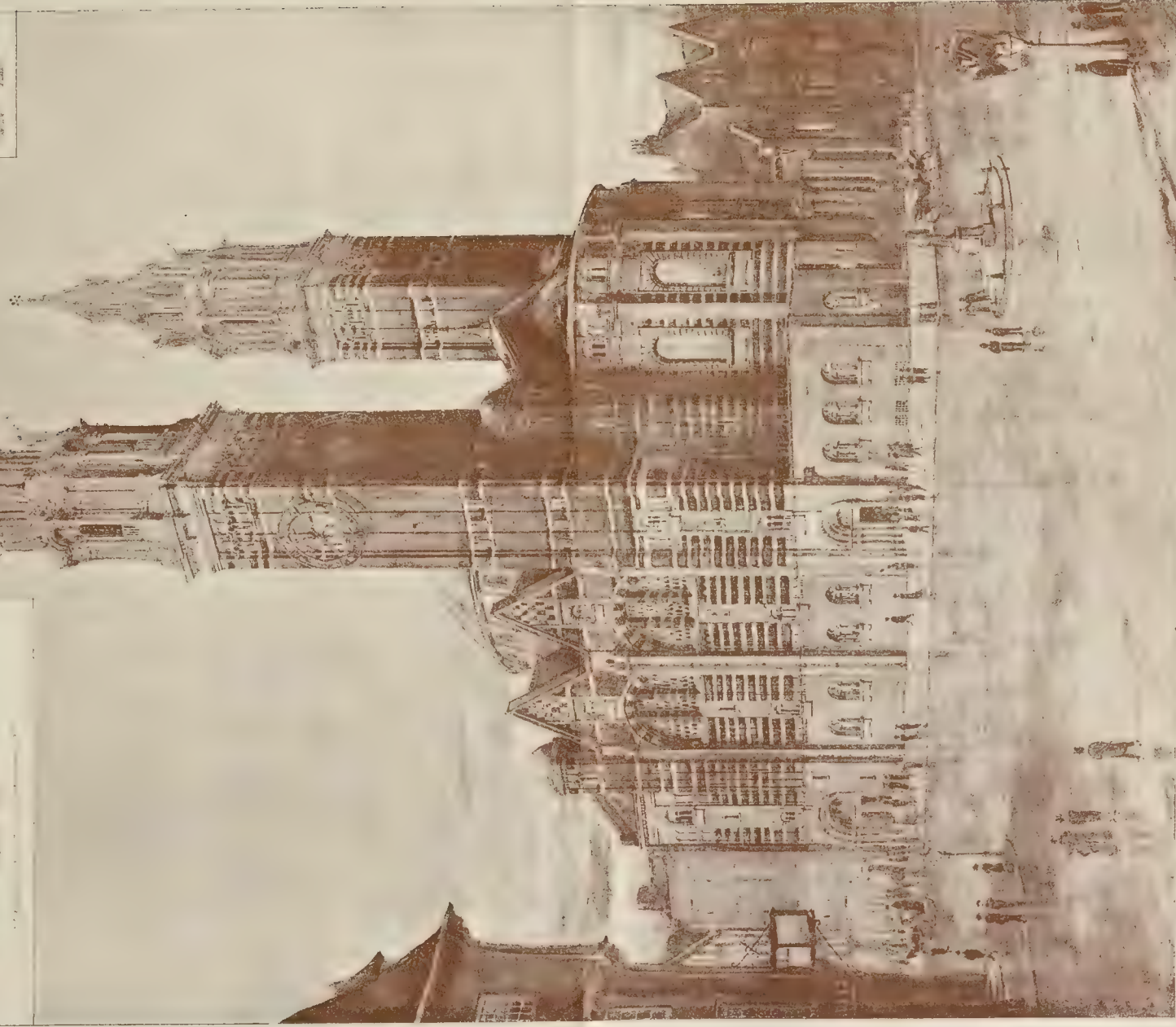




PLAN



PLAN

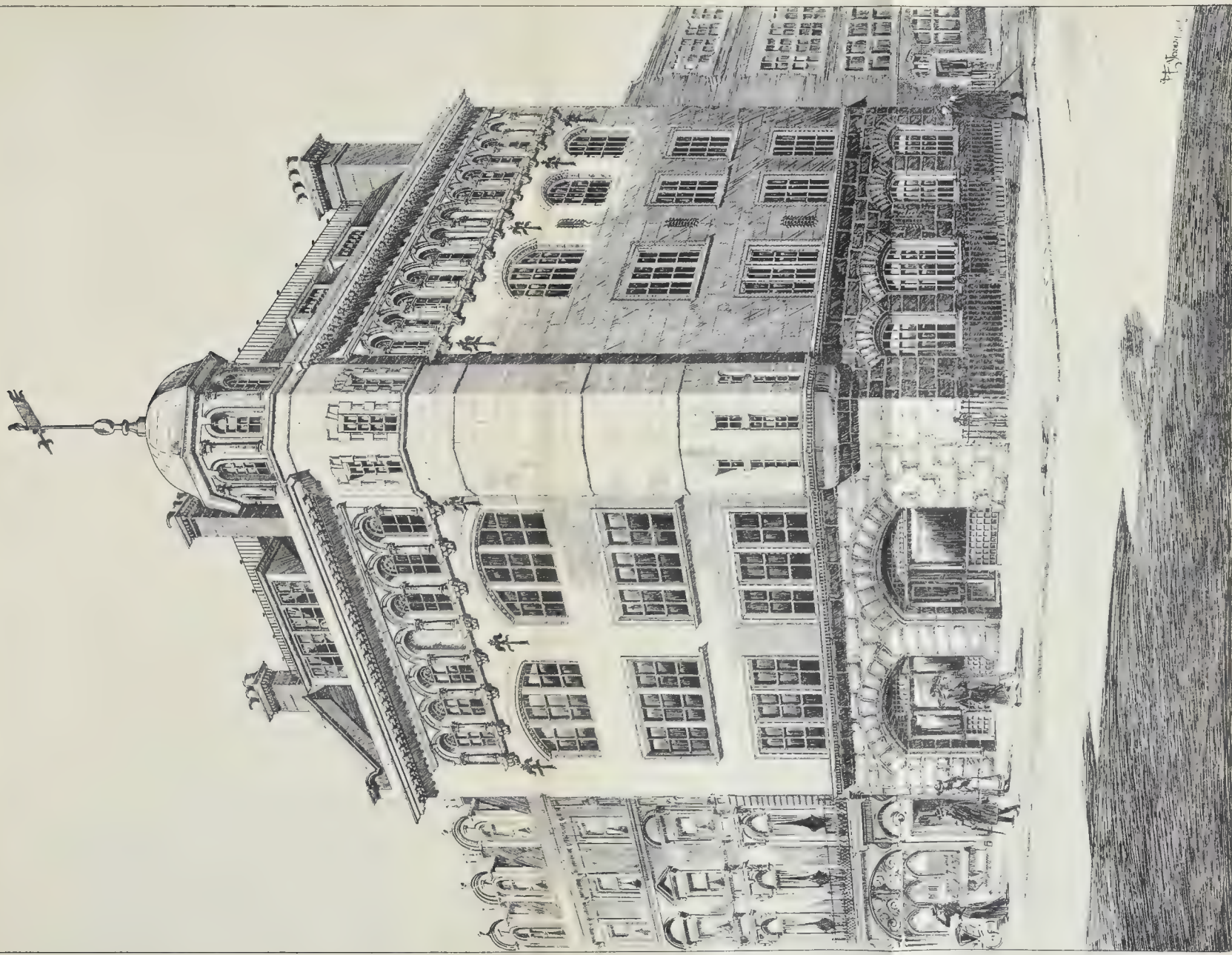


DESIGN FOR A TOWN CHURCH BY MR. F. J. BORD  
(JULY 1891 IN COMPETITION FOR THE TOWN OF BOSTON)







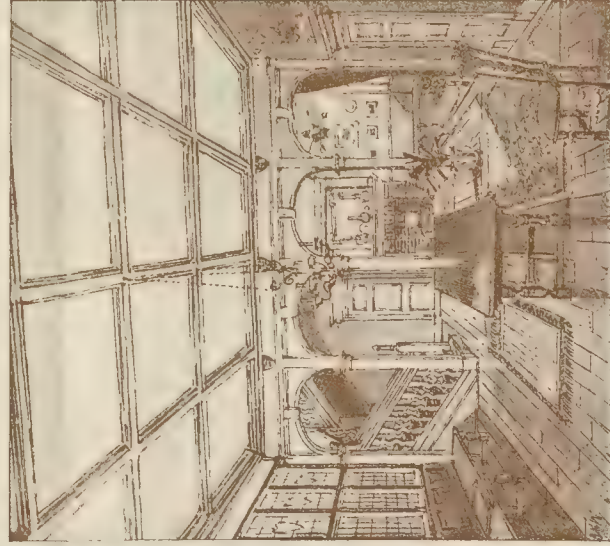


BUSINESS PREMISES, JERMYN STREET.—MR. REGINALD MORPHEW, ARCHITECT.

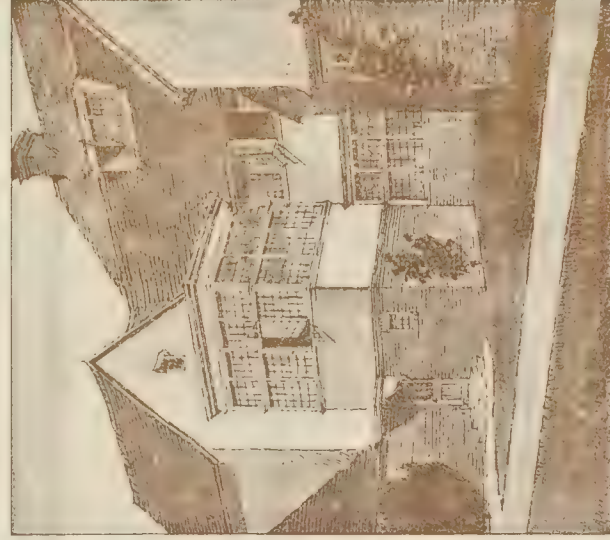








*View of hall*



*Staircase Bay*

NO. 1007, STAMPAER & SONS, 100, MARK LANE, LONDON, E.C. 3

"TENANTREES," KNIGHTON, DORSET MR C E PONTING, F.S.A., ARCHITECT









Fig. 1



Fig. 6



Fig. 2

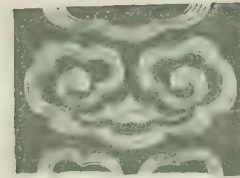


Fig. 18



Fig. 11

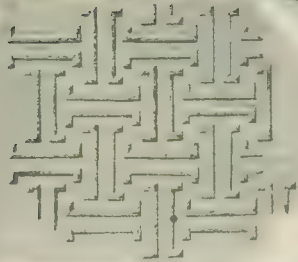


Fig. 3

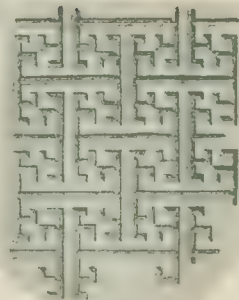


Fig. 4

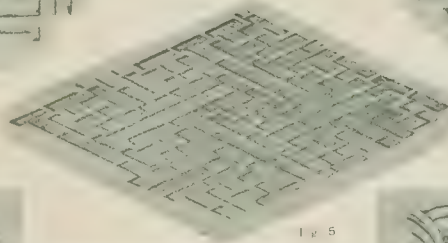


Fig. 5



Fig. 21



Fig. 15



Fig. 16



Fig. 12

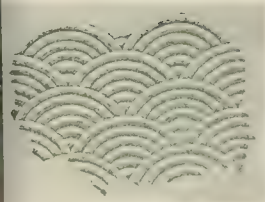


Fig. 7

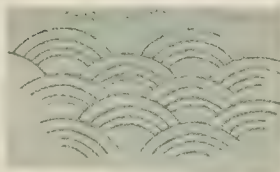


Fig. 9

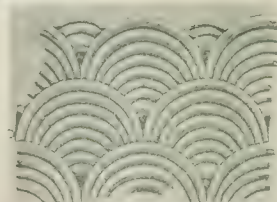


Fig. 8



Fig. 20

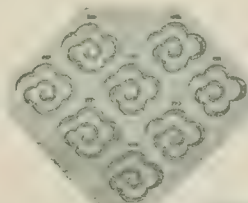


Fig. 10

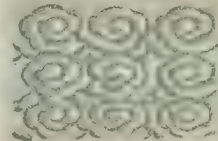


Fig. 17



Fig. 19

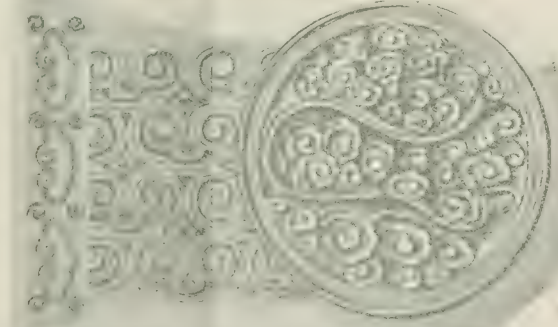


Fig. 14

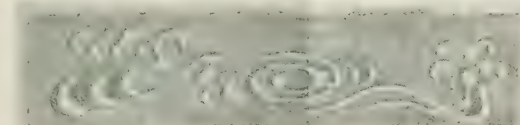
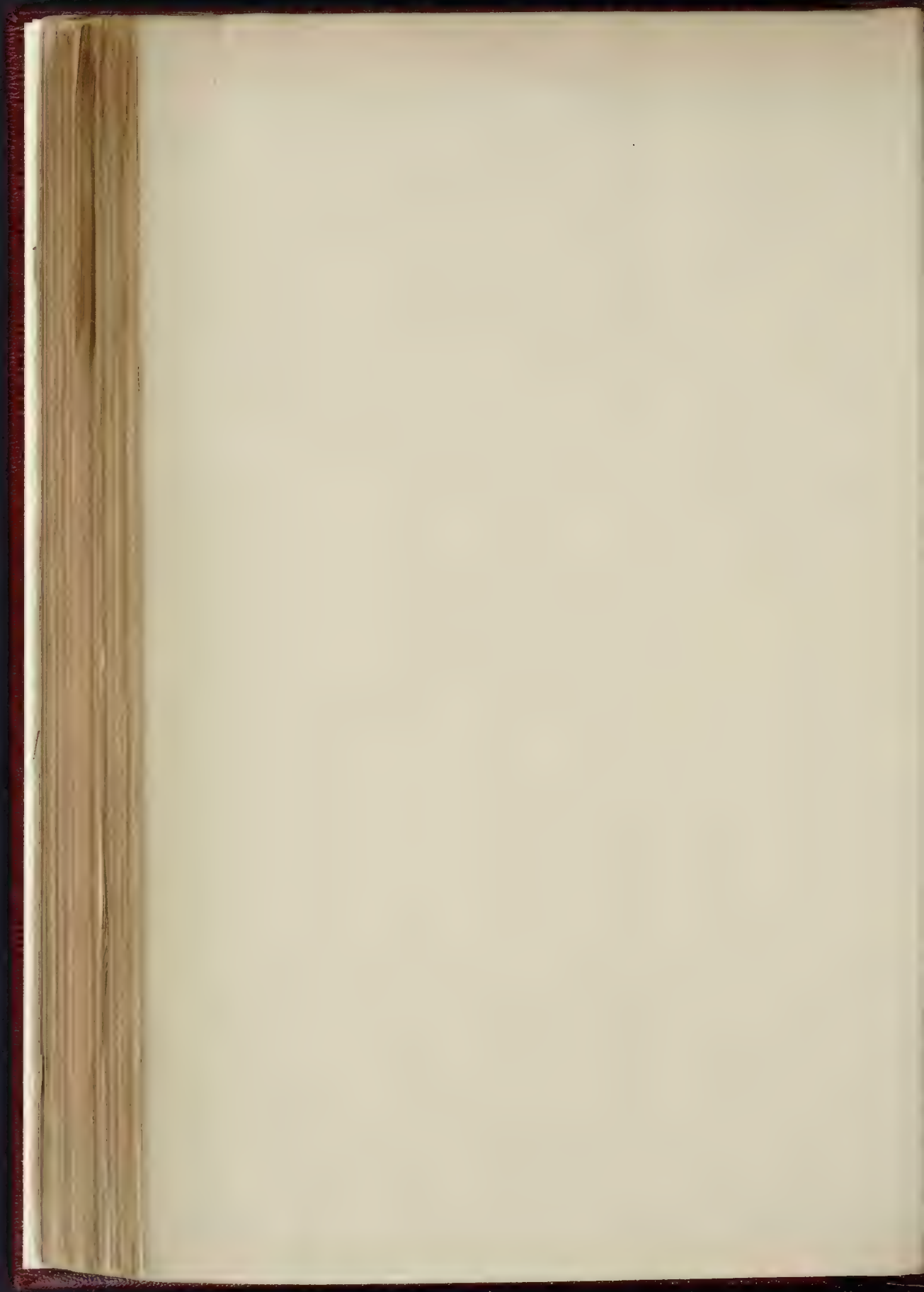


Fig. 13







a second pipe connected to an exhaustor, and as the air passed through the first-named pipe it drew the grain with it into the tank. The arrangement for removing the grain from the tank without destroying the vacuum was described and illustrated. The Bolinder timber conveyor was also described. Provision was made in many modern power-stations, gasworks and mines for automatic handling of the materials; and there was no reason why labour-saving appliances should not be employed in dock works, &c., for the handling of the excavated material. The paper was illustrated by diagrams and accompanied by numerous tables of data as to the capacity of elevators and conveyors of different sizes and speeds and the amount of power required for working them.

## APPLICATIONS UNDER THE LONDON BUILDING ACT, 1894.

THE London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses:—

### Lance of Frontage and Projections.

**Chelsea.**—Buildings on a site on the east side of Beaufort-street, Chelsea (Messrs. N. S. Joseph, Son, & Smith, for the Chelsea Borough Council).—Consent.

**Dulwich.**—Wood and tile porches in front of twenty-six houses on the north side and twenty-six houses on the south side of Turney-road, Dulwich (Mr. A. Bendall).—Consent.

**Fulham.**—Two houses with shops on the west side of Munster-road, Fulham, to abut upon Horder-road (Mr. J. Hodnett for Mr. B. M. Goldhill).—Consent.

**Leisham.**—Retention of two coal-cellars erected in front of two houses on the north side of Duncombe Hill, Lewisham, westward of Duncombe House (Mr. S. Frampton).—Consent.

**Poplar.**—An illuminated sign in front of the Palace Theatre, Bow-road, Poplar (Mr. B. Crewe for Mr. F. Macnaughten).—Consent.

**Holborn.**—The retention of wooden letter signs in front of No. 14, Gray's-inn-road, Holborn (Mr. R. T. Browne for Messrs. Boisset & Co.).—Refused.

**Clapham.**—The retention of wooden porches and balcony fronts at Nos. 134 to 139 (inclusive), Rodenhurst-road, Clapham (Mr. W. N. Dunn for Mr. R. Maers).—Refused.

**Newington, West.**—A one-story store at No. 69A, Penrose-street, Walworth (Mr. G. A. Lansdown for Messrs. J. T. Biglin & Sons).—Refused.

**Norwood.**—An addition at the rear of No. 20, The Broadway, Norwood-road, Norwood, to abut upon Chatsworth-road and Dilton-road (Mr. A. Stevens for Mr. J. Swann).—Refused.

### Width of Way.

**Greenwich.**—A two-story building on the south side of Benbow-street, Hughes-fields, Deptford (Mr. J. Webster for Messrs. May & Roberts).—Refused.

**Newington, West.**—Two two-story buildings at the rear of Nos. 187 and 188, Great Dover-street, Southwark, with external walls at less than the prescribed distance from the centre of the roadway of Warren-place (Mr. G. A. Lansdown for Messrs. Johnson & Co.).—Refused.

**Lincoln.**—A forecourt boundary (an iron railing on a brick base), in front of Hinkley House, Durham-row, Stepney (Mr. O. F. Stenning for the trustees of the Hinkley Guild).—Consent.

### Width of Way and Line of Frontage.

**Strand.**—Two iron and glass shelters at the entrances to Sir Charles Wyndham's theatre, St. Martin's-lane and St. Martin's-court, Westminster (Messrs. Starkie Gardner & Co. for Sir Charles Wyndham).—Consent.

**St. Pancras, West.**—Two one-story shops on the south-east side of St. Mary's-terrace, Arlington-road, Camden Town (Messrs. S. Jones & Co. for Mr. B. P. Lucas).—Refused.

### Space at Rear.

**Hampstead.**—A modification of the provisions of Section 47 with regard to open spaces about buildings, so far as relate to the proposed erection of No. 7, Glenloch-street, Hampstead, with an irregular open space at the rear (Mr. C. J. Bentley for Mr. J. C. Hill).—Consent.

### Width of Way and Space at Rear.

**Kennington.**—A three-story stable building, with loft over, on a site on the west side of Vauxhall-walk, Lambeth (Messrs. J. A. J. Woodward & Sons for Mr. W. Clarkson).—Consent.

### Deviation from Certified Plans.

**Southwark, West.**—Deviations from the plans certified by the District Surveyor, so far as relate to the proposed re-erection of the Waterman's Arms public-house on the south side of Binkside, South-

wark, to abut also up in Pike-gardens (Mr. F. Bailey for the City of London Electric Lighting Co., Ltd.).—Consent.

### Formation of Streets.

**Dulwich.**—That an order be issued to Mr. W. Oxboby, sanctioning the formation or laying-out of a new street for carriage traffic to connect Azeby-square with Lyndhurst-grove, Camberwell (for Camberwell Borough Council).—Consent.

**Hammersmith.**—That an order be issued to Messrs. Richardson & White refusing to sanction the formation or laying-out of a new street for carriage traffic in continuation of Heath-place, Uxbridge-road, Hammersmith, and the widening of the existing portion of Heath-place to 40 ft. (for Messrs. Griggs Bros.).—Refused.

### Means of Escape at Top of High Buildings.

**City.**—Means of escape in case of fire, proposed to be provided on the fourth story of the Wesleyan Centenary Hall, Bishopsgate-street, City (Messrs. Gordon & Gunton for the Trustees of the Wesleyan Missionary Society).—Consent.

**St. George, Hanover-square.**—Means of escape in case of fire, proposed to be provided on the fourth, fifth, sixth, and seventh stories of a proposed addition to the Grosvenor Hotel, Victoria Station, Westminster (Mr. C. L. Morgan for the London, Brighton, and South Coast Railway).—Consent.

**Strand.**—Means of escape in case of fire, proposed to be provided on the sixth story of Nos. 27 and 28, Pall Mall, St. James (Mr. F. E. Williams for the Wilkinson Sword Co.).—Consent.

### Artisans' Dwellings.

**Chelsea.**—Five blocks of dwelling-houses to be inhabited by persons of the working class, and proposed to be erected, not abutting upon a street, on a site on the east side of Beaufort-street, Chelsea (Messrs. N. S. Joseph, Son, & Smith for the Chelsea Borough Council).—Consent.

### Buildings for the Supply of Electricity.

**Paddington, South.**—The conversion of two stable buildings and a convertor house, Nos. 1, 2, and 3, Norfolk Crescent-mews, Titchborne-row, Paddington, into a transforming sub-station (Mr. E. C. Owen for the Metropolitan Electric Supply Co., Ltd.).—Consent.

### Dwelling Houses on Low-lying Land.

**Lambeth, North.**—A dwelling-house on low-lying land situated at No. 11, New-cut, Lambeth (Messrs. Flood & King for Mr. J. Clarke).—Consent.

**Lambeth, North.**—Three dwelling-houses on low-lying land situated at Nos. 12, 13, and 14, New-cut, Lambeth (Messrs. Flood & King for Mr. H. Ruscoe).—Consent.

**Greenwich.**—Five shops and houses on low-lying land situated at Woolwich-road, Greenwich, next No. 345, with a cottage at the rear thereof facing Morley-road (Mr. A. E. Parrell for Mr. J. Sanford).—Consent.

\* \* The recommendation marked \* is contrary to the views of the Local Authority.

## THE LONDON BUILDING ACT.

AT the usual fortnightly Court of Common Council, on Thursday last week, the Streets Committee submitted a Report relative to the London Building Acts (Amendment) Bill in Parliament, and the resolution of the various City Wardmotes, &c., thereupon, and recommended that, "having regard to the general opposition to the said Bill, a representation be made to the London County Council, asking them to withdraw the measure, and to arrange a conference with the Corporation and the Metropolitan Borough Councils to consider the whole subject with a view, if possible, to a Bill being framed that would effect the object in view without needlessly oppressing property owners."

Mr. A. C. Morton, who moved the adoption of the Report, thought that much might be done to minimise the danger of fire in warehouses, but the present Bill was much too harsh. The Report was adopted. In view of the threatened opposition to the Bill, the Parliamentary Committee of the London County Council recommended at the meeting of the Council on Tuesday that it be withdrawn. After discussion, the recommendation was carried. See our County Council report this week for some notes of the discussion. Following on the decision arrived at by the Council, the order for the second reading of the London Building Acts (Amendment) Bill was read in the House of Commons on Wednesday and discharged, and the Bill withdrawn. Sir F. Dixon-Hartland had on the paper a notice to move the rejection of the measure.

YEAR BOOK OF AUCTION SALES.—"The Land and House Property Year Book for 1903" is the eleventh year of issue of a work published at No. 6, St. Bride-street, E.C. It is issued as a guide to investments in real estate, and the contents mainly consist of results of sales at the London Auction Mart, and in the Metropolis, together with many of the chief provincial sales during 1902. The "Year Book," which is published at 6s. net, is a very useful, clear, and well-arranged work.

## Correspondence.

### CHIPPING WYCOMBE TOWN HALL COMPETITION.

SIR.—I am desirous by the President of the Royal Institute of British Architects to ask you to kindly give publicity to the fact that the Corporation of Chipping Wycombe having altered their conditions to meet his views by adding to Clause 3, after the words "themselves prefer," the words—

"but it is the intention and wish of the Corporation to accept the assessor's award unless there should appear any valid reason to the contrary."

and having extended the time for the delivery of designs to April 4, he has consented now to nominate an assessor.

W. J. LOCKE,  
Secretary.

9, Conduit-street, Hanover-square,  
London, W., March 3, 1903.

### THE STAINED GLASS OF THE FUTURE.

SIR.—Surely no one will be deceived by the distortion and exaggeration of your correspondent, Mr. F. C. Eden. It is a cheap, and therefore very common, form of criticism to take a sentence from its context and triumphantly expatiate on its absurdity, especially when one does not want to take the point of view of the person criticised.

If any one cares to take the trouble to refer to my paper, he will find that several essentials are enumerated before the leading comes up for consideration. In one place I say "the artist is first to conceive the light and tone that will be in harmony with his subject." He then goes on to the conception of the colour scheme and the keynote of colour; then the designing or arrangement of figures to fill the space at his disposal. It is then that the lead is considered to emphasise the important lines of the design.

I thought that any intelligent person would gather that this treatment of the lead referred to the linear design, or the drawing of the window. This idea of treating the lead as an important factor in the design was quite unknown to the old men, and I am much obliged to Mr. Eden for being at pains to confirm this statement.

I have always understood that the old men used small leads because it was so costly in those days, but, be that as it may, the fact remains, according to Mr. Eden, that in all their windows they used only  $\frac{1}{4}$  in. lead; which proves that they did not regard it as a decorative factor at all, but simply for its use in holding the glass together. (Of course, I am speaking of their figure work.)

In referring to my use of a  $\frac{1}{4}$  in. lead in a comparatively small window, he omits to mention that I say that would be the principal lead, and that, consequently, a  $\frac{1}{2}$  in. and a  $\frac{3}{4}$  in. lead would probably also be used in the same window. I am just as much opposed as he to the use of a bold lead,  $\frac{1}{2}$  in. or even a 1 in., if one lead only is used throughout. This is a forcible feeble method which does not result in real strength. Architects will understand that if all the members of a decorative scheme are of the same strength there can be no repose, or sense of size and proportion, which are elements of strength; everything comes at you at once. The essence of my method in the leading, as in the departments of colour and tone, is to emphasise the important points, and keep the subordinate parts in due relation to the whole.

To sum up: a  $\frac{1}{4}$  inch lead used throughout is weak and meaningless; one bold lead used throughout is not strong; strength and repose can only come from the use of varied leads.

Mr. Eden and his friends, the imitators, show us to what depths of degradation they can fall in their servile imitation of all the weaknesses and failings in old work. Imitation is universally condemned in every other art; but in this, with their mumbo-jumbo incantation of "There is no glass like the old glass, and there will never be any windows like the old windows," they have got an ignorant public to believe that imitation is the only way, and to accept a sham in place of a reality. Thus the imitation of old windows has become a mechanical manufacture; we can speak of it as "the trade."

I had no intention in my paper of lecturing "the trade," nor am I Quixotic enough to imagine that I could reform it. That would be one of the labours of Hercules: I leave the gentle reader to guess which.

How foolish is the idea that because I do not wish to imitate old work I can have no appreciation for it. It is possible that I think a great deal more of the old men than their superficial imitators. I give them credit for honestly striving to make the best of the limited means at their disposal. It is inconceivable to me that if they were alive to-day they would use the poorest glass and ignore the best. I am confident that their problem would be the same as my own, viz., how to make the best use of the best material.

I am particularly hurt at Mr. Eden's misconception (probably unintentional) in confounding me



with any school or person whatsoever. Whatever may be said of my ideas and methods, in so far as they are not the acquisitions from, and rejections of, what has gone before, they are my own. Mr. Eden is quite at liberty to criticise the painting, colouring, and workmanship of what he calls "the new school," but he must not expect me to defend them. Indeed, he has heard or read my address to little purpose if he cannot distinguish the difference. It did not enter into my purpose to criticise what I should call the new school of sham medievalists, as distinguished from the old-fashioned frankly commercial imitators. My object was to make architects acquainted with the best materials, to show them the latent possibilities in it, the essentials of work based upon that sure foundation, and then let them criticise for themselves.

The future of stained glass remains with the architect. It is for him to say whether he wishes it to remain a dead manufacture, or become a living art.

In conclusion, let me assure those architects who are still shivering on the brink that the best glass, that is to say, Prior's Early English and Powell's Antique, can be adapted to every style of building.

SILVESTER SPARKOW.

#### HOW TO ESTIMATE.

SIR,—I am greatly indebted for your able review and candid criticism of my book for it rebuked for having such imperfections pointed out that they can be remedied in subsequent editions. But the fact that it took ten years to compile the information, three years to write the volume (amid many lengthy interruptions), and half a year to print and publish, will at once explain many of its apparent irregularities. Think also of the delving in about a hundred books, bills of quantities, catalogues, circulars, &c., the statements in which were most conflicting, and the reader will agree with your sympathetic remark that the poor author "may well be appalled by the magnitude of the task he has set himself." And I found it, and am painfully aware of many shortcomings.

With reference to the observation that I have appeared to place rather undue reliance upon constants of labour, I expressly stated on p. 18 that "the practical estimator seldom makes much use of constants." Little use is therefore made by the author of constants in this book, as they are often ridiculously minute as regards the number of decimal places, though they serve as a guide, &c. As a good example of how a contractor may undervalue his labour and lose money on an item through sheer lack of supervision, I may instance the tiled paving of an ordinary porch which came under my notice a month ago. This porch had an area of 6 yards super., and was laid with 4-in. red encaustic tiles, the p.c. of the latter being stipulated in the quantities at 5s. per yard super. Unknown to them, I set a close watch upon the bricklayer and labourer who laid the tiles in cement, and found they took no less than thirty-eight hours to do this bit of work, the labour alone then coming to 7s. per yard with local wages. The cement came to 5d. per yard super. The total cost, including profit, worked out to 16s. per yard, yet the builder's price in the quantities was only 10s. He therefore lost 6s. per yard, and obviously under-calculated his labour, as he afterwards admitted. On the other hand, contractors make up for losses on particular items by larger gains on others, an example of which I similarly discovered in the counting of the time occupied in digging, filling in, and renewing of some 7,000 post holes, which actually came to 4d. each, including profit, although 6d. was the rate put down by the contractor.

That builders make up their prices by guesswork to a large extent is only too obvious from many lists of tenders, a case of which occurred a fortnight since in the Grove Vale housing scheme. The tenders ranged from 71,080l. to 41,000l., and the latter was accepted. Surely the prices in some of these must have been very different, showing how difficult the subject is to even the most experienced men. For instance, in the War Department Schedule of Prices for the London District, lime mortar is given at 10s. per yard cube, while in the London School Board Schedule it is only 12s.

As regards my association with Ireland, I am but temporarily stationed here, and my book can only refer to this country in particular, but its methods are applicable to any locality. It is hardly necessary, therefore, to set up a London standard of prices in a treatise mainly dealing with principles and analyses, especially as the number of builders in the metropolis is merely a fraction of those in other parts of the kingdom, who have to be considered likewise. And costs of material and labour are perpetually changing from many reasons.

The next edition will shortly be published, and in it I hope to avoid the various inconsistencies and discrepancies inevitable in the first issue of a pioneer work, as well as to amend and enlarge the whole book.

JOHN T. REA.

MAP OF LONDON IMPROVEMENTS.—We have received from Mr. E. Stanford one of those useful maps which he produces year by year, giving the lines of the most recent railway and tramway schemes proposed. The price, is 3s. in sheet, or 10s. mounted and in a case.

## The Student's Column.

### BUILDERS' TOOLS AND THEIR USES.

#### CHAPTER 5.

##### Marble Mason.

**ARRARA MARBLE.**—This famous marble is quarried with dynamite. As regards finishing, it is first rubbed smooth with fine sand, then with pumice-stone, and then with two or three stones of variable hardness, finishing off with lead, which gives the last and brightest polish, water and friction doing the work.

**Derbyshire Marble.**—In regard to this part of the subject, it may be convenient to summarise here information which has already been given, in more detail, in a former article in our columns, some years back.

In quarrying Derbyshire marbles, only the rough stone is blasted, good blocks being levered from the face of the workings by plugs and feathers. Drilling is done by hand striking, and the rate of penetration, two men striking, is about 5 ft. per hour for a hole 1½ in. diameter. The material does not split very easily, though the grain is tolerably uniform.

The machinery at the mason's depot attached to these quarries may be summarised as follows, together with a brief allusion to the various processes of dressing. Marble, then, is sawn into slabs by saws set in large frames, the grinding substance being grit-sand from Matlock and the river Trent, and is rubbed by iron rubbing tables revolving on spindles, one of which is 13 ft. in diameter and another 6 ft. The stone is rubbed preparatory to being polished by being weighted and placed on the revolving table, turning at the rate of thirty-two revolutions per minute, from the centre of which to the circumference beams of wood are fixed at intervals, and against these the block rests whilst the table moves round underneath. There is also a polishing bed, as well as stone lithes, one of which takes columns up to 16 ft. in length, and as much as 3 tons in weight, the whole being driven by a powerful steam engine.

Moulded work is here done by hand, and when several stones are employed for one moulding, or for pilasters, they are fixed in plaster of Paris side by side and all polished together, so that the surfaces shall run evenly. Marble is also moulded by placing it on a machine, when iron moulds are rubbed over it backwards and forwards, the grinding action being assisted either with sand and water, or with fine shot and water. After being sanded the Hopton marbles are treated with No. 1 emery flour, and the polish is finally brought out by the application of putty powder.

**Alabaster.**—Although considerably harder than Bath or Caen stone, alabaster is worked like those stones, with toothed saws and steel drags of varying degrees of fineness, first the coarse and then the fine being used. The surface left by the drag is rubbed with coarse sandpaper to remove the marks of the drag, and then with fine sandpaper, all these operations being done in the dry. The surface is next ground with stone grits and water, as in marble polishing, but the grits in this case are used flat instead of on edge. The grits mostly employed are seconds and snake (water of Ayr) stone, which are sometimes rounded up and used on a worsted pad or boss, the seconds grit first, and then the snake. Then mix in equal proportions powdered sulphur and French chalk, and use on the boss moderately moistened with water, working uniformly over every part, and finally finishing with putty powder (oxide of tin). A little sweet oil rubbed on afterwards brings out the veins, and renders the polish brilliant and lasting.

**Polishing Marble.**—Marble is polished in a variety of ways, the choice depending greatly upon the nature and quality of the material, the specimens of which are very numerous. For ordinary marbles the following methods may be adopted. There are four operations:—First.—Smoothing the roughness left on the surface by the tool marks by rubbing the marble with fine sharp sand and water until an even surface is produced.

Second.—It is then "grounded," that is, rubbed with gristones of varying degrees of fineness used with water; coarse or first grit is followed by the finer second grit, and the finishing is done with snake stone (water of Ayr stone), or pumice stone with water. Care must be taken that in each process of gritting the marks or scratches of its predecessor are

removed, so that when the surface is snaked no scratches whatever are visible, for upon the careful gritting depends the success of the ultimate polish.

Third.—For the fourth process, called "softening the ground," lead filings are mixed with the emery mud produced by the polishing of mirrors, and the marble is rubbed with a compact linen cushion well saturated with this mixture. Rouge is also used for this operation.

Fourth.—For polishing itself the gloss is applied. This is effected by well washing the prepared surface, and leaving it until perfectly dry. Then rub with a pad of felt or flannel, sprinkled with putty powder (calcined tin), moistened with water, until the gloss or natural polish is obtained. The chief factor in this method is persistent and attentive rubbing, and a good polish thus obtained will retain its lustre for at least thirty years.

For speed and cheapness chemicals are sometimes employed for polishing, such as oxalic acid, hydrochloric acid (spirit of salts), and a little alum mixed with the water, &c., but their use is to be deprecated, as the polish soon vanishes and the face of the marble is in some measure destroyed. The polishing of marble adds greatly to its beauty, as the delicate figuring and gradations of colouring are clearly brought out.

#### BOOKS RECEIVED.

CHEMICAL TECHNOLOGY. Edited by J. W. Diddle, F.I.C., F.C.S. Vol. IV.: Electric Lighting and Photometry. (J. & A. Churchill. 20s.)

THE LAW AFFECTING BUILDING OPERATIONS AND ARCHITECTS' AND BUILDERS' CONTRACTS. By Isaac Connell, S.S.C. Edinburgh. (William Green & Sons, Edinburgh.)

THE MUNICIPAL YEARBOOK OF THE UNITED KINGDOM FOR 1903. Edited by Robert Mond. (Edward Lloyd.)

TIME AND TIME-TELLERS. By James W. Benson. A Reprint. (J. W. Benson, Ltd. 1s.)

#### GENERAL BUILDING NEWS.

**UNITARIAN CHURCH, HIGHTGATE.**—The memorial stones for the new buildings to be attached to Hightgate Hill Unitarian Church were laid recently. The new buildings are to take the form of a lecture hall and classrooms, facing Hightgate Hill, and occupying the vacant space between the church and schoolroom. The new hall will be 20 ft. wide by 36 ft. long, and will hold rather less than 100 people. Behind it there will be a classroom 16 ft. by 10 ft., and over the existing vestry is to be erected a new vestry. The plans and other minor works have been contracted for by the General Builders Co., Ltd., of Notting Hill. The architect, Mr. Arnold S. Taylor, has designed the new work to group with the existing buildings. The estimated cost is 1,400l.

**LIBRARY, TROEDRYRHU, GLAMORGANSHIRE.**—A new branch reading-room and library has been established by the Mabyr Urban District Council at Troedryrh. The building is constructed of stone, cemented over, with red brick quoins. The reading-room is 29 ft. by 22 ft., and the room for books 12 ft. by 15 ft. There is a lobby and offices. The plans were prepared by Mr. T. F. Harvey, the Council's Surveyor. Mr. Evan Jones, Dowlais, had the contract for the building.

**ADDITIONS, WIMBLEDON FREE LIBRARY.**—Colonel L. W. Longstaff opened the new wing of the Wimbledon Free Library on the 25th ult., the extension having been built from the designs by Mr. J. R. Thomson at a cost of 3,000l.

**HOTEL, HERTFORD.**—A new hotel, the Green Dragon, to be erected at Hertford, at the corner of Maidenhead-street and the Wash, for Messrs. McMullen & Sons, Ltd. The building is in the Elizabethan style, the facings being in red brick, with terra cotta dressings. An arrangement has been made with the Corporation by which the present line of frontage facing Maidenhead-street will be set back an average of 4 ft., and the building will have a circular sweep into the Wash. The entrance to the new hotel will be in Maidenhead-street, and on the corner site facing the Wash there will be erected shop premises. Mr. James Farley is the architect, and the builder will be Mr. George Wigg, of Watford.

**NEW CHURCH, WALTHAMSTOW.**—The foundation-stone of the new Church of St. James's, Walthamstow, was laid on the 21st ult. by Lady Gwendolen Cecil. The church, which is intended to seat nearly a thousand people, will occupy the site of the old Church of St. James. The new church will be of red brick with white stone dressings in the Early English style, and the architects are Messrs. J. E. K. & J. P. Cutts. The cost is estimated at 10,000l.

**TOWN CHURCH OF ST. ANDREWS.**—It is proposed to restore this building, the architect being Mr. Macgregor Chalmers. The galleries will be re-



moved, and the side aisles will be reduced to their original height, which has recently been discovered. The pillars and arches will resume their old places and form, and on them the clerestory will be rebuilt. The side aisles, the "Bishop's" or "Common" aisle will be remodelled, and the corresponding one of smaller size built to the north. A new aisle will be built to the east of the Bishop's aisle. The porch shown in every plan and drawing up to and including that of 1767 will be rebuilt on its former foundations, if they can be found. The tracery of the windows and the mouldings and decorations of the doors will be in keeping with the suggestions given by these old sketches and by contemporary churches. The walls will be of stone throughout. The greater part of the seats will be of oak. It has been decided that the funds raised to commemorate the late Dr. A. K. H. Boyd should be devoted to the erection of the pulpit in the restored church. The estimate of the probable cost of restoration is £5,757.

**WORKMEN'S DWELLINGS, WESTMINSTER.**—The workmen's dwellings, of which the Prince of Wales has agreed to lay the foundation-stone on April 27, are being erected by Messrs. Mowlem & Co. for the Council of the City of Westminster, on the Page-street, Regency-street, and Vincent-street site, after plans and designs made by Messrs. N. S. Joseph, Esq., and others. The site of about 61,000 super. ft. belonged to the Ecclesiastical Commissioners, and was purchased for £2,000. The estimated outlay upon the new buildings amounts to £68,200. The accommodation provided extends to 344 tenements containing 793 rooms, consisting of 45 single rooms to be let, it is anticipated, for 4s. per week, 161 two-room tenements for 7s. 12s. of three rooms for 7s. and 12s. of four rooms for 10s. 6d. per week. The estimated gross rental of 6,674l. per annum will, it is calculated, yield a net rent of 4,150l. yearly.

**COLD STORES, MILLER-STREET, MANCHESTER.**—This building, recently completed, is ten stories in height, with an additional small flat on the roof for the condenser used in connexion with the refrigerating machinery. The basement floor is 22 ft. below the level of the street, and in a portion of it are the boilers and machinery. The offices are on the ground floor facing Charter-street. With the exception of the entrance door and the office windows, there is no opening on the Miller-street and Charter-street fronts. This has given the architects an opportunity for a bold treatment of lofty arched recesses, a strong cornice for shadow, and broad bands of warm buff terra-cotta alternating with deep red brick. The building occupies a plot surrounded by four streets. The Bawwick-road and Ledger-street fronts are utilised on the ground floor for loading, there being platforms and large hoists sufficient to deal with five luries at one time. The Union Cold Storage Co. have widened Ledger-street sufficiently to allow a glass roof covering over the luries loading in that street. The work of building was carried out by Messrs. Neill & Sons under the superintendence of the architects, Messrs. Chas. Heathcote & Sons, Manchester. The most difficult part was the excavation to such a depth, and this was rendered worse by the bursting of one of the Corporation mains in the neighbourhood, causing the basement to be flooded. The ground floor columns and beams were in position in July, 1902, the eighth floor was fixed in October, and the whole building, except the machinery and insulation, finished in November. The building from footings to the roof tank is 150 ft. high.

**UNIVERSITY COLLEGE, SHEFFIELD.**—The Council of University College, Sheffield, have approved the plans of Messrs. R. H. F. Joel and Messrs. Potter & Sons to be erected on the Western Bank site. The site in Western Bank is about three-quarters of a mile from the centre of the city, on the ancient and broad highway leading to the West End. It is on the ridge of the hill 420 ft. above sea level, and it adjoins Weston Park on two sides. The Western boundary between the site and the park is to be of light iron railings, so that the building will appear as if within the park. The building is to be in the Tudor style. The walls are to be of brick, with stone dressing. The general plan is of buildings surrounding a quadrangle 154 ft. by 110 ft., with an annex for the library. The buildings on three sides of the quadrangle are to be erected immediately. The fourth side is to be erected hereafter when required, and the library is to be erected when funds are available, and of such a design as shall then be determined. The building on the south side of the quadrangle, and facing Western Bank, is for general and administrative purposes, and comprises the entrance hall, common rooms, refectory, offices, council-room, and the great hall, which is to be 144 ft. high. The wings are to be of all sides, with dressed stone walls, oak dado, and oak open-timbered roof. The hall is also the principal feature of the Western Bank front. The building on the west side of the quadrangle, and with a front to the Park, is for the arts and science departments, comprising arts, physics, biology and chemistry. The building on the north side of the quadrangle is also with a front to the Park, and is for the medical department, comprising anatomy, physiology, pathology, bacteriology, public health, and also medical library and lecture rooms. The internal finish of the building is dependent upon the amount of subscriptions, but it is intended that

in addition to finishing the entrance, the great hall and the council-room in dressed stone and oak, the corridors and laboratories shall have salt-glazed brick dados, and the corridor have buff-colored facing bricks above the dados. The estimated cost of the buildings, exclusive of the library, is 67,500l., and the library, if erected as designed, will cost 7,500l.

**COUNCIL OFFICES, FELLING.**—The new public offices which have just been erected at Felling, were occupied by the members of the Urban District Council on the 2nd inst. The new offices occupy a central position in Sunderland-road, about 200 yards distant from the foot of High-street, Felling. The building is of stone, with polished dressings, and is carried out in the Italian Renaissance style. The main feature of the interior is a council chamber, 40 ft. long by 24 ft. wide. The council chamber is well lighted with three windows, one to each gable, and an oriel window in the side wall. This latter window is filled with leaded stained glass, in which is worked the arms of the District Council, as well as those of the County of Durham. The furnishing throughout, with the exception of the council chamber, is in oak, that of the council chamber being in mahogany. The seating in this apartment is arranged in crescent form, so that each member has a view of the chairman's platform. The cost of the building without land or furnishing, is about 7,000l. The general contractor for the whole work was Mr. John Wilkinson, Felling. The sub-contractors were Messrs. Penman & Watson, Gateshead, plumbing; Mr. Digby Nelson, Sunderland, slating; Mr. Robert Sistrone, Felling, painting and glazing; Mr. Robert Robson, Newcastle, electric fittings; Messrs. Atkinson, Newcastle, stained glass; Messrs. Emley & Sons supplied the whole of the stoves and mantels, and Messrs. Bainbridge & Co., Newcastle, have executed the furnishing. The architect was Mr. H. Miller, Felling.

**ASYLUM BUILDINGS, YORK.**—The Lord Mayor (Alderman E. Gray) presided at the meeting of the York City Council on the 2nd inst., when it was decided to accept the tender of Messrs. George Longden & Son, Ltd., of Neepsend, Sheffield, at the sum of 90,453l., for the erection of the new asylum buildings. Sir Joseph Rymer stated that accommodation would be provided for 360 patients, and the cost per bed in the York Asylum would be 280l., which was lower than that of many of the asylums recently built. It was also decided to vote Mr. Greer, the City Surveyor, 750l. for his services as architect.

**SCHOOL, CROWNHILL, DEVONSHIRE.**—New schools have been erected at Crownhill for the St. Budeaux School Board. These schools occupy a site on the main road from Crownhill to St. Budeaux, and are situated about midway between Crownhill and Honicknowle, the villages they are intended to serve. The schools are of the one-story type. Mr. T. R. Kitchell was the architect. The walls are of red brickwork from the Honicknowle kilns, built with a 3-in. cavity. Local limestone and granite are used for copings, window sills, &c. The school provides for the accommodation of 176 boys and girls, and seventy-eight infants. Mr. John Davey, of Compton, was the contractor, while Mr. J. Partridge acted as clerk of works.

**PROPOSED RESTORATION OF CULROSS ABBEY.**—For the restoration of Culross Abbey, which was founded in 1217, a scheme has been prepared by Sir Rowand Anderson, and in order to give effect to it a proposal has been made to raise a sum of about 5,000l. What the heritors are prepared to do is to provide new roof, windows, floor, and seats, to strip the walls of lath and plaster, so as to re-expose the ashlar and to execute some other repairs. The object aimed at, however, is to remove the east and south galleries of the church, to rebuild the side aisles and the north and south transepts, to restore the eastern Norman windows, and to open two three-light windows in the north wall.

**BOARD SCHOOL, BLACKPOOL.**—The Devonshire-road Board School, Blackpool, was opened on the 23rd ult. The school, which has accommodation for over 1,000 children, has been built by Messrs. Cardwell, the architect being Alderman Mather, J.P.

**OFFICES, MERSEY DOCKS AND HARBOUR BOARD, LIVERPOOL.**—The Mersey Docks and Harbour Board have decided to erect the new head offices, and they have just accepted the tender of Messrs. William Brown & Son, builders, Salford. The site is at the south end of the old George's Dock site, and the chief elevation will have a private frontage, an ornamental garden 60 ft. in depth, the whole clear space between the main entrance to the offices and the river wall being about 200 ft. The two ends of the building will be bounded respectively by the James-street extension and the Brunswick-street extension. On the east, or Gorge-piazas, side a new street is to be formed. The frontage of the offices will be 258 ft. long and 208 ft. in depth. The height of the main building is to be 80 ft., the extreme height of the dome being 220 ft. The four smaller towers are each to be 144 ft. high. The material for the outer walls is to be Portland stone and the roofing of green Westmorland slates. Accommodation will be found for a staff of about 500. The joint architects are Messrs. Briggs & Wolstenholme, F. B. Hobbs, and Arnold Thornely, of Liverpool.

## FOREIGN.

**JOHANNESBURG.**—Designs for the new Church of St. Mary, Johannesburg, have been prepared by Mr. John Begg, a talented young London architect, who went out to South Africa some little time since. The church, which is to be a large one to seat 2,000, will represent in Mr. Begg's hands the best model of modern English revived Gothic.

**INDIA.**—The recent growth of the import and export traffic at Victoria Dock, Bombay, and the necessity for providing adequate storage for cargo awaiting shipment, and for that discharged from steamers, have caused the Bombay Port Trustees to elaborate a scheme for improving and extending the existing shed accommodation in the dock. The scheme, as sanctioned, includes the reconstruction of five of the large transit sheds.—The bridge over the Gogra river at Turtipur, which consists of eighteen spans of 200-ft. steel girders, has been completed, and is now open for traffic.—Expenditure to complete the water-supply works at Jamalpur has been sanctioned.—The Government of India has sanctioned the survey being made by the agency of the North-Western Railway administration for a line from McLeodganj to Ferozepore, a distance of about 90 miles.—The erection of a new bridge at Nowshera, at a cost of 44,761 rupees, has been sanctioned.—A large building is to be erected at Ghaziabad station on the East Indian Railway, for the accommodation of the European staff at that station. It is estimated to cost about 40,000 rupees.—It is proposed to erect a completely equipped surgical hospital in connexion with the Calcutta Medical College.—A branch line is being surveyed from Amraoti to Ellichpur, in Behar, on the Great Indian Peninsula Railway.—Proposals are on foot for the erection of a new cathedral for Bombay. The present building was erected as a parish church in 1718, and is not thought to be worthy of the diocese.

**AUSTRALIA.**—The Minister for Home Affairs has published a summary of information respecting the proposed Federal capital sites, but no conclusion has yet been arrived at.—A curious Customs duty case has arisen in Melbourne. It appears that a number of models submitted for judgment as competitive designs for the Queen Victoria memorial statue have arrived from abroad, and a difficulty is experienced as to the payment of duty, for the Committee does not feel inclined to pay for every model that arrives. The Committee has tried to get the Government to let the models in duty free.—The expenditure on the erection of the Central Railway Station in Sydney to date is about 250,000l.—It has been decided to construct a new dry-dock at Birkenhead, Port Adelaide.

**CHINA.**—We understand that the Governor of Hong Kong has invited competitive designs for the new post office to be erected there. The author of the accepted design will be engaged as consulting architect on a commission of 3 per cent. on the actual cost of the building, and the author of the second design will receive a premium of 1,500 dol.

## MISCELLANEOUS.

**PROFESSIONAL AND BUSINESS ANNOUNCEMENT.**—Mr. H. F. Joel has purchased the stock and business of the firm of H. F. Joel and Messrs. Potter & Sons, electric dynamo and motor manufacturers, of 31, Wilson-street, Finsbury-square, and will carry on the business in his own name.

**ALEXANDER THOMSON TRAVELLING STUDENT-SHIP, 1903.**—This studentship, of the value of 600l., given for designs in the Greek style, and which is competed for every third year and judged by trustees in connexion with the Glasgow Institute of Architects, has been awarded this year to Mr. Wm. Beattie-Brown, jun., of London. The subjects given for the competition were—(1) A design for a picture gallery, &c., to accommodate the fine art department of a university situated in Greece; and (2) a restoration of the Tower of the Winds, Athens.

**LIMITS ON SKY-SCRAPERS.**—The Washington correspondent of the Standard has communicated the following to that journal:—"The Supreme Court has decided, in a case brought up from Boston, that the building of sky-scrapers can be legally restrained. Westminster Chambers, fronting on City-square, had been built to a height of 125 ft., under the old law permitting erection up to two and a half times the width of the street. The decision sustains the Constitutional nature of the law limiting erection to 90 ft. All stories above that limit must be razed. The ground of the decision is the public right to light and air, making it necessary either that sky-scrapers should be limited in height, or that the builders should purchase rights for the upper stories, as in the case of the ground area. The owners of Westminster Chambers are considering the advisability of bringing a claim for damages for infringement of the rights of construction hitherto enjoyed generally. Lawyers and builders in several cities are greatly interested in the case."

**THE PROPOSED FIRE EXHIBITION.**—The Council of the Society of Arts has decided to offer gold, silver, and bronze medals for certain classes of modern fire-extinguishing and life-saving appliances to be exhibited at Earl's Court. For the best chemical fire-engine for town use shown at the



Exhibition the Council offer one Society of Arts gold, two silver, and two bronze medals, and also similar awards for the best and most easily-worked long ladder exhibited which will reach the sill of a window 80 ft. above the level of the pavement, and which can be rapidly transported over roads not more than 25 ft. wide.

**THE PEABODY FUND.**—By the thirty-eighth annual Report of this Fund, it appears that the total fund on December 31 last was 1,392,470l. 4s. 11d. The capital expenditure on land and buildings to the end of the year was 1,358,722l. 19s. 11d. The whole of the repairs, which include extensive drainage alterations at Westminster, Southwark-street, and Whitechapel, amount to 15,978l. 12s. 2d., and have been charged to income as formerly. This is the highest sum expended upon repairs in any one year since the establishment of the Fund. At the end of the year the Governors had provided for the artisan and labouring poor of London 11,018 rooms, besides bathrooms, laundries, and lavatories. These rooms comprised 5,387 separate dwellings, viz.:—101 of four rooms, 1,828 of three rooms, 2,572 of two rooms, and 880 of one room.

**PRIZES FOR MUSEUM AND ARCHITECTURAL STUDIES.**—The Technical Education Board of the London County Council has prepared to offer the following prizes for carefully executed drawings of buildings, churches, and of artistic objects in museums (South Kensington Museum and the British Museum especially). Two prizes of 15l. each, two prizes of 10l. each, and two prizes of 5l. each. The drawings may be in pencil, ink, or colour, as best fitted to the subject represented. The subject selected may be in several classes of work or wholly in one, as for instance, goldsmiths' work, furniture, stained glass, pottery, ironwork, fine textiles, embroideries, &c. All the drawings should be of imperial size or mounted, two or more together, on sheets of that size. The aim should be to represent the objects as faithfully and carefully as possible, and no mere sketches will be accepted. Fidelity in the drawing will be more highly valued than a large number of sheets. As far as possible the drawings should be of full size, or an actual or approximate scale should be noted, together with any explanatory notes thought desirable. Students are recommended to select objects in the classes of work in which they are most interested, and from Gothic or Eastern examples as much as or more than from those of Renaissance style. The sets which receive prizes will become the absolute property of the Technical Education Board. Works submitted for competition must have been executed since the summer of 1902, and must not previously have been sent in for any competition. Candidates must be resident within the County of London and students in schools which are maintained or aided by the Board. They must apply on special forms which may be obtained from the Board's secretary. The last day for submitting drawings in competition for the above prizes is Monday, November 2, 1903. They should be delivered at the London County Council Central School of Arts and Crafts, 310, Regent-street, by that date. Each work must have a special label attached to it; labels may be obtained from the Board's secretary, 116, St. Martin's-lane, W.C.

**COMPETITION FOR A DIPLOMA DESIGN.**—The University of London offers a prize of five guineas to the students of the art schools of London, and others, for an original design for degree diplomas granted by the University to internal students. The design, which must include a specified wording, should be simple and dignified in character, and should depend in the main for its decorative effect upon the lettering employed and the arrangement of type and spacing. Complementary design upon the diploma, though it must be simple in style and suitable for a University document, is not strictly excluded; nor, subject to the conditions stated, are designs employing colour. Competitors may insert the arms of the University or omit them, as seems most congruous with the design as a whole. Room for the seal of the University, measuring 2½ in. in diameter, is to be left. It is intended that the diploma should consist of stout paper, and not of parchment, and that in size it should not exceed 14 in. by 20 in., but no special dimensions are enjoined. The diploma will be engraved, unless there be special reasons for adopting some other method. Suggestions as to the method most suited to the reproduction of their designs are invited from those competing. Competitors should remember that no design can be adopted which is not of a practical character, where, e.g., insufficient space is left for the filling in of names, dates, subjects, &c. Particulars may be obtained from the Academic Registrar, University of London, S.W., to whom designs must be sent on or before April 1, 1903.

**LECTURES ON THE NATURAL HISTORY OF DECORATIVE ART.**—The following lectures on the natural history of decorative art will be delivered at the Hornet Museum, London-road, Forest Hill, S.E. Admission will be free. Tickets for the course may be obtained from the Clerk of the Council, County Hall, Spring-gardens, S.W.:—April 18.—Lecture 1.—How Designs Arise. April 25.—Lecture 2.—Art and Handicraft. May 2.—Lecture 3.—Art as a Means of Instruction. May 9.—Lecture 4.—Art and Religion. May 16.—Lecture

5.—The Decorative Art of British New Guinea as an Example of Method.

**OPEN SPACES.**—The new open space which the London County Council has named Wandsworth Park was opened on Saturday last week by Lieut.-Colonel A. Rotton. The park is situated between Putney Bridge-road and the river. The Wandsworth Council contributed 15,500l. towards the acquisition of the ground, while 5,838l. was publicly subscribed. Mr. John Piggett, Chairman of the Parks Committee of the London County Council, on the same day dedicated to the use of the public an extension of Brockwell Park. The original cost of the park was 110,257l. and the extension has cost an additional 64,500l. Of this latter sum 32,250l. has been contributed by the London County Council, 8,000l. from the Camberwell Borough Council, 20,000l. by the Lambeth Borough Council, 2,500l. by the Southwark Borough Council, and 1,750l. was obtained from private subscriptions. Mr. Piggett mentioned that when the Council came into existence in 1801 there were only forty open spaces in the Metropolis, now there are 102. The acreage of the parks in 1801 was 2,656 acres, and now there were 4,027 acres of open space.

**WINDOW CLEANING OR PAINTING.**—The Local Government and Taxation Committee of the London County Council reported as follows at the meeting of the Council on Tuesday week:—"Our attention has been called to the fact that, although under the Council's by-laws as to window cleaning or painting, persons are prohibited from standing on window-sills more than 6 ft. in height from the level of the ground, without sufficient support to the danger of residents or passengers, no provision is made as regards persons standing on copings or other projections, notwithstanding that the risk in such cases may be even greater than that involved by standing on window-sills. Proceedings taken under the Council's by-laws in a recent case failed, owing to the fact that it was shown that the person was standing on a coping on a window sill. We therefore suggested to the Home Secretary that the by-laws should be amended by the addition of the words 'or other projection,' so that cases of the kind referred to might be dealt with. The Home Secretary states that he feels unable to agree to the proposed extension of the by-laws, as such extension would, he thinks, tend to interfere unduly with persons engaged on house repairs and the like. The Home Secretary further states that he is inclined to doubt whether the by-laws already in force are not to some extent open to this objection, and that, as the by-laws were chiefly designed to meet the case of domestic servants, he would suggest for the consideration of the Council whether it would not be desirable to limit the by-laws to domestic servants, in which case the by-laws might be amended so as to include one or two cases such as that of servants kneeling on window-sills, which have been found to be excluded from the present by-laws. We think that it would be very inconvenient for the by-laws to be limited to domestic servants. It is true that the by-laws were in the first place chiefly designed to meet the case of domestic servants, but they have done much towards affording protection to other classes of employees. Window cleaning, especially in the central districts of London, where the houses are in three, four, and five stories, and similar buildings abutting on streets, are numerous, is largely carried out by men in the employ of window-cleaning companies, and it is to this class of employees, and not to domestic servants, that fatal accidents most frequently occur. It has been held that by-laws for good rule and government can only be made from the point of view of danger to the public, and there is much greater danger to the public in the case of the Companies' employees than in that of domestic servants, as the latter are generally employed in private houses, which, more often than not have areas or gardens in front of them. We concur in the suggestion that the by-laws should be amended so as to include kneeling on window sills. We have given directions for the above views to be communicated to the Home Secretary, and we recommend—that the course taken be approved." The recommendation was agreed to.

**THE ACETYLENE ASSOCIATION.**—The second annual general meeting of the members of the Acetylene Association was held on Thursday, February 26, at the Westminster Palace Hotel, Victoria-street, S.W., Mr. F. G. Worth, Chairman of the Association, presiding. There was a large attendance of members. In moving the adoption of the report and accounts, the Chairman remarked that during the year the Council of the Association had invited the members to favour them with their views and suggestions on questions which were raised at the previous general meeting as to the safety of generators, the standard quality of carbide, and the action of the railway in regard to the carriage of carbide. A great number of replies were received, and subsequently committees were appointed to deal with and report on the questions of generators, carbide of calcium, and purifiers. The reports of the various committees on these points were submitted to the Council, and some of the suggestions of the honorary members who were on the Home Office were adopted. The only

important points wherein there was divergence between the suggested regulations of the Association and the conditions recommended by the Home Office were as to the pressure allowable in the apparatus and in the service-pipes. In order that these questions might be discussed the Home Office authorities arranged to receive a deputation from the Association to discuss the points of divergence. The Council of the Association had proposed that the limit of pressure in any part of a generator should not exceed that of 50 in. of water, and they had further recommended that the limit of pressure in service-pipes within the house should not exceed 10 in. of water. These two points were discussed at great length, with the final result that Captain Thompson stated that the Home Office would be quite agreeable to consider any recommendation from the Association as to any apparatus which, from conditions other than ordinary, might reasonably claim to be exempted from the 20-in. limit. It would, of course, be a satisfaction to the Council to have received official Home Office recognition of its utility, and he might add that the Public Control Department of the London County Council and a great number of local authorities throughout the country thought equally lightly of the Association. In regard to the railway companies, he was happy to report that, although the companies did not at present see their way to carry carbide at reduced rates, they had prepared a special consignment note, which would come into force from March 1, for carbide of calcium as a separate product, with the omission of the "dangerous goods" classification. In many other directions the Association had done useful work, including the removal of difficulties which occurred through the working of the Petroleum Acts as applied to carbide of calcium being interpreted in a sense not intended by the Act. In conclusion he expressed the hope that a strong opinion that by working together, and sinking, as members of the Association, all trade and personal differences, much might be accomplished for the general benefit.—Sir Charles Forbes seconded the motion, which was carried unanimously. The meeting proceeded to formal business, and to the election and election of members of the Council. It was agreed unanimously that the *Journal of Acetylene* should again be the official organ of the Association. The meeting closed with a cordial vote of thanks to the Chairman.

**BOURNEMOUTH MASTER BUILDERS' ASSOCIATION.**—The fifth annual dinner in connexion with this Association was held at the Hotel Metropole on the 25th ult. The chair was occupied by the President of the Association, Mr. J. W. Davis. The loyal and patriotic toasts having been honoured, Alderman Webber proposed "The Trade and Commerce of Bournemouth," to which Mr. G. Martin and Mr. F. T. Cutler responded. "The Borough Justices" was proposed by Alderman Male, and replied to by the Mayor, and this was followed by the toast of "The Mayor, Corporation, and Borough Officials," proposed by Mr. Hoare, and responded to by the Mayor. Captain E. W. Jenkins submitted the "The Architectural Profession," Mr. Gifford replying; and Alderman Matlocks next proposed "The Master Builders and Decorators' Association." He suggested that master builders might devote their attention to technical instruction in order to produce skilled workmen, and improve the relationship between employer and employee. The President, in acknowledging the toast, thanked the members for having elected him to that position, and said that nothing had occurred to disturb the peace and harmony which existed between employers and employees. There was no society which was of greater advantage to the town than their Association, and it was very disappointing to the members, after doing so much in the direction of the development and improvement of the district, that they could not keep down the rates. Councillor Mintz, also replying, said the Association was one which had large interests, when it was recollected that the members paid 100,000l. to 150,000l. per annum in wages. Other toasts included "Kindred Associations," proposed by Mr. J. A. Nethercote, and responded to by Messrs. Marshall and Doggett, of Southampton; and the "Visitors," given by Mr. A. Hillier, and responded to by Mr. Millard.

**ST. LOUIS EXHIBITION.**—Mr. Balfour, in the House of Commons on Tuesday, informed Mr. Norman that the Government had accepted the invitation of the United States Government to take part in the St. Louis Exhibition of 1904. The extent to which the Government would participate, and the exact modus operandi were under consideration, and he had not at present any information to give.

**LIVERPOOL HOUSING SCHEME.**—The Housing Committee of the Liverpool Corporation has just adopted a proposal by Mr. John A. Brodie, M.Inst.C.E., the City Engineer, which is expected greatly to assist the solution of the problem of the overcrowding and unhealthy dwelling conditions in the labouring poor without expense to the ratepayers. Tentatively it is to be put into operation on a small scale. On a site of 413 sq. yds. in Eldon-street, at the north end, the proposal is to erect a building covering 234 sq. yds. leaving an open space of 179 sq. yds. The building consists of three floors,



On each of which four tenements are arranged. Each tenement comprises a living-room 15 ft. by 10 ft. 3 in., and two bedrooms, averaging 7 ft. 4 in. by 11 ft. 9 in., the height of the rooms from the floor to the ceiling being 10 ft. Each tenement is provided with a separate entrance from the front and back of the street. The stairs and balconies are on the front elevation and open to full view from the street, with the object of avoiding the evils of common stairs and passages within the buildings. As the roof is practically flat (the slope being that usually allowed as crossfall for ragged footpaths), a staircase has been added to the roof, which, being surrounded by parapet walls and made waterproof, can be used for washhouses and drying ground, or, if desired, as a playground. As to building material for the foundation, walls, floors, roofs, &c., crushed clinker from the refuse destructor works of the city has been used in the same proportion of embedded steel or iron. Mr. Brodie sets down the cost of the 413 square yards of land at 247*l.* 16*s.*, and of the completed building 1,230*l.*, making the total capital expenditure 1,477*l.* 10*s.* The rent of the twelve tenements at 4*s.* each per annum amounts to 124*l.* 10*s.*, and, averaging 40*s.* a year for outgoings, leaves 84*l.* 10*s.* or 70 per cent. return on the capital expenditure.

ATTWOOD MEMORIAL BRASS, SOUTHWICK, SUNDERLAND.—There has been erected on the south wall of the nave in Holy Trinity Church, Southwick, Sunderland, a memorial brass to Mr. Edward Attwood and Elizabeth, his wife, who for nearly half a century were associated with Southwick. The brass has been executed by Messrs. Hart, Son, Peard, & Co., Ltd., London.

INTERNATIONAL SOCIETY OF SCULPTORS, PAINTERS, AND GRAVERS—The next exhibition of the International Society of Sculptors, Painters, and Gravers will be held in Buda Pest, opening early in April. The British Section of the Society was last year invited by the Hungarian Society of the Fine Arts, the National, official, representative artistic body of Hungary, to make an exhibition at Buda Pest, and the International Society has again been invited by the Hungarians to contribute and arrange a British Section. Some seventy pictures, representative works of nearly all the members, were last week sent to Buda Pest.

SALES OF BOOKS, DRAWINGS, PRINTS, &c.—The following illustrated works have been sold recently by Messrs. Sotheby, Wilkinson, & Hodge:—*Rudolph Ackermann's* 'History of the University of Oxford,' 1814, with coloured plates by Pugin, 141. 5s.; 'History of the University of Cambridge,' 1815, with coloured plates by Pugin, Westall, and Mackenzie, 174.; 'History of the University of Winchester,' 1816, by J. G. Westminister, 182s. 21d.; 'Microcosm of London,' 1808-9, with nearly 100 coloured plates by Pugin and Rowlandson, 201.; W. H. Pynas's 'History of the Royal Residences of Windsor Castle, St. James's Palace, Kensington Palace, Carlton House,' &c., 1819, with 100 coloured plates, 191.; George Baker's 'History and Antiquities of the County of Northampton,' 1819, 100 plates of paper, 101. 5s.; 'The Monarchs of the Renaissance,' 1820, 100 plates of paper, 101. 5s.; 'Dagdale's Monasticon,' by Caley and others, eight vols. 1846, 131. 10s.; Whitaker's 'Richmondshire,' 1823, 111. 15s.; 'The Houghton Gallery,' 1788, with 130 prints, 291.; F. W. Blagden's 'Authentic Memoirs of the late George Morland,' 1806, with twenty beautifully coloured vignettes by Bell, Dodd, and others, being a fine recent copy of a work of which the original examples are very scarce. B. Papworth's 'Select Views of London,' 1816, with seventy-six coloured plates, 121. 15s.; James Malton's 'Picturesque and Descriptive View of the City of Dublin,' 1802, containing twenty-five finely executed coloured drawings; 181; Richard Lord Braybrooke's 'History of Audley End,' 1836, a presentation copy of paper, with many additional rare engravings, portraits, &c., 181.; 'The English Spoken,' 1820, a large paper copy of the first edition, 241. 10s.; Lamer's 'Speculum Romanæ Magnificentiæ,' Rome, 1550, 150 fine engravings of the Vatican, &c., in an atlas folio, 251.; and 'Opera Nova di Recami intitolata le Ricchezze della bellissime et virtuosissime Donne,' &c. 40 leaves of lace, embroidery, and similar patterns, of the year 1550, in brown calf binding, and in the upper cover, a portrait of Princess Anna of Denmark.

The large and the small will be offered for sale at Sotheby's auction-rooms a selection from Lord Crew's choice collection of original works by William Blake. The eighteen lots comprise a set of twelve coloured drawings (64 in. by 5 in.) to illustrate Milton's "L'Allegro" and "Il Penseroso" with the text of the poems and explanatory notes upon the drawings. MS. series which, it is believed, has never been published; proof impressions on India paper of the illustrations of the Book of Job, 1825, with twenty-one original coloured designs and fine copies of the "Songs of Innocence and Experience", 1783, with fifty-four coloured plates; "Jerusalem, the Emanation of the Giant Albion", 1804, with two plates, and the original issues of "The Marriage of Heaven and Hell", 1793, "Visions of the Daughters of Albion", 1793, "Europe, a Prophecy", 1794, and "The Marriage of Heaven and Hell".

**THE HOUSEING QUESTION IN VENICE.**—According to a Report just received from the British Consul, Mr. de Zuccata, rents continue to rise fast in Venice. This is partly due to the fact that a number of houses have been demolished in accordance with the plans for widening streets approved by the Town Council, but the principal cause may be attributed to the speculators who have gone on for erecting houses in all directions, and then giving the tenants notice to quit. A few buildings have been erected by the Municipality for renting separate small lodgings for workmen, but they only contain a limited number of rooms. A committee has been formed in the town, as a branch of the Milan organisation, to erect buildings for supplying cheap and healthy houses for the working classes, and later on to let these houses out under this scheme while they are paying their rents regularly for thirty years, become proprietors of their dwellings. Where the head of the family dies before the expiration of thirty years an arrangement would be made by the organisation with an insurance company by which the surviving members of the family might continue to lodge in the house without paying any rent. Mr. de Zuccata is of opinion that the Municipality and the wealthy citizens will co-operate with this association with the object of improving the dwellings of the industrial classes.

**MORTLACK PARISH CHURCH.**—A project is in progress for collecting funds towards the rebuilding of the nave of the church, which has fallen into a state of disrepair. Of the church as built in 1543 there remains the ivy-clad tower surmounted with a cupola; the chancel was erected twenty years ago on a cost of about £1000. In the tower is the tomb of a countess of George I.'s reign. The church was originally built in 1348 for the Archbishops of Canterbury, who held the manor from before the Conquest until Crammer exchanged it to Henry VIII.; that sovereign bestowed it upon the Dean and Chapter of Worcester, patrons of the living. In the graveyard were buried Henry Adolphus (Lord Sidmouth), and the astrologers John Partridge (1713) and John Partridge (1714). On the left of the chancel is a cross, opposite the west end of the church, St Francis Crane established in 1603 the tapestry manufactory, worked until 1625 by Flemings, of whose handicraft a fine example has been preserved at Houghton Hall containing full-length portraits of James I., Anne of Denmark, Charles I., and Queen Henrietta Maria, and their children. One of the most beautiful specimens was acquired for the output of the Macclesfield Tapestry Works, one of the famous set of the "History of Volcans," of which there are examples in foreign collections.

UNIVERSITY EXTENSION COLLEGE, READING.—The Treasury have notified their assent to a scheme whereby the Corporation of Reading will take over, at a cost of 50,000*l.*, the site and buildings of the College at Reading, which was originally established as part of the Oxford University extension scheme, 1892, in what had been the dormitory of St. John's Hospital as attached to the Abbey, and adapted for use as a school of agriculture and rural economy. The Dairy Institute, formerly at Aylesbury, was added to the College on the incorporation of the latter in 1896. The new buildings of the College in Valpy-street and Forbury-road, opened by his present Majesty on June 11, 1898, were built by Messrs. Henry Higgs & Sons, of Reading as general contractors, after the plans and designs of Mr. S. Slingby Stallwood, and are illustrated in the *Builder* of September 3, 1898. The site will migrate to a more extensive site in the London-road, and the Corporation intend to utilise their purchase for an enlargement of the municipal buildings in Friar-street and Blagrove-street. The town hall, council-chamber, and public offices were erected nearly thirty years ago. The additional buildings, which comprise the art gallery, museums, &c., are illustrated in our columns of March 10, 1900, Messrs. Cooper & Howell being the architects. The Town Hall, library, and the new illustration gallery, founded by Mr. Alfred Waterhouse, who also made the designs for the fittings and furniture of the new council chamber.

LEGAL.

## AN ARCHITECT'S CLAIM:

### ALLEGATIONS OF NEGLIGENCE.

### HEAVY COUNTER-CLAIM

At the St. Shewk County Court on Monday, His Honour Judge Addison, K.C., heard a remitted action in which Mr. H. D. Earl, an architect and surveyor of Worthing, sued Messrs. Pattenden & Co., sack and bag makers, of Bermondsey-street, to recover 500 guineas, balance of a sum of 200 guineas fees for work done as architect for the defendants under a contract for the erection of a grand stand in the churchyard of St. Clement Dances Church, Strand, for the Coronation procession. The contract also stipulated that the plaintiff was to receive 10 per cent. on the profits of the letting of the seats, and when they were ascertained, but there was no claim in respect to this. The defendants counter-claimed for the plaintiff 657l. 10s. being 157l. 10s. fees paid for plans which, it was alleged, were

wholly unsafe, and 500¢ for loss sustained through the plaintiff's alleged negligence. The particulars of the counter-claimed stated that the plans were negligently prepared, and did not provide for the requisite or agreed seating accommodation, nor did they so arrange the seats that the persons who were to occupy the same would have obtained a view of the procession. The plans provided for no gangways, and such gangways had to be provided, and the seating accommodation consequently had to be lessened.

Mr. Warren was counsel for the plaintiff, and Mr. Rose Innes for the defendants.

Mr. Warren, in opening the case, said that the plaintiff's claim was under a written contract which he had performed and executed in every respect. Mr. Pattenden, of the defendant firm, rented the churchyard of St. Clement Danes in order to have erected thereon a stand from which persons could view the funeral of the late Lord Robert Grosvenor. Mr. Pennington, the vicar, introduced the plaintiff to Mr. Pattenden, and the plaintiff's plans were accepted, and he was engaged as architect to superintend the erection for the sum of 200 guineas and 5 per cent. of the net profits realised from the letting of seats. The plans were submitted to the Westminster City Council as they were originally drawn, being without intersecting gangways, and were approved. The necessary licence for the erection of the stand was granted. The work proceeded, certain alterations were carried out by the defendant or his builder, and at last the stand was completed. Soon afterwards the news of the abandonment of the procession came, and the plaintiff, who had received 150 guineas, applied for the balance. Some excuse was made that the defendant had lost the key of his safe, and a second application was made: was non-plussed. Nothing forthcoming, the plaintiff was compelled to enter an action.

The plaintiff said he had been in practice as an architect and surveyor thirty-six years, twenty-five years of which he had been on his own account. He had been engaged by the Government in the erection of prisons; he was the Episcopal Cathedral Surveyor for Edinburgh and in 1877 he was appointed to the London office. He was engaged for preparing and amending drawings for public stands. He also designed several stands which were erected for the late Queen's funeral and for the Coronation Procession, &c. Previous to seeing Mr. Pattenden he had prepared plans for the site in question, and on March 8 or 9 he received a letter from the defendant asking him to prepare plans for a stand for the coronation would employ his own architect. He saw the defendant, and explained that he could not sell him the plans, as it would be distinctly unprofessional. He produced them, three in number, and the defendant and Mr. Elkington, his builder, saw them. Nothing was said about the presence or absence of intersecting gangways. They were not mentioned in the plans, but they were on the seats. In reply to the defendant, he offered to prepare the specifications and superintend the erection, &c., for 200 guineas and 5 per cent. of the net profits from the seats. The defendant agreed to the terms, the contract was signed, and 50 guineas was paid as a retainer. The plans provided for seating 3,000 people, and the defendant told the plaintiff that more could have been accommodated. Within a week he was instructed by the defendant to draw two seat-laying plans, and when they had been prepared, Mr. Pattenden suggested a general alteration in the arrangement of the seats and the doing away with the top tier of 700 seats. About the end of March the defendant laid a communication to the plaintiff, in which he explained the gangways, and he came to the conclusion that he would have them in order, as he explained, to make the people as comfortable as possible. Prior to that, however, the original plans (as he plaintiff) first prepared them were submitted to the Westminster Corporation, and they were approved by about April 11; they were then an agreement was entered into between the plaintiff and the defendant, by which the latter was to make the alterations necessitated the sacrifice of about 200 seats, which the defendant said he did not mind. He had told the defendant that he had erected a stand at St. Mary's Church, near by without intersecting gangways, and that the Authorities had passed the plans. He also explained that such gangways were not in use, and that in a panic, people would not use them, but would go over the top of the seats. The defendant, however, was very firm on the gangways. He intended that Mr. Elkington should erect the stand, but he (plaintiff) persuaded him to put the work out to tender, which would have the effect of keeping Elkington's price down. That was done, and Elkington made the middle of April, and soon afterwards he (plaintiff), who was in attendance nearly every day, saw that the work was being scamped, the builder putting in smaller timbers than were specified. He told the defendant of this, and he replied that Elkington was a practical man and knew what he was doing, having erected a stand before for himself, because the builder was entitled to his money every week, and he (the defendant) could not pay it. He added: "You know I am only working this with borrow-



money, and I have paid the parson the whole of it, and I am depending upon the sale of tickets to pay the builder, and you had better get the best you can out of him (Elkington). Upon that he (plaintiff) said it was a serious thing to deviate from the plans, and probably he (the defendant) would lose his licence, and the tenor of the defendant's reply was, "I am in a difficulty; do the best you can with Elkington." The District Surveyor made a complaint about the deviations, and he (plaintiff) remedied that by making Elkington strengthen the distance between each row of seats, the defendant complained of discrepancies in the plans, and he (plaintiff) told him he must put that down to the deviations made by the builder and himself (the defendant). The defendant still endeavoured to shift the responsibility on to his (plaintiff's) shoulders, and upon that he declined to proceed with the making of the letting plans until he had withdrawn all charges and imputations against him. He had pointed out that the builder was doing away with whole rows of seats and altering the rake of the tiers, but he (the defendant) would not have any alteration made. The three deviations—the altering of the distance between each row of seats, the providing of gangways, and the alteration of the rake—made a considerable difference to the seating accommodation, but in each case the defendant agreed to the alteration. Eventually on May 30 they had a very stormy interview, and witness expressed the opinion that the defendant wanted to drag him across the way to the Law Courts. The defendant replied that he would not think of such a thing, and offered to give him an undertaking that effect in writing, but he (plaintiff) accepted his word for it. Upon the defendant withdrawing all charges against him, he altered the seat-letting plans to get over the bungling of the builder, and the work was completed. Then came the abandonment of the procession, and he claimed the 50 guineas balance due to him. The defendant said he had got his 6,000l. from the insurance company (he having insured against the failure of the procession taking place), and would pay everybody, but he had lost the key of his safe. He made another application for the money on July 4, and then the defendant asked him if he could not let him off the balance, as he had made a big loss. He declined, but offered, on payment of the 50 guineas immediately, to sacrifice the extra fees he was entitled to. The money was not paid, and on July 5 he wrote the defendant. In reply, he was received on July 15 the following letter from the defendant, which was dated July 12.—

"I was not a little surprised at receiving your letter of the 5th addressed to St. Clement Danes Church, because on that very day you had called here and seen me, and I thought you were very much relieved at finding I was willing, in exchange for your waiving your claim against me, to abstain from enforcing my heavy claims on you for damages arising from your negligence as an architect. I now beg to withdraw, so far as I can, from this verbal arrangement then made, and to state that I will as soon as possible make out my claim against you and apply to you for a cheque. I have on so many occasions so fully and forcibly conveyed to you my reasons for complaint that I will not repeat them now." He replied to that and entered his action.

Cross-examined: The plaintiff said he did not consider that the 200 guineas was a big fee. The contract price for erecting the stand was 2,800l., and 5 per cent. on that was nearly 140l., but the 200 guineas included practically everything, whilst, in addition, the job was a special one and deserved a special fee. He was positive that the plans were passed by the Westminster Council before the gangways were placed in them. It was a perfectly proper thing under the circumstances to have a stand to seat 3,500 persons without an intersecting gangway. The rake of the tiers was such in his plans as would allow all persons on the stand to get a view of the middle of the road. He knew many persons complained when they visited the stand, but that was because the defendant was charging seven guineas for seats which did not secure such a good view as some of the two guinea ones. He allowed a distance of 1 ft. 8 in. to about 2 ft. 3 in. from rise to rise.

Re-examined: The defendant altered the rake of the top tier, in some places as much as 2 ft. 6 in., which obstructed the view of persons in the back seats of the second tier. The excuse was that Mr. Elkington was a practical man, having put up a stand for him before.

Mr. Bernard Dicksee, A.R.B.A., said he was District Surveyor for Newington and part of the parish of St. George-the-Martyr, under the London Building Act. He had had great experience of stands, having had about 600 under his supervision at the time of the Diamond Jubilee and a very large number last year. As to the plaintiff's plans, they were perfectly satisfactory working drawings, and contained no faults. The site was a very awkward one, there being hardly a straight line. He had calculated the seating accommodation of the first two tiers, and they gave room for 2,800 persons, without gangways, and 2,600 if gangways were provided. That was allowing 1 ft. 9 in. in width and from 2 ft. 1½ in. to 2 ft. 2 in. from back to back. There were a few places where the distance

was only 1 ft. 9 in. With a width of only 1 ft. 6 in. accommodation could have been provided for 3,038 persons, including gangways. As to the lines of vision, he could not find a seat from which the person could not have obtained a view of the procession.

His Honour: If you had had to make plans for this difficult site, would you have drawn them differently?

Witness: Well, no two men would plan out such a site in the same way, but I saw nothing here to complain of.

Cross-examined: The provision of intersecting gangways was determined by circumstances. He certainly would have provided gangways on this stand. The London County Council allowed in theatres 1 ft. 6 in. in width where seats contained no arms, and 2 ft. back to back.

Mr. L. W. R. Ford, F.S.I., A.R.B.A., and District Surveyor for Bermondsey, said the plans, generally speaking, were perfectly intelligible, and taken with the specifications and sketches accompanying them, were perfectly complete. He corroborated Mr. Dicksee in all he had said. The specifications were particularly skillfully drawn.

Cross-examined: Had he made plans for the site he would have made them without gangways, and he would have pointed out to his client that if such were provided the seating accommodation would be so much less. There was no need for gangways as the seats had no backs, and persons could as easily step down from one seat to another as down steps in a proper gangway.

His Honour: Could you have arranged the seats better?

Witness: I really do not think I could. This concluded the plaintiff's case, it having lasted the whole of the day's sitting.

Mr. Rose-Innes, on behalf of the defendant, entered a protest against the suggestions made by the plaintiff as to the reason Mr. Pattenden had resisted the claim. There was no truth, he declared, in the story about Mr. Pattenden having lost the key of his safe; he was a man of means, having three banking accounts, and if he had left he ought to pay he could have drawn a cheque for the amount without the least difficulty. He planked down in hard cash 3,600l. for the site, and he spared nothing in his endeavour to make the stand safe and satisfactory. He engaged the plaintiff as a man of extra skill, and paid him accordingly, and did not, in accepting the plans, trouble to look at them to see if the necessary gangways were provided. But his Honour would hear from the witnesses that the gangways were put in before the plans were adopted by the Westminster Council, otherwise they would not have been passed by them. The result of the inclusion of the gangways made a difference of over 200 seats, the price of which the defendant had lost, and he felt, therefore, that he ought to be paid that loss by the plaintiff.

His Honour: My difficulty is that whoever you had called in, if you had insisted on these gangways, you would have lost these seats. His representation as to the number of seats did not make you take this site.

Mr. Rose-Innes: But he sold us plans showing a certain number of seats, and my client, depending upon him as an expert, accepted the plans as proper ones, and fixed his prices according to the number of seats the plaintiff said they would provide. The plans turned out to be absolutely useless in their original condition, because they would not have been accepted by the Westminster Council, and therefore I submit that as the plaintiff is an expert, on whom my client, who is not an architect or builder, relied, my client is entitled to recover the damages which accrued from the defect in the plans from the plaintiff.

At this point the action was adjourned.

#### A BUILDER'S ACTION AGAINST DECORATORS.

THE case of Davidson v. Hooydonk & Co., Ltd., came before the Court of Appeal, composed of Lords Justices Vaughan Williams, Stirling, and Mathew, on the 4th inst., on the appeal of the plaintiff from a judgment of Mr. Justice Wright, sitting without a jury, in the King's Bench Division on April 17 last. The case was reported in the issue of the *Builder* for April 26, 1902.

Mr. Witt, K.C. (with him Mr. Ernest Pollock), in support of the appeal, said that Mr. Justice Wright had given judgment for the defendants, and that decision the plaintiff now appealed. The facts which were not in dispute involved two points of law. The first point on the appeal was whether the learned Judge was right in saying there was no privity of contract between the plaintiff and the defendants. The plaintiff said there was. The second point was whether, assuming there was, as the learned Judge had found, a conversion by the defendants of the plaintiff's property, the damages had been assessed on the true legal basis. The facts were these:—In December, 1898, the plaintiff, who is a builder at Newcastle, entered into a contract with the London and Lancashire piece of Bradford, to build a theatre at Blackburn, and amongst the things the plaintiff was to do as set out in the specification, he was to provide all scaffolding. He was to provide all the scaffolding, and its value was 200l.

He had to put up a special scaffolding, and when he had finished with it he had to leave it, not only for all the trades, but also for the decorators. It had, therefore, to be of a special character. Then the London and Lancashire, Ltd., entered into a contract with the defendants, decorators in London, to do the decorating work of the theatre, and in that contract there was a provision that 200l. was to be paid to Mr. S. F. Davidson, the plaintiff, for the scaffolding, which he would leave in position for the use of the decorators. This scaffolding was to become the property of the decorating contractors, and was to be removed by them on the completion of the work. After defendants came down on the scene, plaintiff went away. When defendants had finished their work, they took down the scaffolding and sold it for the break-up price of 43l. The plaintiff said he wanted 200l. for it, because he left it for the defendants' use, and it was his scaffolding.

What plaintiff said was that he left the scaffolding there, knowing that defendants were going to use it, and defendants knowing he had given that assent used it for their work, and when defendants had done their work they took it, appropriated, and sold it. Defendants said that they were willing to admit that plaintiff was entitled to 43l., the amount for which the scaffolding was sold, and brought that sum into court. Defendants said that there was no contract between themselves and the plaintiff; that their contract was with the company, and was that they were to pay the plaintiff; that the plaintiff could not sue them upon that contract; and that the company were the only persons who could sue them. He (counsel) said that the plaintiff could sue defendants on that bargain, because it was made between the defendants and the company; but he did say this, that where with the assent of the plaintiff goods were to be put under the control of the defendants, and the defendants taking them, knowing they had the plaintiff's assent to use them, and sold them, the defendant had to pay for them. The plaintiff said that bargain, because it was made between the defendants and the company; but he did say this, that where with the assent of the plaintiff goods were to be put under the control of the defendants, and the defendants taking them, knowing they had the plaintiff's assent to use them, and sold them, the defendant had to pay for them.

Lord Justice Mathew: Pay how much? Mr. Witt: 200l. We proved at the trial that the scaffolding cost 200l. 3s. 6d. My client would not have sold it for the break-up price of 43l., but would have taken it down himself and used it elsewhere. The decorators were to get 1,500l. for the whole work, and there was a clause in the contract that out of that 1,500l. 200l. belonged to the scaffolder, and that 200l. belonged to the plaintiff, because the scaffolding belonged to him. He contended therefore that the plaintiff was entitled to recover from the defendants the 200l., the value of the scaffolding.

Mr. Arthur Powell, K.C., having addressed the Court on behalf of the defendants in support of the judgment in the Court below, their Lordships affirmed the decision of Mr. Justice Wright, and dismissed the appeal with costs.

#### BUILDING BEYOND THE BUILDING LINE.

At Marylebone Police Court, a few days ago, Mr. Louis Slinn, M.P., was summoned by Mr. Thomas Chivers, on behalf of the London County Council, for unlawfully erecting a building beyond the general line of buildings of Netherhall-gardens, Hampstead, without the consent in writing of the Council, whereby he became liable to a penalty and to have an order made to demolish the building on the spot thereon. The matter having been fully argued, and the building viewed by Mr. Curtis Bennett, who was of opinion that it was unsightly and an eyesore to the residents next door, an order was now made for its demolition within twenty-eight days, and a fine inflicted on the defendant of 10s. with 3d. 7s. costs. On a point raised the magistrate consented to grant a case.

#### ACTION BY CONTRACTOR AGAINST A DISTRICT COUNCIL.

THE case of Boyson v. the Urban District Council of Altrincham came before the Court of Appeal, composed of the Lord Chancellor, the Lord Chief Justice of England, and the president of the Probate Division, on the 20th ult., on the appeal of the plaintiff from an order of Mr. Justice Wills in an action brought by the plaintiff, a contractor, against the defendants for damages for not carrying out a contract with regard to sewage works. It appeared that the plaintiff tendered 7,000l. for the works, which was accepted. He was required by the defendants to find two sureties to execute a bond in respect of the carrying out of the work, and his allegation was that he sent in the names of two sureties, who were approved of by the defendants. The plaintiff in July, 1901, received written notice from the defendants to attend with his sureties at the defendants' offices on July 8 for the purpose of signing the contract and the bond of suretyship. As the plaintiff and his sureties could not attend at the time and place mentioned, defendants gave the plaintiff notice that they had cancelled the acceptance of his tender. The plaintiff's case was that as he was always willing to sign the contract and his sureties the bond, the refusal of the defendants to allow him to execute the work entitled him to damages. The defence was a general denial of liability. Mr. Justice Wills held that there was no binding contract, and entered judgment for the



defendants. From this decision the plaintiff appealed.

At the conclusion of the arguments the Court upheld the decision of Mr. Justice Wills that there was no binding contract, and the appeal was accordingly dismissed with costs.

Mr. Montague Lush, K.C., and Mr. Macnaghton appeared for the appellant, and Mr. Pickford, K.C., and Mr. Langdon for the respondents.

#### APPEAL AT THE INSTANCE OF THE WARWICKSHIRE COUNTY COUNCIL.

THE hearing of the case of the Attorney-General v. the Oxford Canal Navigation concluded before the Court of Appeal, composed of the Master of the Rolls and Lords Justices Romer and Cozens-Hardy, on the 24th ult., on the appeal of the plaintiff from a decision of Mr. Justice Kekewich in the Chancery Division. The action was brought by the Attorney-General on the relation of the Warwickshire County Council for a declaration that defendants were liable to keep in repair the fences of the side bank and inclined embankments approaching a bridge known as the Tassess Canal Bridge, the plaintiffs complaining that the fences had fallen out of repair, and that thereby a danger was caused to the public.

The facts were, shortly, these.—The defendants, by powers conferred on them by certain statutes passed in the reign of George III., but since repealed, cut through a main road at Foleshill, Warwickshire, called the Coventry and Stoney Stanton-road, and carried the road over their canal by means of the bridge in question. An Act of George IV., which repealed the statutes passed in the previous reign, vested all bridges, embankments, fences, &c., and the soil thereof in the defendants. It was also enacted by that statute that defendants should provide a proper fence on each side bridge, carrying a carriage road over the canal, such fence to be not less than 4 ft. above the surface of the bridge. Section 26 of the Act provided that defendants should not be liable to repair any part of the roads approaching to any of the bridges made over the canal after the roads had been made and used for one year, and put into good repair by the defendants beyond or further than the extremity of the wing walls of any such bridges. But this section contained a proviso that nothing therein contained should be construed to exonerate the defendants from the future repairs of all such bridges, and of the wing walls, ramps, and side banks thereof. The road which crossed the canal at Tassess Bridge was now vested in the Warwickshire County Council, and they contended that defendants were, by virtue of Section 26, liable to keep in repair the fences of the side bank and inclined embankments approaching the bridge. The defendants pleaded a denial of liability, and Mr. Justice Kekewich at the trial held that Section 26 exonerated them from liability to repair the fences. Hence the present appeal of the plaintiff.

In the result the Lordships held that no such liability as that alleged rested on the defendants after the expiration of one year from the time when the approach was made and put into good and sufficient repair. The judgment of Mr. Justice Kekewich was therefore affirmed, and the appeal dismissed with costs.

#### THE ACQUISITION OF PREMISES UNDER THE HOUSING OF THE WORKING CLASSES ACT, 1890.

THE case of *re an arbitration between Chandler's Wiltshire Brewery Co. and the London County Council* came before Mr. Justice Wright, sitting without a jury, in the King's Bench Division on the 20th ult., on a special case stated by an arbitrator appointed under the Housing of the Working Classes Act, 1890, to assess compensation under a claim by the Brewery Co. for the compulsory acquisition by the County Council of premises in which the company were interested, and of which the company claimed to be entitled as the assignees of a lease dated January 30, 1890, made between Mr. John Holder of the one part and a Mr. George Button of the other part. By the lease the lessor, in consideration of 500*l.* paid to him by the lessee, demised the premises to the lessee Button for thirty years from December 25, 1890, at an annual rent of 47*l.* In addition to the usual covenants, the lease contained a covenant by the lessee that he would use the premises as a beerhouse and for no other trade. This lease was afterwards assigned to the Brewery Co., and the company, in consideration of 500*l.* paid to them by one Sorrell, demised the premises to him for a term of twenty-two years from December 25, 1890, at the following rents:—First, a yearly rent of 47*l.*; secondly, such sums as the lessors might expend in maintaining the insurance of the premises against fire; and thirdly, the sum of 200*l.* in any and every year in which the lessee should, in breach of a covenant contained in the lease, purchase from any other person than the company any malt liquors to be sold on the premises, or should sell at the premises any such articles which had not been purchased from the company. The lessee covenanted to deal exclusively with the company for all malt liquors to be sold or consumed on the premises. The date of the under-lease was March 24, 1897. The company contended before the arbitrator that

on the County Council acquiring the premises they were entitled as compensation to the fair market value of their interest in the premises, having regard to the covenant mentioned and to the profit they might reasonably anticipate to make from the premises being a "tied house" during the continuance of the term. They fixed the compensation due to them at the sum of 9,27*l.* 10*s.* The Council, on the other hand, contended that by virtue of the Housing of the Working Classes Act, 1890, the company were only entitled to compensation for the loss of their interest in the land required, and that the benefit of the covenant was not an interest in land within the meaning of the Act, and said that 5*l.* was sufficient compensation. The arbitrator, by consent, made an alternative award. He held that if the existence of the covenant should be taken into consideration, the amount to be paid as compensation to the company was 6,53*l.*; if not, that the sum to be paid to the company in respect of their interest was to be 10*s.*

After hearing arguments, his Lordship held that the award must be for the larger sum found by the arbitrator, on the ground that the covenant must be taken into consideration in assessing the market value of the lease.

Judgment accordingly.

Mr. Reginald Bray, K.C., and Mr. Henry Kisch appeared for the Brewery Co.; and Mr. Cripps, K.C., and Mr. Corrie Grant for the County Council.

#### PATENTS OF THE WEEK.

##### APPLICATIONS PUBLISHED.\*

3,460 of 1902.—M. SHEARER: Radiators for Heating and Cooling Purposes.

The folding or corrugating of strips of metal or other material, and perforating the same to enable the pipe or pipes to be passed through, thus forming a radiator.

5,567 of 1902.—A. DREW: Method of Supporting the Upper or Sliding Section or Sections of Extension Ladders.

A support for the sliding portion of an extension ladder made in one piece and so shaped and balanced so as to operate automatically in raising, locking, and lowering the same.

5,873 of 1902.—J. L. FERRELL: Wood Preserving.

A process of impregnating wood, which consists in heating the wood to such a degree as to expand and discharge water of sap and vapours normally contained therein, submerging the heated wood in a chemical fluid, and then causing the wood to imbibe the said fluid by cooling the same whilst submerged.

6,206 of 1902.—J. SILBERMANN: Heating or Heat Radiating Apparatus.

A heating apparatus, comprising a hollow casing divided by a vertical central partition into two chambers, the internal walls of the chambers forming the fireplace, the chambers themselves being provided with horizontal or vertical partitions forming a zigzag course for the air, which enters and leaves each chamber through conduits arranged respectively at the lower and upper parts thereof.

3,015 of 1902.—J. COLLINS and A. ALLARY: Bolts for Exit or Emergency Doors and the Like.

This consists in the combination of a bar, attached by a parallel motion to the door, actuating a sliding central bolt. It further consists in the combination of vertical rods connected with the sliding central bolt by means of bell cranks, or a disc, and actuated by the bar attached to the door by the parallel motion aforesaid.

3,681 of 1902.—O. GRAETZER: Method or Means for Forming Screw Threads in Stone, Brickwork, or the Like for the Reception of Fastening Hooks, Screws, and other Screw Threaded Articles.

Method of producing screw threads in stone, brickwork, or the like, in which the screw threaded member, having a cylindrical spindle, and provided with sharp threads, is inserted into a hole previously bored to the diameter of said spindle, and forms or cuts in the action of being screwed therein a complete thread in the walls of said hole.

6,643 of 1902.—W. HEWITT: Ornamental Tiles.

A tile having a metal ornament applied to its face and a recess formed in its surface and a metal ornament fixed into the said recess.

10,829 of 1902.—M. J. ADAMS: Liquid Distributing Apparatus for Filters.

Liquid distributor apparatus for filters, consisting of a siphon attachment, which, whilst in transit over a filter surface, draws a supply from a channel and discharges it through distributing fittings to the surface of the filtrant.

23,751 of 1902.—R. BODLAENDER: Vehicles for Mixing and Transporting Mortar and like Substances.

A vehicle for mixing and transporting mortar and like substances wherein a mixer is provided which is adapted to rotate during the travel of the vehicle, characterised by the employment of a mixing drum, mounted on or carried by springs or resilient supports on one of the axles of the vehicle, with the

object of assisting the mixing operation by the powerful oscillations set up by the springs or resilient supports during the travel of the vehicle, and of preventing deposition of the solid ingredients of the mortar, even when the mixer has been thrown out of gear, in addition to preserving the frames of the vehicle.

24,211 of 1902.—J. MARESCHE: Construction of Ceilings.

Ceilings consisting of solid link stones having a recess on the inner vertical surface, to be placed over a lath at the side of the beam, and a slanting outer surface with recesses and filling channels, and hollow stones having an inwardly inclined wall at one end with recess and filling channel corresponding to the outer surface of the link stones, and a nose at the other end adapted to be placed on a lath at the side of the next beam, prolongations of the base of the link stones and of the hollow stones touching each other below the beam.

27,088 of 1902.—H. H. LAKE (Fried. Krupp Gussow-werk): Stone Crushers.

A stone crusher provided with a reversible jaw having both sides made with crushing surfaces.

25,852 of 1902.—T. DARLINGTON: Means for Ventilating Brick Buildings.

Means for ventilating brick buildings consisting of bricks formed on one face with regular parallel projections in combination with ruberoid or other sheathing bearing against said projections and maintaining air passages.

19,552 of 1902.—L. A. MORRISON: Construction of Walls and Floors.

This consists in the combination with a plurality of blocks having a plurality of openings extending therethrough, of a plurality of blocks alternately arranged with the said blocks and provided with side recesses corresponding to half the dimension of the openings and being designed to be placed together to form openings registering with the aforesaid openings, so as to break joint and form conduits.

6,239 of 1902.—A. R. HUSKISSON: Casement.

A casement comprising a fixed frame, a folding frame hinged to the fixed frame, an inner frame hinged to the folding frame, a bolt connexion between the folding and inner frames, a sliding pin on the inside and a slide link stud on the outside of the inner frame, a slide link capable of being connected with either the sliding pin or the slide link stud, and a catch for holding the folding link in the closed position.

6,720 of 1902.—G. JENNINGS, LTD., & J. MORLEY: Water Closets and the Like and Means for Fixing the Same.

According to this invention the pans of water-closets, sinks, and the like are removably attached to brackets built into the wall. At the back of the pan and made in one with it is a flat plate which is square at its rear end to abut against the wall and on the underside of this plate is a dovetailed lug which enters loosely between two inclined plates which form the bracket. Between these plates and the dove-tailed lug are two loose plates supported on guide pins fixed to the inner faces of the bracket and leaves each chamber through conduits arranged respectively at the lower and upper parts thereof. By plates and set screws provided on the latter, by which the loose plates can be forced against the sides of the dovetailed lug so holding it and at the same time drawing the closet plate down on to the top of the bracket. The bracket is fixed to a horizontal plate let into the wall. The sides of this plate are first built in so that the plate forms a bridge supporting the wall above the opening which has to be cut for fixing the drain pipe from the pan.

7,874 of 1902.—G. GLOSOP and W. ASHWORTH: Filtering Devices for Taps, Pipes, and the Like.

A filtering device for taps comprising a chamber formed in the tap adapted to receive a tubular gauze or flat sheets of gauze held in position by a suitable hinged or screwed cap or cover.

9,177 of 1902.—G. L. CANT and J. B. CANT: Window Sash Fastener and Tightener.

A window sash fastener, comprising a pivoted arm carried by the one sash and a finger carried by the other sash. The invention consists in the provision upon the end of the said pivoted arm of a vertical spindle carrying an eccentric locking and tightening device adapted to engage said finger.

10,653 of 1902.—T. HUNTER and J. WEIR: Automatically-Acting Door Catch or Holder.

An automatically acting door catch consisting in combination of a casing or its equivalent, a tumbling catch pivoted in the casing, a hook adapted to engage with the tumbling catch, and means for disengaging the catch.

11,804 of 1902.—G. NORMAN: Construction of Windows, Doors, and Frames therefor.

According to this invention a framework is made of simple construction, and a sash in two or more sections, all opening inwards, is placed therein, and preferably so as to fall downwards; but in some cases one or more may be hinged to rise upwards, according to the purpose for which the window may be required, as for warehouses, conservatories, stores, sheds, and the like.

28,410 of 1902.—G. F. NEWMAN: Waterproofing Compositions.

A waterproofing composition, consisting of linseed-

\* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.







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273 yrs., g.r. 1604, w.r. 5001	700
Stepney -16, Ford-sq., f., y.r. 401	450
Bethnal Green -12, Columbia-rd., u.t. 19 yrs., g.r. 231, 331, y.r. 782, 48	200
Plaistow -33 and 35, Kelland-rd., u.t. 62 yrs., g.r. 54, w.r. 374, 18	
By G. PRATT & MARSHAND.	
Wandswoth -20 and 22, Geraldine-rd., u.t. 77 yrs., g.r. 251, y.r. 721	775
Brixton -127, Akerman-rd., u.t. 55 yrs., g.r. 51, y.r. 301	333
Streatham -1, Coopers-rd., u.t. 78 yrs., g.r. 124, e.r. 604	593
By STIMSON & SONS.	
Pockham -Asbury-rd., the Asbury Arms p-h., y.r. 854	1,700
Asbury-rd., freehold factory and land, y.r. 504, also 21, Asbury-rd., u.t. 70 yrs., g.r. 41, 18, y.r. 281	1,300
75, Brayards-rd. (S), u.t. 70 yrs., g.r. 51, y.r. 654	750
Brayards-rd., &c., l.g.r. 1604, u.t. 72 yrs., g.r. 704, 38, 704	1,525
35, Caulfield-rd., u.t. 72 yrs., g.r. 165, 6d, y.r. 550	550
Camberwell -Grove Hill-rd., l.g.r. 374, 94, reversion in 73 yrs.	935
Dulwich -44, Wood-vale, u.t. 71 yrs., g.r. 61, 32	270
Maida Vale -Blomfield-rd., l.g.r. 221, 105, u.t. 352 yrs., g.r. 164	100
By J. A. & W. THARP.	
Pentville -2, Vernon-st., u.t. 164 yrs., g.r. 57, y.r. 451	295
By W. & F. EVES (at Uxbridge).	
Hillingdon, Middlesex -3 to 6, Hall-st. (S), f., y.r. 834	1,120
8, Newcombe-villa, f., 68, 68	1,200
Nellgrove-rd., five plots of building land, f.	1
2, Ruby-villas, f., w.r. 164, 18	485
By A. SAVILL & SON AND MASON & SONS (at Brigg).	
Omby, Lincs -The Manor House Farm, 394 a, 1 r. 20 p. f. p.	8,005
By BATCHELOR & SON (at Croxson).	
Croxson -15 to 25 (odd), Barton-rd., f., w.r. 1,870	1,870
45, Tamworth-rd. (S), f., y.r. 271	440
55 and 56, Tamworth-rd. (S), f., w.r. 574, 48	515
82, Church-st. (S), f., y.r. 304	360
By EDWIN EVANS (at Clapham Junction).	
South Lambeth -18 and 20, Thorpe-rd., u.t. 81 yrs., g.r. 167, w.r. 882, 88	500
Battersea -55, Mossbury-rd., u.t. 834 yrs., g.r. 114, w.r. 621, 88	348
69, Worfield-st., u.t. 84 yrs., g.r. 74, w.r. 54	425
42, Allival-rd., u.t. 81 yrs., g.r. 61, 108, w.r. 351, 48	325
Wandswoth -34 and 36, Bucharest-rd., u.t. 86 yrs., g.r. 214, w.r. 604, 88	415
13, West Hill (S), u.t. 69 yrs., g.r. 74, y.r. 402	415
Chelsea -183, Lots-rd., u.t. 75 yrs., g.r. 81, w.r. 611, 28	310
Putney -75 to 77 (odd), Mascotte-rd., u.t. 84 yrs., g.r. 251, w.r. 1401, 168	950
Tooting -73 to 79 (odd), Graveney-rd., u.t. 753 yrs., g.r. 164, 168, w.r. 911	570
February 27 -By FIELD & SONS.	
Rotherhithe -64 to 72 (even), Lower-rd. (S), y.r. 2071, also l.g.r. 41, u.t. 451 yrs., g.r. 241, 65 and 67, Plough-rd., u.t. 503 yrs., g.r. 74, 108, w.r. 621, 88	1,805
12 and 14, Old-rd., u.t. 374 yrs., g.r. 61, 241, w.r. 541, 128	555
28 and 30, Swan-lane, f., w.r. 441, 48	510
By VINCENT S. LEIGH.	
Stoke Newington -23 and 15, Lillian-st., u.t. 71 yrs., g.r. 124, w.r. 714, 108	435
Hackney -23 to 24 (odd), Morning-lane, u.t. 73 yrs., g.r. 201, w.r. 1864, 128	1,030
Harringay -118, Effingham-rd., u.t. 87 yrs., g.r. 54, y.r. 281	25
By MA & PHILPOT.	
Brixton -Mill-lane, a bldg. of freehold building land, u.t. 64 yrs., g.r. 74, 78, y.r. 421	1,230
By G. PEARCE & SONS.	
Lambeth -40, 42, and 44, Belvedere-rd., u.t. 21 yrs., g.r. 221, 108, y.r. 1081	590
Haggerston -62, Stearn-st., u.t. 16 yrs., g.r. 34, w.r. 261	135

PRICES CURRENT OF MATERIALS.

\* Our aim in this list is to give, as far as possible, the lowest prices of materials not necessarily the lowest quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.	
Hard Stocks	£ 4 s. d. per 1,000 alongside, in river.
Rough Stocks and Grizles	2 11 0
Facing Stocks	2 12 0
Shippers	2 5 0
Flettons	1 7 6 at railway dep't
Red Wire Cuts	1 12 0
Best Portland Cement	3 12 0
Best Red Pressed Ruabon Facing	5 0 0

PRICES CURRENT (Continued).

BRICKS, &c.	
£ s. d.	
Best Blue Pressed Staffordshire	4 5 0 per 1,000 at railway dep't.
Do. Bullnose	4 12 0
Best Stourbridge Fire Bricks	4 8 0
GLAZED BRICKS.	
Best White and Ivory Glazed Stretchers	13 0 0
Headers	12 0 0
Quoins	12 0 0
and Flats	17 0 0
Double Stretchers	19 0 0
Double Headers	16 0 0
One Side and two Ends	19 0 0
Two Sides and one End	20 0 0
Splays Chamfered	20 0 0
Squints	20 0 0
Best Dipped Salt Glazed Stretchers and Headers	13 0 0
Quoins, Bullnose, and Flats	14 0 0
Double Stretchers	15 0 0
Double Headers	14 0 0
One Side and two Ends	15 0 0
Two Sides and one End	15 0 0
Splays Chamfered	14 0 0
Squints	14 0 0
Second Quality White and Dipped Salt Glazed	2 0 0 less than best.
Thames and Pit Sand	7 0 per yard, delivered.
Thames Ballast	3 0 per ton, delivered.
Best Portland Cement	30 0 per ton, delivered.
Best Ground Blue Ls. Lime	21 0
NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.	
Grey Stone Lime	108. 6d. per yard, delivered.
Stourbridge Fire-clay in sacks	27s. 6d. per ton at rly. dep't.
STONE.	
Ancaster in blocks	1 11 per ft. cube, deld. rly. dep't.
Bath	1 7
Farleigh Down Bath	1 8
Beer in blocks	2 6
Grinshill	2 10
Brown Portland in blocks	2 4
Darley Dale in blocks	2 4
Red Corshill	2 5
Cloveland Red Freestone	2 4
Red Mansfield	2 4
York Stone—Robin Hood Quality.	
£ s. d.	
Scrapped random blocks	2 10 per ft. cube, deld. rly. dep't.
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 3 per foot super.
6 in. Rubbed two sides Ditto	2 6
3 in. Sawn two sides slabs (random sizes)	0 11 1/2
1 in. to 2 in. Sawn one side slabs (random sizes)	0 7 1/2
1 1/2 in. to 2 in. ditto	0 6
BEST HARL YORK.	
Scrapped random blocks	3 0 per ft. cube, deld. rly. dep't.
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 8 per ft. super.
6 in. Rubbed two sides Ditto	—
3 in. sawn two sides slabs (random sizes)	2 2
1 in. self-faced random	—
Hopton Wood (Hard Bed) in blocks	2 3 per ft. cube, deld. rly. dep't.
6 in. sawn both sides landings	2 7 per ft. super.
3 in. do.	2 2 1/2
SLATES.	
in. in. £ s. d.	
20 x 10 best blue Bangor	23 2 6 per 1000 of 1200 at rly. dep't.
20 x 12 " "	13 17 6
20 x 12 " best seconds "	12 15 0
20 x 12 " "	13 10 0
26 x 8 best "	7 0 0
20 x 10 best blue Portmadoc	12 5 0
16 x 8 best blue Portmadoc	6 0 0
20 x 10 best Eureka unfading green	25 0 0
20 x 12 " "	16 10 0
18 x 10 " "	11 10 0
16 x 8 " "	8 7 6
20 x 10 permanent green	10 10 0
18 x 10 " "	9 6 0
16 x 8 " "	6 5 0
TILES.	
£ s. d.	
Best plain red roofing tiles	42 0 per 1,000, at rly. dep't.
Hip and valley tiles	3 7 per doz.
Do. Ornamental Tiles	3 7 per doz.
Hip and valley tiles	4 0 per doz.
Best Ruabon Red, brown or handled Do. (Edwards)	57 6 per 1,000
Do. ornamental Do.	60
Hip tiles	4 0 per doz.
Valley tiles	3 0
Best Red or Mottled Staffordshire Do. (Peakes)	59 6 per 1,000
Do. Ornamental Do.	54 6
Hip tiles	4 3 per doz.
Valley tiles	3 8
Best "Rosemary" brand plain tiles	48 0 per 1,000
Do. Ornamental Do.	50 0
Hip tiles	4 0 per doz.
Valley tiles	3 8

PRICES CURRENT (Continued).

WOOD.	
£ s. d.	At per standard.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	13 10 0 16 10 0
Deals: best 3 by 9, 4 by 9, 5 by 9, and 3 in. by 7 in. and 8 in. and 3 in. by 7 in. and 8 in.	14 10 0 3 15 0
Battens: best 2 1/2 in. by 7 in. and 3 in. by 6 in. and 3 by 6	11 10 0 10 10 0
Battens: best 2 1/2 by 6 and 3 by 6	10 10 0 less than 7 in. and 8 in.
Deals: seconds	1 0 0 less than best
Battens: seconds	1 0 0
2 in. by 4 in. and 2 in. by 6 in.	9 0 0 9 10 0
2 in. by 4 in. and 2 in. by 6 in.	8 10 0 9 10 0
Foreign Sawed Boards—1 in. and 1 1/2 in. by 7 in.	0 10 0 more than battens.
3 in.	1 0 0
Fire timber: Best muddling Danzig or Memel (average specification)	4 10 0 per load of 50 ft.
Seconds	4 10 0 5 4 0
Small timber (8 in. to 10 in.)	4 5 0 4 10 0
Small timber (6 in. to 8 in.)	3 14 6 3 15 0
Swedish balks	3 0 0 3 10 0
Pitch-pine timber (30 ft. average)	2 15 0 3 0 0
JONERS' WOOD	At per standard.
White Sea: First yellow deals, 3 in. by 11 in.	23 0 0 24 0 0
3 in. by 9 in.	21 0 0 22 10 0
Battens, 2 1/2 in. and 3 in. by 7 in.	18 10 0 18 10 0
Second yellow deals, 3 in. by 11 in.	18 10 0 20 0 0
Battens, 2 1/2 in. and 3 in. by 7 in.	17 10 0 19 0 0
Third yellow deals, 3 in. by 11 in.	13 10 0 14 10 0
Battens, 2 1/2 in. and 3 in. by 7 in.	15 10 0 16 10 0
Petersburg: first yellow deals, 3 in. by 11 in.	12 10 0 12 10 0
Do. 3 in. by 9 in.	18 0 0 19 10 0
Battens	13 10 0 15 0 0
Second yellow deals, 3 in. by 11 in.	16 10 0 17 0 0
3 in. by 9 in.	14 10 0 16 0 0
Battens	11 10 0 12 10 0
Third yellow deals, 3 in. by 11 in.	13 10 0 14 0 0
Do. 3 in. by 9 in.	11 0 0 14 0 0
Battens	10 0 0 11 0 0
White Sea and Petersburg: First white deals, 3 in. by 11 in.	11 10 0 13 10 0
3 in. by 9 in.	11 0 0 14 10 0
Battens	11 0 0 12 0 0
Second white deals, 3 in. by 11 in.	13 10 0 14 10 0
3 in. by 9 in.	12 10 0 13 10 0
Battens	9 10 0 10 10 0
Pitch-pine: deals	16 0 0 18 0 0
Under 2 in. thick extra	0 0 0 1 0 0
Yellow Pine—First, regular sizes	31 0 upwards.
Oddments	22 0 0 24 0 0
Seconds, regular sizes	21 10 0 26 10 0
Yellow Pine Oddments	20 0 0 22 0 0
Kauri Pine—Planks, per ft. cube.	0 3 0 0 4 6
Danzig and Stettin Oak Logs—Large, per ft. cube	0 2 6 0 3 6
Small	0 2 4 0 2 6
Wainscot Oak Logs, per ft. cube	0 5 0 0 5 6
Dry Wainscot Oak, per ft. sup. as inch	0 0 7 0 0 8
2 in. do.	0 0 6 1/2
Dry Mahogany—	
Honduras, Tabasco, per ft. sup.	0 0 9 0 0 11
Selected, Figury, per ft. sup. as inch	0 1 6 0 0 10
Dry Walnut, American, per ft. sup. as inch	0 0 10 0 0 10
Teak, per load	16 10 0 20 0 0
American Whitewood Planks—Per ft. cube	0 4 0
Prepared Flooring—	Per square.
1 in. by 7 in. yellow, planed and shot	0 13 6 0 17 6
2 in. by 7 in. yellow, planed and shot	0 14 0 0 18 6
1 1/2 in. by 7 in. yellow, planed and matched	0 16 0 0 1 6
1 in. by 7 in. white, planed and shot	0 11 6 0 13 6
1 in. by 7 in. white, planed and matched	0 12 0 0 14 0
1 1/2 in. by 7 in. white, planed and matched	0 14 6 0 16 6
3 in. by 7 in. yellow, planed and beaded or V-jointed boards	0 11 0 0 13 6
1 in. by 7 in. do. do.	0 14 0 0 18 6
1 in. by 7 in. white do. do.	0 10 0 0 12 6
1 in. by 7 in. do. do.	0 11 6 0 13 6
6 in. at 6d. to 9d. per square less than 7 in.	
JOISTS, GIRDERS, &c.	
£ s. d.	In London, or delivered, Railway Vans, per ton.
£ s. d.	£ s. d.
Rolled Steel Joists, ordinary sections	6 5 0 7 5 0
Compound Girders	8 2 6 9 5 0
Angles, Tees and Channels, ordinary sections	7 17 6 8 17 6
Fitch Plates	8 5 0 9 10 0
Cast Iron Columns and Stanchions, including ordinary patterns	7 2 6 8 5 6
METALS.	
£ s. d.	Per ton, in London.
IRON—	£ s. d.
Common Bars	7 15 0 8 5 0
Staffordshire Crown Bars, good merchant quality	8 5 0 8 25 0
Staffordshire "Marked Bars"	10 10 0
Mild Steel Bars	0 0 0 9 10 0
Hoop Iron, basis price	9 5 0 9 20 0
"galvanised"	16 0 0
(* And upwards, according to size and gauge.)	
Sheet Iron, Black—	
Ordinary sizes to 20 g.	10 0 0
" " 24 g.	12 0 0
" " 26 g.	13 10 0
Sheet Iron, Galvanised, flat, ordinary quality—	
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	12 15 0
" " 22 g. and 24 g.	13 10 0
" " 26 g.	14 5 0



## COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

(For some Contracts, &amp;c., still open, but not included in this List, see previous issues.)

## COMPETITION.

Nature of Work.	By whom Required.	Premiums.	Designs to be delivered
National Memorial, Tassanah	The Committee	20 Guineas	No date

## CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c., supplied by	Tenders to be delivered
Refuse Destructor, &c., Rockingham-road	Kettering U.D.C.	J. Bond, Market-street, Kettering	Mar. 9
Alterations to Church, Granard, Ireland	Van, Archibald Smyth	W. H. Byrne & Son, Architects, 21, Suffolk-street, Dublin	Mar. 10
Stoneware Pipes	Edmonton U.D.C.	Edmonton U.D.C.	do.
Oak Fencing at Chipping Ongar	Hackley, Union	W. A. Finch, 76, Finsbury-pavement, E.C.	Mar. 11
Houses, &c., Turfiff, N.B.	Trustees of the late Mr. J. Kirk	C. S. Nelson, Architect, 15, Park-row, Leeds	do.
Rebuilding the Bay House Inn, Kilham, Yorks	Hackley, Union	J. Danen & Son, Architects, Turfiff	do.
Street Improvement Works, Aron-road	Hackley, Union	H. Petch, Architect, 1, Haverley-street, Southam	do.
Additions to Victoria Hall	Hackley, Union	H. E. Salter, Civil Engineer, 1, Haverley-street, Southam	do.
Stoneware Pipes, &c.	Hackley, Union	Deacon & Horsburgh, Architects, North John-street, Liverpool	do.
Alterations to Schools	Hackley, Union	W. T. Howes, Surveyor, Public Hall, Bexley	do.
Road Materials, &c. (Twelve Months)	Hackley, Union	J. S. Moffat, Architect, Whitehaven	do.
Pavilion, &c., King's Park	Hackley, Union	R. W. Clark, Architect, Congestall, Essex	do.
Schools, Hiral	Hackley, Union	J. H. Beaumont, Market-street, Bingley	do.
Additions to Club and Institute	Hackley, Union	W. W. Lasey, Civil Engineer, Town Hall, Bournemouth	do.
Road Metal, &c.	Hackley, Union	W. Williams, Architect, 229, High-street, Bangor	do.
Isolation Hospital	Hackley, Union	G. Williams, 20, High-street, Cymmer	do.
Alterations of Boiler and Engine House, &c.	Hackley, Union	W. L. Turner, Surveyor, Telford	do.
Fire Station, Ballynacarr	Hackley, Union	Guth & Saunders, Architects, Kendergreen	do.
Wesleyan School, Additions, &c., Hunwick, Co. Durham	Hackley, Union	Ernest Flint, Architect, 80, Coleman-street, E.C.	Mar. 12
Port and Quay	Hackley, Union	Young & Mackenzie, Architects, Belfast	do.
Additions to Hospital, H. H. (Staffs)	Hackley, Union	F. Wright, Wesleyan Schools, Hunwick	do.
Schools, Ashford, Middlesex	Hackley, Union	F. C. Cook, Engineer, Council Offices, Hineley	do.
Berlin Cement (One Year)	Hackley, Union	J. Paton, Borough Surveyor, Town Hall, Plymouth	do.
Pen Cottages, Pen Drove	Hackley, Union	E. Jones, Architect, 10, Albion-street, Hanley	do.
Road Metal, Whinotown, &c.	Hackley, Union	F. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Stores and Shed, Tame-street, Annesley	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Bridge Works, Gifford, near Kirkcaldy, Yorks	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Fifteen Houses, N.W. Trelgar, Mon	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Granite Piers	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Sewerage Works, Wincoburn-street, Alnwick	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Road Improvement Works, Peasants, &c., Pentre, Glam	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
House, Hand Carr, Luddenden Foot, Halifax	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Road Metal, &c.	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Two Villas, Lillburn-street, Alnwick	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Vicarage House, Gray, Breconshire	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Road Metal, &c.	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Granite Road Metal, &c.	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Additions to Restrop Farm, Purton	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Cement, &c.	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Public Library, &c.	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Furnace and Shed, Portland-place, Deptford	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Additions to Telegraph Inn, St. Orme's Head, Llandudno	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Suez Road Metal, &c.	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Extension of Ford Quay, Llanelli	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Sewerage Works, Bockhurst	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Rebuilding Bolton Hall, Leyburn, Yorks	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Additions to Schools, Llanelli	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Boundary and Retaining Walls, Pontfryn	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Tinlier Wharf, Pontfryn Dock	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Schools, Monksland, Nantwich	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Drainage Works, Ryde, Isle of Wight	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Additions to Works, Walsby, Walsby	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Additions to Police Station, Llanelli	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Broken Stone, &c.	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Road Metal, &c.	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Granite Road Metal, &c.	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Drain Pipes, &c.	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Baths, High-street, Thornton, Lancashire	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Materials, Road Metal, &c.	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Schools, Alnham, near Thetford	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Road Materials, &c.	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Quarry, Wansley, near Bath	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Drainage, &c.	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Lane-ways, &c.	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Pumping station	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Sewer, &c.	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Water supply Works	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Demolition of Old Workhouse Premises	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Surveyors' Materials, &c.	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Water Softener, &c., at Infirmary, Highgate Hill, N.	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Enlargement of Head Post Office, Bournemouth	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Earthware and Cast-iron Pipes, &c., Billingshurst	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Underground Lavatory, Corporation & Miller Streets	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Crematorium at City of London Cemetery	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Infectious Diseases Hospital, Cobham, nr. Gravesend	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Dwarf Wall, Iron Pipes and Gates	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Main Sewerage Works, Wyle Road	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Making-up, &c., Buxton & Farnley Rd., The D.C. &c.	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Stoneware Pipes, &c., Chapel End	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Additions to Isolation Hospital	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Two Villas, Malden, E.C.	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
House, 67, Good Farm, Penny-lau, near Cardiff	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
House, Herwood, Stalybridge	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Schools, Walsby	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Gasholder Tank, Kilmacolin, N.B.	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Printing Works and Offices	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.
Schools, &c.	Hackley, Union	J. W. Roper, Architect, 9, Adam-street, Adolph, W.C.	do.

## PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
Three Junior Surveyors	London County Council	£1,100	Mar. 12
Surveyor and Waterworks Engineer	Woolwich U.D.C.	£231	do.
Temporary Architectural Assistant	Woolwich Borough Council	£100	Mar. 23

Those marked with an asterisk (\*) are advertised in this Number.

Competitions, xxii.

Contracts, iv. vi. viii. &amp; x.

Public Appointments, xviii.



## PRICES CURRENT (Continued).

## METALS.

	Per ton in London.	
	£ s. d.	£ s. d.
Sheet Iron, Galvanized, flat, best		
Ordinary sizes to 20 g.	16 0 0	
" 22 g. and 24 g.	16 10 0	
" 26 g.	18 0 0	
Galvanized Corrugated Sheet		
Ordinary sizes, 6 ft. to 8 ft. 20 g.	13 15 0	
" 22 g. and 24 g.	13 5 0	
" 26 g.	14 5 0	
Best Soft Sheet Steels		
6 ft. by 2 ft. to 3 ft. by 20 g.	12 0 0	
" and thicker	12 0 0	
" 22 g. and 24 g.	13 0 0	
" 26 g.	14 5 0	
Cut nails, 3 in. to 6 in.	9 5 0	9 15 0
(Under 3 in. usual trade extras.)		

## LEAD, &amp;c.

	Per ton, in London.	
	£ s. d.	£ s. d.
LEAD—Sheet, English, 3 lbs. & up.	15 0 0	
Pipe in coils	15 5 0	
Soil pipe	17 15 0	
Compo Pipe	17 15 0	
ZINC—Sheet		
Vicille Montagne	25 10 0	
Silesian	25 5 0	
COPPER—Sheet		
Strong Sheet	0 0 10	
Thin	0 0 12	
Copper nails	0 0 12	
BRASS—Sheet		
Strong Sheet	0 0 10	
Thin	0 0 11	
TIN—English Ingots	0 1 4	
SOLDER—Plumbers'	0 0 6	
Timen's	0 0 8	
Blowpipe	0 0 9	

## ENGLISH SHEET GLASS IN CRATES.

	2d. per ft. delivered.	
	£ s. d.	£ s. d.
4 oz. thirds	14d.	
" fourths	14d.	
21 oz. thirds	24d.	
" fourths	24d.	
26 oz. thirds	4d.	
" fourths	24d.	
32 oz. thirds	4d.	
" fourths	4d.	
Fluted sheet, 15 oz.	3d.	
" 21 oz.	4d.	
Red Lead, Dry	14d.	
Hard Extra Hard Church Oak	2d.	
Stockholm Tar	2d.	

## OILS, &amp;c.

	per gallon	
	£ s. d.	£ s. d.
Raw Linseed Oil in pipes or barrels	0 2 4	
" " in drums	0 2 8	
Boiled " in pipes or barrels	0 2 6	
" " in drums	0 2 10	
Turpentine, in barrels	0 3 8	
" in drums	0 3 10	
Genuine Ground English White Lead	20 10 0	
Red Lead, Dry	20 0 0	
Best Linseed Oil Putty	0 8 0	
Stockholm Tar	1 12 0	

## VARNISHES, &amp;c.

	Per gallon.	
	£ s. d.	£ s. d.
Fine Pale Oak Varnish	0 8 0	
Pale Copal Oak	0 10 0	
Superfine Pale Elm	0 12 0	
Superfine Hard Church Oak	0 10 0	
Superfine Hard-drying Oak, for Seats of Churches	0 14 0	
Fine Elastic Carriage	0 16 0	
Superfine Pale Elastic Carriage	0 16 0	
Fine Pale Maple	0 16 0	
Finest Pale Durable Copal	0 18 0	
Extra Pale French Oil	0 18 0	
English Flaming Varnish	0 18 0	
White Copal Enamel	1 4 0	
Extra Pale Paper	0 12 0	
Best Japan Gold Size	0 10 0	
Best Black Japan	0 16 0	
Oak and Mahogany Stain	0 9 0	
Brunswick Black	0 8 0	
Red Black	0 16 0	
Knottin	0 10 0	
French and Brush Polish	0 10 0	

## TO CORRESPONDENTS.

J. W. E.—W. H. (Amounts should have been stated).  
L. & H. (Too late; next week).

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and printing addresses.

Any communication to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

## TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us not later than 10 a.m. on Thursday. N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is underlined, unless in some exceptional cases and for special reasons.]

\* Denotes accepted. † Denotes provisionally accepted.

BEDFORD.—For alterations and additions to New-haven, Bedford, for Mr. Nat Gould. Mr. W. A. Davies, architect and surveyor, Town Hall Chambers, High-street, Hounslow.  
W. Irwin ..... £650 | W. Wisdom, Isle.  
T. Hiscock ..... 540 | worth\* ..... £115

BEXHILL (Sussex).—For extensions to electric light works, for the Town Council. Mr. Geo. Ball, C.E., Town Hall, Bexhill. Quantities by Mr. J. T. Halliday:—  
F. G. Minter ..... £7,772 | Peelless, Dennis, &  
H. E. Crutenden ..... 2,604 | Co. .... £4,548  
T. W. Dexter ..... 2,677 | W. H. Bailey, Bex-  
Jarvis & Son ..... 2,598 | hill† ..... 2,475

BUCKLEY (Flintshire).—For erecting a fire library. Messrs. J. H. Davies & Sons, architects, 14, Newgate-street, Chester:—

	Contract	Contract
	No. 1.	No. 2.
Davies Bros.	£1,481 0 0	£30 7 6
R. Williams	1,330 12 0	25 17 0
Parker Bros.	1,377 0 0	20 0 0
Pritchard	1,335 0 0	20 0 0
P. Edwards	1,310 0 0	63 0 0
R. Davies	1,310 0 0	—
Wright & Sons	1,285 0 0	25 0 0
R. Peters, Buckley	1,230 0 0	55 0 0
Kitchen	1,130 0 0	25 15 0

CROYDON.—For the erection of a private residence at Chatsworth-road. Mr. F. Windsor, architect, Bank-building, High-street, Croydon:—

F. J. Saunders	£1,350	W. Potter	£1,149
D. Waller	1,175	J. Horrocks	1,121

CROYDON.—For billiard-room and additions to Pampisford, Pampisford-road, South Croydon, for Mr. G. Lister. Messrs. Money Marsland, & Pratt, architects, 68, Great Tower-street, E.C. 1:—  
T. Warman ..... £1,150 | Worsfold & Son ..... £895  
R. A. Jewel ..... 950 | J. Pratt† ..... 785  
Accepted subject to modifications.

EARLSTOWN (Lancs.).—For laying water mains, for the Newton-in-Makerfield Urban District Council. Mr. R. T. Surtees, engineer. Quantities by Messrs. Read & Waring, engineers:—  
Bennie & Thompson, Warrington\* ..... £1,617 16 10

ENNISCORTHY (Ireland).—For the execution of sewerage works, Ferns, for the Rural District Council. Mr. J. W. Gardner, C.E., Dublin:—  
M. Fitzpatrick ..... £1,050 0 0 | A. R. Breen ..... £1,050 0 0  
George Dixon ..... 783 1 6 | William Baird ..... 783 1 6  
Wm. Goldie ..... 993 3 6 | Dublin\* ..... 785 0 0

WALTHAMSTOW.—For making up a number of private streets. Mr. G. W. Holmes, A.M. Inst. C.E., Engineer:—

	Sherhall-street.	Brighton-avenue.	Camden-road.	Low Hall-lane.	Cassiobury-road.	Salop-road (part oil).
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Peters & Co.	1,650 12 10	105 14 2	113 13 2	225 6 8	355 17 3	310 7 7
Griffiths & Co.	1,141 9 0	138 11 8	95 8 11	245 5 2	245 15 9	358 12 10
A. W. Porter	—	110 0 0	71 10 0	220 0 0	—	—
Grounds & Newton	—	223 14 0	159 3 0	—	555 13 0	477 11 0
G. Porter	1,071 17 0	180 11 0	121 0 0	275 18 0	551 0 0	240 13 0
G. Wilson	6 1 0	151 8 9	91 2 6	187 3 9	409 19 0	279 9 0
W. Manders	620 0 0	170 0 0	110 0 0	227 0 0	607 0 0	395 0 0
G. Bell	1,172 0 0	185 0 0	137 0 0	239 0 0	619 0 0	369 0 0
Surveyor.	—	—	—	290 0 0	—	—

LONDON SCHOOL BOARD.—PLUMBERS', PAINTERS', AND GLAZIERS' GOODS.—For the supply of plumbers', painters', and glaziers' goods on running contracts. The tenders have been submitted on printed schedules containing 333 items:—

	1 to 78.	79 to 140.	141 to 162.	163 to 213.	214 to 281.	282 to 298.	299 to 333.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Bowley & Son	11 9 3	—	—	—	—	—	—
Farmhouse & Sons, Ltd.*	11 5 10	2 3	0 9 3	10 14 0	—	—	—
Nicholls & Clarke, Ltd.*	11 9 9	—	—	—	22 0 8	18 2 1	4 17 10
H. E. Kershaw	10 7 10	—	—	—	—	—	—
Day Bros. Ltd.	10 3 3	—	—	—	—	—	—
Quick & Co., Ltd.	10 12 0	—	—	—	—	—	—
Middleton Bros.	0 6 5	—	—	—	—	—	—
Rindell, Spence, & Co., Ltd.	9 3 3	—	—	—	—	—	—
T. & W. Farmhouse, Ltd.*	—	9 15 4	0 7 11	10 13 0	25 8 0	16 0 0	6 3 6
The Falcon Brass Works, Ltd.*	—	—	—	—	21 13 0	—	—
The Farrington Works and H. Pontifex & Sons, Ltd.	—	—	—	—	21 0 0	—	—
Warner & Sons, Ltd.	—	—	—	—	20 15 0	—	—

[See also next page.]

KEIGHLEY.—For paving, &c., four streets near Victoria-avenue, for the Corporation. Mr. W. H. Hopkinson, C.E., Town Hall, Keighley:—  
T. E. Sugden, Keighley\* ..... £804 11 2

LIVERPOOL.—For new temporary school (accommodation, 550), Broad Green-road, for Liverpool School Board. Mr. Thomas Browne, Architect, Offices of the Board:—

Paterson & Co.	£2,737 0	James Readie	£2,440 0
Morton & Co.	—	Humphreys, Ltd.	2,368 0
—	2,665 0	Woods & Son	2,475 0
Hawkins & Co.	2,548 10	Blakeley & Co.	1,994 0
Tomkinson & Co.	2,545 0	Whitall & Gre-	—
George Johnson	2,480 0	gory*	1,877 0

LONDON.—For constructing a 72-in. pipe sewer in South-place-mews, Finsbury, for the Corporation:—  
A. Woodhouse ..... £131 10

LONDON.—For re-gravelling and rolling paths in Finsbury-circus-garden, for the Corporation:—  
Mowlem & Co.\* ..... £180

LONDON.—For the reconstruction at a lower level of about 1,260 ft. of the Battle Bridge sewer in Union-street, Southwark, between Gravel-lane and Southwark Bridge-road, for the London County Council:—

J. Dickson	£7,810 8 9	J. & B. Bins	£6,615 7 0
W. Kennedy	7,216 8 2	Johnson & Woodham	—
Sons	6,975 16 2	Langley, Leicester*	5,894 12 6

LONDON.—For the erection of a new police station at Russell Hill. Mr. J. Dixon Butler, Surveyor to the Metropolitan Police, New Scotland Yard. Quantities by Messrs. Thurgood, Son, & Chidgey, Charing Cross Chambers, Duke-street, Adelphi:—  
Voller & Goodfellow ..... £8,660 | Ansell ..... £8,905  
Larocles & Co. .... 9,186 | Holloway Bros. .... 8,897  
Higgs & Bell ..... 9,140 | Thompson & Hill  
Allen & Sons ..... 9,121 | ridge ..... 8,796  
J. Darvill ..... 9,120 | Lathey Bros. .... 8,737  
E. & H. P. Higgs ..... 9,033 | J. Pocock ..... 8,629  
Grover & Sons ..... 8,934 | Willmott & Sons ..... 8,579

ST. ASAPH.—For new infirmary at the St. Asaph Union Workhouse. Mr. James Hughes, architect, Denbigh:—

R. Jones	£5,460	E. Williams	£4,470
G. H. Marshall	5,349	W. H. Thomas	4,430
T. Jones	4,999	Evans & Sons, Old	—
R. Williams	4,997	Colwyn*	4,397
Griffiths & Son	4,699	Jones & Pri-hard	4,491
P. Edwards	4,651	Architect's estimate	£4,462.

STOKENCHURCH.—For new residence, Stokenchurch, for Mr. R. D. Cruikshank. Mr. Arthur Vernon, P.S.I., architect, 29, Cockspur-street, London, S.W., and High Wycombe:—  
C. Sydenham ..... £1,355 10 | H. Harris\* ..... £1,688 10  
W. H. Siarey ..... 1,767 0

THORPE.—For the construction of sewers and sewage disposal works at Thorpe. Mr. R. E. W. Herrington, M.Inst.C.E., Wolverhampton, and 28, Victoria-street, S.W.:—

Jones Bros.	£4,234	Green & Co.	£3,228
W. H. Reading	4,036	Morley	3,193
James Cooper	3,790	Sprakes & Sons	3,148
Robert Smith	3,785	James Owens	3,135
Graham & Son	3,590	Braithwaite & Co.	—
W. R. Unwin	3,358	King-st., Leeds*	2,906



**WARGRAVE (Berks).**—For the execution of sewerage works for the Wokingham Rural District Council. Messrs. Hassard & Tyrell, engineers, 3, Victoria-street, S.W. :-  
**Free & Son** .. £5,503 12 1  
**Landscap Co.** .. 4,456 4 5  
**A. G. Oulton** .. 3,664 6 4  
**Collier & Catley** .. 3,593 0 0  
**H. Hinkins** .. 3,490 16 0  
**McCarthy E.** .. 3,489 0 0  
**Fitt** .. 3,489 0 0

**WITLEY.**—For proposed erection of a pair of cottages at Nodding's Farm, Witley, Surrey, for Mr. G. H. Pinckard. Mr. A. H. Butterworth, architect. Quantities supplied by Mr. H. Gray Robins :-  
**Mitchell** .. £998  
**Asbdown** .. 948  
**Bunning** .. 898  
**Ltd.\*** .. 760

**YORK.**—For the erection of an asylum for lunatics Water Fulford, for the Visiting Committee. Mr. A. Cree, architect, Guildhall, York :-  
**Longden & Son, Nerpseud, Sheffield\*** .. £90,453 9 9

#### LONDON SCHOOL BOARD TENDERS.

At the last meeting of the London School Board the Works Committee submitted the following lists of tenders. Mr. T. J. Bailey is the Board's architect :-

\* Recommended for acceptance.

**CORMONT-ROAD.**—School for mentally defective children. Three classrooms of twenty each :-  
**Smith & Sons, Ltd.** £3,453  
**Holliday & Greenwood, Ltd.** .. 3,353  
**F. & H. F. Higgs** .. 3,234  
**Holloway Bros.** .. 3,137  
**(London), Ltd.** .. 3,137  
**Akers & Co.** .. 3,120  
**Smith & Son** .. 3,023  
**Lathey Bros.** .. 3,063  
**W. Downs** .. 2,982

**KINGSGATE-ROAD.**—Providing and fixing low-pressure hot-water apparatus, including channels, painting pipes, &c. :-  
**G. Davis** .. £546 0 0  
**Dougill & Co., Ltd.** .. 538 14 5  
**Cannon & Sons** .. 499 0 0  
**J. & F. May** .. 457 0 0  
**Wontner-Smith, Gray, & Co.** .. 439 14 0

**NETLEY-STREET.**—Improvements—Providing halls and teachers' rooms for all departments; extending girls' playground on roof; converting present teachers' rooms into cloakrooms, &c.; providing new exit from babies' room, and enclosing, draining, and tarpaving the additional land. Accommodation unaltered :-  
**Simpson & Son** .. £4,764 0 0  
**C. Cox** .. 4,641 0 0  
**Miskin & Sons** .. 4,517 0 0  
**Johnson & Co.** .. 4,600 13 6  
**Deering & Son** .. 4,548 0 0  
**Unsigned** .. 4,530 0 0  
**Grover & Son** .. 4,422 0 0

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#### PUBLISHER'S NOTICES.

THE INDEX (with TITLE-PAGE) for VOLUME LXXXIII. (July to December, 1902) was given as a supplement with the number for January 1903.

CLOTH CASES for Binding the Numbers are now ready, price 5s. 6d. each; also

READING CASES (Cloth), with Strips, price 9d. each. THE EIGHTY-THIRD VOLUME of "The Builder" (bound) price Twelve Shillings and Sixpence, is NOW READY. SUBSCRIBERS' VOLUMES, on being sent to the Office, will be bound at a cost of 7s. 6d. each.

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Advertisements for the current week's issue are received up to THREE o'clock p.m. on THURSDAY, but "classification" is impossible in the case of any which may reach the Office after HALF-PAST ONE p.m. on that day. Those intended for the Outside Wrapper should be in by TWELVE noon on WEDNESDAY.

ALTERATIONS IN STANDING ADVERTISEMENTS OR ORDERS TO DISCONTINUE same must reach the Office before TEN o'clock on WEDNESDAY MORNING.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, &c. left at the Office in reply to advertisements, and strongly recommends that the latter COPIES ONLY should be sent. PERSONS Advertising in "The Builder" may have Envelopes addressed to the Office, Catherine-street, Great Garden, W.C. free of charge. Letters will be forwarded, if addressed envelopes are sent, together with sufficient stamps to cover the postage. Unused stamps are returned to advertisers the week after publication.

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**Asphalte.**—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 42, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co.

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**METCHIM & SON** { 8, PRINCES STREET, S.W. and 28, CLEMENTS LANE, E.C.  
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## ILLUSTRATIONS.

Memorial Window, Chapel Royal, Savoy .....	By Messrs. E. J. Prest & Co.
Chapel of Ease, Colehill, Wimborne .....	Mr. W. D. Caröe, F.R.I.B.A., Architect.
Liverpool Infirmary for Children: Selected Design .....	Messrs. Haigh & Thompson, Architects.
Pugin Studentship Competition Drawings, 1903 (Institute of Architects) .....	Measured and Drawn by Mr. J. H. Gibbons.

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## Standardised Rolled Sections.

**S**INCE the Engineering Standards Committee commenced their labours in June, 1901, an immense amount of work has been performed, the first practical evidences of which are to be found in the preliminary lists of rolled steel sections issued last week. By the abolition of meaningless variations, such as those which have hitherto existed in this country, it is estimated that some millions of pounds will be saved annually, and in structural steel alone the annual benefit to makers and users will probably be equivalent to about three-quarters of a million. The nine lists now published in pamphlet form are intended for the information of rolling mill proprietors, to enable them to make necessary preparations for carrying into effect the new standards. Practically every form of steel section rolled for the use of shipbuilders and constructional engineers is included. There are sixteen sections of equal angle-bars, varying from 1 in. by 1 in. to 8 in. by 8 in., and thirty sections of unequal angles, from 1½ in. by 1 in. to 10 in. by 4 in. Bulb-angles, bulb-tees, and bulb-plates are all used more or less extensively in shipbuilding, and of these an adequate number of standard sections is now established. Channels, used very largely in ship and railway wagon building, as well as in bridge and other work of structural nature, are well represented on the list by twenty-seven standards, ranging from 3 in. by 1½ in. by 1½ in., to 15 in. by 4 in. by 4 in. Eight sections, from 3 in. by 2½ in. by 3 in., to 10 in. by 3½ in. by 3½ in., are specified for Z-bars, this form being chiefly used in shipbuilding, but it really ought to be widely employed in building construction, for it has indeniably advantageous features, and is a most economical section for adoption in built-up stanchions and columns. Twenty-two standard sections are provided for T-bars, from 1 in. to 7 in. The most important rolled section in the book of stan-

dards is that generally known as the H-beam, or rolled steel joist, the thirty-six sizes given varying from 3 in. by 1½ in. to 24 in. by 7½ in. It may here be remarked that the word "beam" is to some extent a misnomer, for several of the sections are more suitable for use as struts or columns than as beams.

The selection afforded is ample for all reasonable requirements, and its adoption will be attended with much saving of time, without in any way interfering with the proper design of steel work. Each of the lists to which reference has been made, contains a drawing showing the exact profile of the section dealt with, the radii of curves, and the points at which thickness is to be measured. Maximum, mean, and minimum thicknesses are standardised for each size of section, so that the numbers of the standards stated above may really be multiplied by three to give the correct total. Further, as variations of thickness can readily be obtained by adjustment of the "rolls," it will always be possible for architects and engineers to specify a special thickness whenever this may be thought necessary; though of course this will mean special rolling and consequent delay. At the present time, the section books of manufacturers are crowded with unnecessary sections, rarely kept in stock. Purchasers do not know this, and in selecting such sections they innocently cause delays in delivery, because manufacturers cannot afford to roll a few feet of various beams or bars at a time. When orders come in for out-of-the-way sections, they are allowed to accumulate until the total quantity is sufficient to justify the cost of a special rolling. Purchasers then wonder why it takes three or four months to get delivery, and are apt to say hard things about British manufacturing enterprise. This sort of trouble will be put an end to when the new standards are generally recognised, for all the makers will then keep standard sections in stock ready for immediate delivery.

We are informed that some of the largest steel manufacturers in the country have already decided to roll none but standard sections. In due course this example will be followed by others, especially as it is the

intention of Government departments to enforce the standards now settled. The ultimate result will clearly be an immense benefit to the country at large, and the unfortunate circumstances which have led to the placing of Government and other orders abroad will no longer exist. Further lists will shortly be issued by the Engineering Standards Committee, giving the moments of inertia and other details relative to this issue of standard sections.

The present publication represents a part of the work done by the Committee on Sections Used in Shipbuilding, under the presidency of Mr. A. Denny, and the Committee on Bridges and Building Construction, under the presidency of Sir Benjamin Baker. Other departmental Committees are devoted to tests for ship and boiler steel, railway and tramway rails, railway rolling stock underframes, locomotives, and electrical plant. Including the main Committee, departmental Committees, and sub-committees, there are twenty-three organisations devoted to the standardisation of engineering work, and these include the most eminent men connected with the iron and steel industries of the country, as well as fourteen representatives of Government departments. A large sum of money, provided by various engineering institutions, has already been spent, and we learn that the movement will shortly be supported by financial aid from the Government. Such support is clearly desirable, for the work in progress is of national and Imperial importance.

## REMAINS OF A PRE-CONQUEST CHURCH AT NORTH ELMHAM IN NORFOLK.



**A**LARGE earthwork lies a little northward of the parish church at North Elmham. It is placed on rising ground, and commands the valley of the Wensum, and also the intersection of two ancient roads. The "work" consists of a deep, wide ditch surrounding a raised platform, or base-court, and a flat-topped circular mound which rises within the north-west angle of the base-court. Including the ditch, or fosse, the dimensions are 458 ft. by 396 ft., the direction of



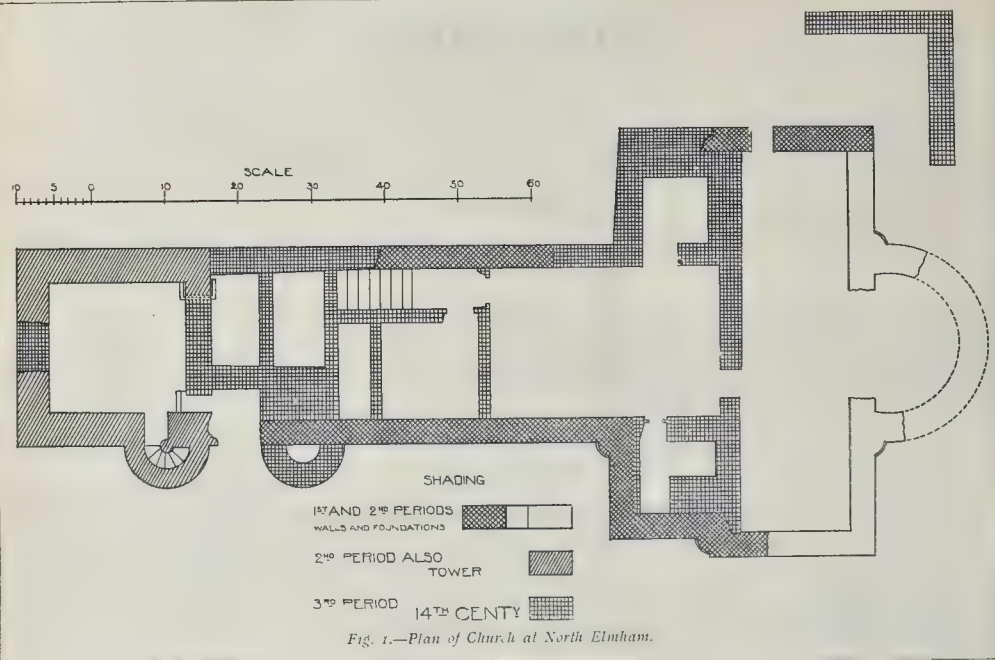


Fig. 1.—Plan of Church at North Elmham.

greatest length being a little south of due east and west. The fosse is most perfectly preserved on the east and north sides; its scarp and counter-scarp are steep, and the depth is 24 ft. below the level of the base-court; its width at the east is 69 ft., and at the north 88 ft. At the west and south the ditch can yet be traced, although the depth and outline are obscured. The inner platform, or base-court, forms an irregular parallelogram with rounded angles. It measures 320 ft. from east to west, and 240 ft. from north to south. The contents of the ditch have been thrown up, so as to raise the base-court about 5 ft. higher than the natural level. There is no trace of a bank or wall on its margin. To the east and north there are entrances across the fosse, the former probably original. The circular mound rises about 10 ft. above the base-court level, and is 34 ft. higher than the depth of the ditch which bounds its outer margin. The mound has lost some of its original height. It probably once carried a stockade, or a wooden tower.

Most of the area of the base-court retains its original level, but at a period later than its construction, a portion on its southern margin, about 120 ft. by 200 ft., was dug out to the original ground level 5 ft. below. On this lower level are the ruined walls and towers known as "The Bishop's Palace." In more recent centuries, fallen walls and accumulated earth had almost filled the hollow and buried nearly all but the upper parts of the towers. In 1891, the Rev. Augustus G. Legge, the then Vicar of Elmham, removed the debris of centuries down to the old natural level, and to him is due the recovery of a most interesting page in the past history of Norfolk.

Standing on the higher base-court level, you look down upon the ancient massive outer walls. Eastward there are two square towers, and southward two semi-circular turrets project beyond the line of walling.

Within, the building is much divided by narrow partition walls. A careful examination shows that the ruins bear evidence of at least three periods of construction.

To the first period belong the larger portion of the lower courses of the massive walls to the north and south, and also the lines of foundation that clearly show the original eastern termination. The original west wall no longer exists, the square chamber at the west end being a later addition. The walls and foundations of the first period, when measured and planned, revealed the remains of a large church of basilican type, having a long nave, a wide transept, and an eastern apse. The walls are 3 ft. 2 in. thick, and are composed of rough-hewn ashlar, locally known as "Carr-stone," of a rich, deep brown colour. This stone is a ferruginous sandstone, and is found in the Hillington Hills and elsewhere in Norfolk. Evidence of its use in Saxon times may be seen at Holt Church, also in Norfolk, where the north-west quoin of the nave is formed of large blocks of this stone, and affords a good example of long-and-short work. The south walls of the nave and transept are the most perfect. A slightly projecting low course at their bases forms a rudimentary plinth. The lower courses to a height of from 3 ft. to 5 ft. are regularly built, the "Carr-stone" is dark in colour, and of close texture; but higher up the walls are less carefully formed, and appear to contain re-used stones. This is especially noticeable at the south-west angle of the transept. At this point, to the height of 4 ft., the "Carr-stone" is compact in texture, and the courses regular in construction; but above 4 ft. the stones are less carefully formed, the courses irregular, and probably retain much re-used material. The better ashlar and construction is all within 5 ft. of the base, but some of the inferior upper courses rise to the height of 6 ft. 6 in. The north

wall of the nave is less perfect. Midway, a length of 24 ft. has been replaced by later flint-and-rubble work. What remains of the earlier wall bears evidence of two periods of construction. The transept is of comparatively large proportions. A little of the north and about 21 ft. of the south wall remain. The latter projects eastward 3 ft. 6 in. beyond the line of the square towers, and is of two periods. The foundations only remain of the east wall of the transept. Of the apse little survives—the eastern portion is gone, but a few feet of the springings of the curve at its north and south ends indicate the extent of its sweep.

The lower courses of the nave and transept walls are below the level of the base-court of the earthwork, and earlier than its construction, and were once buried in it. The inferior upper courses rise in part above the level of the camp, and are later than its formation. To the church of the first period belong the lower courses of the "Carr-stone" walls and the foundations eastward. They are the remains of a church that was destroyed, and its ruins buried in the camp.

A quarter-round pilaster buttress of unusual form is set in the re-entering angles of the nave and transept walls on the south, on the line of the south wall of the transept, and also at the angles to north and south of the apse (see plan, fig. 1).

To the second period may be assigned the upper courses of the nave and transept walls, characterised by inferior construction and re-used stones. These courses are about 6 ft. 6 in. above the ground; they are higher than the base-court level, were not buried in the earthwork, and are of a later date than the first period. At the west end there is a square chamber, with walls remaining to an average height of 7 ft. There are re-used stones in the construction. The north and south walls are 4 ft. 6 in. thick, 15 in. thicker than those of the nave and transept.





Fig. 2.—The Semi-circular Turret at North Elmham.



Fig. 3.—The South Walls of Nave and Transept and the Fourteenth-Century Remains of Square Towers at North Elmham.

an entrance, now blocked up, is in the west wall. At the south-east angle, the lower portion of a semi-circular turret, 10 ft. high projects outwards. The existing east-return wall encloses at the north end a base or plinth, and resting upon it a portion of the respond of an arch which formerly opened into the nave. This base and respond are not of "Carr-stone," and are therefore of a period later than the first church; they are not of the fourteenth century, as a wall, probably of that date, has been built across the opening. The greater thickness of the walls, the stair turret, and the remains of the arch are indications of a tower. The evidence as a whole is in favour of the conclusion that a western tower was added at the re-construction, which marks a second period.

Work of a third period, at least, is present in the ruins. In this the character of the building is changed, and the construction is "flint and rubble." Within the outer walls the space is much divided by flint and rubble walls, containing little or no "Carr-stone." Most of these walls are only 1 ft. 8 in. thick. There are ruined stairs, cellars, pits, &c. There are door openings with ashlar jambs, the latter probably of the Perpendicular period. A second semicircular turret was added to the east of the older one in the south wall. This turret is of rubble and flint, and between it

and the earlier turret an entrance has been carried through the earlier walls at the same time. The original east end appears to have been destroyed, and in the third period the old line abandoned, and a new eastern termination formed about 18 ft. inwards. Here the remains of two square towers flank the north-east and south-east angles. Their height is about 17 ft., their lower courses partly include walls of the first and second periods; they are chiefly composed of rubble-and-flint work and of reused materials. About 15 ft. to the north-east of the northern tower there is an outwork, apparently for defence. It consists of two walls at right angles to one another, is formed of grout work, and faced with large flints.

The early remains show that the church at North Elmham possessed some features in common with some of the earliest Roman basilicas, with the earlier Church of St. Peter, and especially with the Church of St. Paul-without-the-Walls. (The first church was destroyed, and the present church built on the original foundations in the early part of last century.) The wide transept projected beyond the lines of the nave and its aisles. Its central nave, transept, and apse are closely followed in the proportions of the church at Elmham.

In England the Saxon church at Brixworth has an apse, transept, and tower with a

stair-turret, and its size is about that of North Elmham.

Deerhurst Saxon church has a western tower, and a nave and transepts of widths near to those at Elmham; also an apsidal presbytery entered by a noble arch. Browne's plan of the pre-Conquest church at York shows an apse and a similar transept to that at Elmham. The stair-turret is not an unknown feature in Saxon churches: it occurs at Brixworth, Brigstock, Hough-on-the-Hill, and Broughton.

But the most interesting comparison is between North Elmham and Peterborough. Under the present Norman cathedral part of the lower walls remain of the church, or two successive Saxon churches, of Medeshamstede. The first of these dated from A.D. 654. The Danes under Edda destroyed it in A.D. 871. A second church was built on the site in 963. It was destroyed by fire in A.D. 1116, and a year afterwards the present Norman cathedral was begun. The Saxon walls remaining are of ashlar, and 2 ft. 6 in. thick. Of the nave nothing has been discovered. There is a large transept or transverse nave about 87 ft. wide by 34 ft. 8 in. deep, comparing with the 51 ft. 6 in. by 27 ft. 6 in. of the similar transept at North Elmham. The presbytery is 23 ft. 5 in. wide. Mr. J. T. Irvine\* says: "The depth about 26 ft., and the termination probably square; re-used stones from a former church were seen present in the walls of both transepts"; and there was also found "a fine specimen of a long-stone from a vertical pilaster strip, and two pieces of jamb stones from the respond of an arch, like in section to those at Wittering." There are, however, some features that appear to have been hitherto overlooked. These are (1) a deflection inwards of the line of the north wall 3 ft. within the presbytery. This is possibly the beginning of the springing of the curve of an earlier presbytery, which was 14 ft. to 15 ft. deep, about the same depth as at North Elmham. (2) The north wall of the transept appears to be of two periods of construction. From the N.E. quoin, going westward for a distance of about 8 ft. 6 in., the courses are irregular, the ashlar small, and there are appearances of reused material; also on the outer face of the wall, about 15 in. within the angle, there is *in situ* what appears to be a double base for a vertical pilaster strip. The further portion of the wall, about 32 ft., running to the western angle, is of superior workmanship; its ashlar is large and regular.

This evidence appears to prove that there are portions remaining of the church of A.D. 963, and also of the earlier church of A.D. 654. To the church of 963 belong the remains of the chancel, the shorter section of the north wall of the transept, with its attached base for a pilaster strip, and also the long-stone and the two pieces of jamb-stones found by Mr. Irvine. The shorter section of inferior work in the transept wall is an evidence in favour of a late period, as Late Saxon walls are usually inferior in construction to those of an earlier period. The reused stones point to a reconstruction. The pilaster strips are an indication of Late Saxon, and the jamb stones, "like in section to those at Wittering," are further evidence in the same direction, as Wittering is a Late Saxon church.

\* "The Saxon Abbey Church of Peterborough," *Journ. Brit. Arch. Assoc.*, vol. 1., p. 45.



On the other hand, the indicated short apsidal presbytery, and the 32 ft. of walling of superior construction in the north transept, belong to an earlier period.

The first church at Medeshamstede was destroyed by the Danes in A.D. 871. Is it not probable that the foundations and parts of the lower walls would survive and be, at least partly, reused in the rebuilding on the same site in A.D. 963? The earlier masonry in the larger part of the north transept wall, and the evidence, slight as it is, of an earlier apse, add to the probability, if they do not clearly prove, that remains yet survive of the church of A.D. 654, as well as of that of A.D. 963. The indication of an apse projecting from the eastern line of the transept, and the major part of the north wall being of the earlier construction, show that the transept of the second church is part of the first church also—that the church of A.D. 654 had the wide transverse nave or transept and an apse, and was basilican in type. This view is strengthened by the plan of the basilican church at Brixworth, c. A.D. 680, which was an offshoot from Medeshamstede. Its transverse nave and apse suggest the probability of the same features having been also at Medeshamstede, the mother church of A.D. 654. Thus the basilican churches of Medeshamstede and Brixworth group with the basilican church at North Elmham, and suggest a similar date for the latter.

The recorded history of the East Anglian Sees is in agreement with that indicated by the remains on the site at North Elmham. About A.D. 630 Felix converted the East Angles to Christianity. He was bishop until 647, having his seat at Dunwich. After him there were three Bishops of Dunwich—Thomas, Beorhlyls, and Bisi. In 673 Bisi, aged and infirm, wished for rest, and the diocese was divided by Archbishop Theodore at the Synod of Hertford.

In reference to this division, John Richard Green says:—"Thus when in 673 he (Theodore) broke up the See of East Anglia, it was by dividing it into dioceses of the Northfolk and the Southfolk, whose prelates were established at Dunwich and Elmham."<sup>\*</sup>

Dr. Stubbs also says:—"East Anglia was first divided between the Northern and Southern divisions of the folk, the former with its See at Elmham, the latter clinging to Dunwich."<sup>†</sup>

The newly-formed diocese of Elmham had ten bishops, from Beadwine in 673 to Humbert in 870, a period of 197 years.<sup>‡</sup>

In the year 870 the Danish army "rode over Mercia into East Anglia, and took winter quarters at Thetford; and in that winter King Eadmund fought against them, and the Danes gained the victory, and slew the king, and subdued all that land, and destroyed all the monasteries which they came to."<sup>§</sup>

History gives a line of bishops of North Elmham from 673 to 870, that obviously suggests a church there, dating from probably c. A.D. 700. The Danes "destroyed all the monasteries which they came to," Elmham, not far from Thetford, could not escape that destruction.

What is the answer given by archaeology to history? Earlier than the earthworks at North Elmham, there are massive "Carstone" walls, the remains of a large church of a very early type, a basilica worthy of the seat of the bishops of the Northfolk; a building grouping architecturally with Medeshamstede of A.D. 654, and Brixworth, of c. 680, and therefore probably dating about the end of the seventh century. There is also evidence of the almost total destruction of that early church. Its ground plan can be traced, and a few courses of its ancient walls remain. It was ruined and an earthwork raised over it. The latter cannot be Roman, for it covered and obliterated a Saxon church. The destruction of the earlier church was undoubtedly the act of the Danes about 870, and the earthwork in which it was buried was a Danish camp. The church proves the camp to be Danish. The Danish camp proves the church to be early Saxon. North Elmham, therefore still retains the ground plan and wall remains of an early Saxon church, and also a Danish camp with its ditch, raised base-court and flat-topped mound, almost certainly of about A.D. 870.

After A.D. 870 there are about seventy years of almost unbroken silence; there is little or no record. It appears that in 942 the dioceses of Dunwich and Elmham were re-united under the ancient title of the Bishopric of Elmham; Æthelwald is Bishop of Elmham in 945 or a little earlier; and fourteen Bishops succeeded him, including Stigand, until we come to Herfast in 1070. Later, in 1075, whilst he was Bishop, the see was removed to Thetford, and in 1092 removed again to Norwich.

What is there on the site at North Elmham that may be attributed to the years between 942 and 1075? Part of the south wall of the transept remains. It projects eastward beyond the line of the fourteenth-century work. It is of two periods. Its lower courses are of the period of the first church, but the higher courses, rising up to 7 ft. from the base, appear to belong to a later reconstruction. These higher courses rise partly above the level of the earthwork, and therefore were not buried in it. The projection of the wall beyond the line of the square towers proves that it does not belong to the work of the fourteenth century, and also that the reconstructed second church was on the complete ground plan of the first church. The two periods are also most clearly marked at the south-west quoin of the transept, and also in the walls of the nave. For reasons previously given, the tower at the west, with its stair-turret, may be claimed as an addition belonging to the second church of the Late Saxon period.

History tells of a second line of Bishops of Elmham in the later Saxon times; the remains on the site at Elmham give evidence of a restored reconstructed later Saxon church. The choice of North Elmham was natural and politic, its position commanding; for 200 years it had been the home of the bishops of the Northfolk; its memories were sacred in Anglian hearts. In the tenth century Christianity had risen again—the years of Paganism past. The restoration of the bishopric of Elmham was a great symbolic act. Something more was required: the restoration of the bishopric was followed by the restoration of the church. The Danish camp remained a sad memorial of ruin and defeat, the tomb of martyrs,

the grave-mound of a church; but the mound was opened, the walls of the early church recovered, and on the sacred site a noble church rises and dominates the camp, and so the triumph of Christianity over Paganism became symbolically perfected. The restored bishopric was removed from Elmham in 1075, the early Norman times. To the Norman, the Saxon bishopric and church made no appeal. The church fell into disuse and decay. Evidence of this is found in the parish church of North Elmham, a little distance south of the camp. In its chancel there are remains of early Norman work. High up in the south wall there is an early Norman window, and further along the wall, the traces of another. It is said that "Herbert de Losinga," the first bishop of Norwich, built or rebuilt the parish church of Elmham. Its chancel yet retains part of the work of Losinga, of the latter part of the eleventh century, and is a proof that the Saxon minster had ceased to be used as a church.

A silence of centuries ensued. Blomfield, in his "History of Norfolk," says, "In the eleventh year of Richard II. (1387), Henry Spencer, Bishop of Norwich, had a license to embattle and make a castle of his 'Manor House.'" He speaks of the "Tower Hills," but in earlier times it was known as "The Place."

What is there remaining in the ruins belonging to the earlier manor house, or to the later castle of the fourteenth century? there may be something that represents the manor house, that is all that may be said; but much in the ruins may be attributed to Bishop Spencer of 1387. The larger portion of the square towers, the out-work at the north-east, a section of the north wall of the nave, the turret without a stair, and a large portion of the inner dividing walls, all composed of rubble-and-flint work, may be claimed as probably of the fourteenth century, the last period of reconstruction.

B. T. R. C.

The writer wishes to acknowledge the very valuable assistance he has received from Mr. C. C. Hodges, of Hexham, in the preparation of this paper.

#### NOTES.

Local Indebtedness.

THE debate on the question whether a joint Select Committee of both Houses should be appointed to consider the principle which should govern the powers granted to municipalities and local authorities for industrial enterprise was strangely without feature, but it appears to us that any inquiry should now have a wider range and embrace the subject of local indebtedness generally. The total outstanding municipal debt has now attained something like 214,400,771*l.*, and it would seem that the local authorities have recourse to raising loans to carry out their extravagant policies because, were the rates raised in anything like due proportion to the increasing expenditure, the attention of the ratepayers would be drawn directly to this subject, and an effective opposition to this policy would then be organised. Seeing, however, that this enormous debt is nevertheless a direct charge on property, it behoves the ratepayers equally to be on their guard, and not by their apathy to allow a policy to be continued which sooner or later will be brought home to them by a

<sup>\*</sup> "The Making of England," p. 343.

<sup>†</sup> Dr. A. Stubbs' "Constitutional History," chap. 8, p. 226.

<sup>‡</sup> "Anglo-Saxon Bishops, Kings, and Nobles," by A. G. Seale (Cambridge University Press).

<sup>§</sup> "Anglo-Saxon Chronicle," vol. ii. An. 870. Trans. by Benj. Thorpe.



direct increase in rates already far too burdensome.

**The Penrhyn Quarries Debate.** THE debate last week on the strike at the Penrhyn Quarries was an excellent illustration of what has often been said in these columns, that in these days it is not so much fresh legislation on social questions that is required as the enforcing of existing laws. The rights and the wrongs of the long-continued dispute between Lord Penrhyn and the workmen at the Welsh quarries, with its melancholy and indirect results, were scarcely discussed by the House of Commons, for the debate really turned upon the point whether the Board of Trade should have taken action under the provisions of the Arbitration Act of 1896, by which the Board could have appointed a conciliator, although one of the parties to the dispute did not agree to it. To the ordinary individual the present case appears to be essentially one in which the Board of Trade could have taken action, because it was not necessary that both parties should be in agreement, and it did not follow that because one was, at the time, unwilling to end the dispute, the efforts of a conciliator would therefore have been useless in result. Mr. Gerald Balfour's defence, that from his knowledge of Lord Penrhyn, the latter would not have allowed any decision of the Board of Trade to influence his conduct, was a mere supposition. It is obvious that if, when there are difficulties such as exist in the Penrhyn dispute, attempts are not to be made to put an end to them under the Act of 1896, it might just as well never have been passed.

**Railway Co-operation.** At the recent meeting of the London and North-Western Railway Co., when the subject of railway co-operation was under discussion, an excellent scheme was explained by the Directors as under consideration for the establishment, at such a centre as Carlisle, where systems of even railway companies connect with each other, of a sort of railway clearing-house. The Board were led to favour the idea from the successful working of their own ranship shed at Crewe, and it is obvious that such a scheme, if carried out, would reflect economies to the companies themselves, and at the same time benefit the public by saving both time and expense in the carriage of goods. We trust, however, that we may soon see some such scheme of co-operation between the main trunk lines at into operation as regards their passenger traffic. Passengers at present desiring to pass from one system to the other nearly always find the time-tables so arranged that long wait is necessary at the principal stations of junction, and hitherto the railway companies have appeared to fail to grasp the fact that through facilities would largely increase their passenger traffic, whilst involving no capital expenditure in the erection of sheds and warehouses, as must be the case where the goods traffic is concerned. Whilst we are in agreement with the statements made by the Chairman that competition has been of advantage to the public as a whole, we would emphasise the fact that this has only been so where two or more companies serve the same district, but that the g-in-the-manger competition which at

present exists in the form of obstruction to passing quickly and easily from one system to another is as disastrous to the interest of the companies as it is to that of the public at large.

**Metropolitan Public Gardens Association.** THE twentieth annual Report of the Metropolitan Public Gardens Association draws special attention to the effort which has been made by the Association, and which has met with considerable success, to ensure a more certain carrying out of the provisions of the Disused Burial Grounds Act. It is stated that in several recent cases faculties have been granted by the Consistory Court for the building in churchyards of parish halls, vestries, and schools, under the plea that these erections formed enlargements of the churches, and were therefore exempt from the operations of the Act; and that this has led to a serious curtailment of certain of the valuable gardens laid out by the Association. The London County Council, however, has, at the request of the Association, taken up the matter very thoroughly, and has made some useful standing orders to ensure that in future cases of the kind the Council should be heard in opposition before any decision is given. The Association has also strongly opposed (and rightly) the proposal to turn the house on the Golder's Hill Estate into a hospital. As the Report truly observes, "The house in this and other cases is part and parcel of the open space, to be used and enjoyed by the public, equally with the ground. Moreover, it is manifest that in the case of a hospital a considerable area of the adjacent public space would also have to be appropriated for the use and recreation of the convalescents. Nor, if public spaces are once tampered with, is there any reason why only those with houses on them should be mutilated, nor why only a particular class of hospital, more than any other hospital, or, indeed, than any other good objects, should be favoured in this way. The Association has joined in a powerful deputation to the Parks Committee against the scheme."

**An Architect's Case.** IN the case of the Columbus Co. v. Clowes, no new proposition of law appears to have been decided. Certain lessees of land employed an architect to prepare plans and specifications for a factory to be erected upon it. The plans were prepared and paid for, but subsequently the lessees of this land, becoming short of funds for the erection of the buildings, gave up the scheme and parted with their lease. After they had thus parted with their interest in the land, the lessees discovered that the plans and quantities were incorrect, in that they would not have made the building cover the whole site, and they then sued the architect for a return of the money paid for the plans, or for damages for negligence. In the result, the Court found that the architect had been negligent, as he ought to have measured the site and not to have acted on the information he did, but that there was no complete failure of consideration, since the plans were capable of easy adaptation to the site, and much work such as boring had been done which was of the same value as if the plans had been correct. The Court, however, held the defendants entitled to some damages, and proceeded to assess these at 40*l.*, the cost of

adapting the quantities, and a nominal 2*l.* on the plans themselves. There is no question that an architect can be held liable for his negligence (*Money Penny v. Hartland*, 1868), but we should have thought the plaintiff's must prove damages to entitle them to more than quite a nominal sum. The Judge expressly found that the plaintiffs had suffered no real damage, since they were never in a financial position to make use of the plans, and we fail to find any new principle laid down in this case, but it seems rather to be only an example of somewhat lucky litigation, from the plaintiffs' point of view.

**Tenants and Electric Lighting Plant.** AN interesting question to life tenants of landed property was recently decided by the Court of Appeal in the case of *Re Blagrove's Settled Estates*. It was an application by the tenant for life for an allowance out of capital for the installation of electric light in the mansion house. The Court below had allowed the cost of the engine or dynamo house, but disallowed the cost of the electric-lighting plant, and it was upon the latter point that the appeal turned. The Court disallowed the appeal. Improvements which can be carried out with capital trust money are specifically enumerated in section 25 of the Settled Land Act, 1882, and the Court decided that the lighting plant could not be held to be "incident or necessary for securing the full benefit of" any works enumerated in this section, nor was it within section 13, sub-section 2 of the Settled Land Act, 1890 "an addition in a building proper to enable the same to be let," as that must be a structural addition. The case is of some importance as there were two divergent decisions in the Courts below with reference to electric lighting plant, but it is now settled that for such things or for heating apparatus the tenant for life cannot get a capital grant, and the majority of the Court of Appeal even intimated great doubt whether the dynamo house itself should have been allowed for.

**Losses in Electric Supply.** THE paper on "Distribution Systems," which was read this week to the Institution of Electrical Engineers by Messrs. Constable and Fawcett, is interesting and instructive. The authors show that of the total electrical energy generated at the Croydon Electricity Works about 20 per cent. was lost in distribution. The greatest portion of this loss, which represents about 200,000 h.-p. hours per annum, was due to the transformers in the sub-stations. One curious fact brought out by their analysis is that the loss in actual heating in the type of meter employed is very considerable. This heating which goes on all the year round amounts to about 50,000 h.-p. hours per annum. The authors point out that this loss is quite an unnecessary one, and suggest that only ampere-hour meters should be used. We entirely agree with the suggestion. We think that the principle of making consumers pay for the power instead of the current is a wrong one. Suppose, for example, that the declared pressure of supply is 240 volts, and that the actual pressure is 250 volts, then the consumer's lamps are over-run, their life is shortened, the blackening of the bulb is excessive, and yet he has to pay 4 per cent. more than if



he were supplied at the declared pressure which he naturally thinks is the pressure he gets. If, on the other hand, his pressure is too low, the light he gets is poor, and the 4 per cent. rebate on his bill is ludicrously out of proportion to the 20 or 30 per cent. loss of light due to low pressure. In the particular case, when arc lamps or motors are used on alternating current, circuits, then possibly a watt-hour meter would be preferable. We understand that Croydon is changing from an alternating current system of supply to a direct current system. Messrs. Constable and Fawcett calculate that this would result in a saving of 8,800 units per annum. We think that this saving is very problematical, and think that it could easily be wiped out by the increased earth leakage currents which ensue with direct current supply.

An exhibition of carpets at a West End gallery is a somewhat unusual event, and, as the *Times* points out, only in a humorous sense can carpets be said to be beneath one's notice. These carpets are made in Donegal, and it is hoped that the present Exhibition may give an impetus to the industry that at present is only in a very small way at Donegal, and that it will eventually spread over the West of Ireland, where there is great need for some industry that will employ large numbers of peasants. The Irish carpets, like those of the East, are a hand production. "The mosaics of small woollen squares" (as William Morris calls them) are tied by the fingers in knots into longitudinal warps stretched between two beams. The carpets have the peculiar durability of construction attributed to Turkish and Persian rugs. The colouring and design are distinctly Western, the carpets at the present exhibition being from designs of well-known artists. In colouring and design there is none of the subtlety and mysticism of the East, where colour and design appear inseparable; on the other hand, the low tone of colour and Western design are more in character with the surroundings that a carpet in this country must help to adorn, and we think there should be a considerable and increasing demand for the Irish carpet on artistic grounds as well as patriotic ones. They are no more expensive than Turkey carpets, and one would suppose that with time the cost of manufacture would decrease. The industry is due to the exertions of Messrs. Morton, of Darrell; and Messrs. Liberty are the organisers of the exhibition.

MESSRS. LAWRIE & Co. are exhibiting at their Gallery, 159, New Bond-street, a small but

interesting collection of pictures by Dutch artists of the seventeenth century. Among these are a remarkable portrait of a boy reading by Frans Hals; a work apparently executed quickly and in a broad and sketchy style not usual with the artist, but a most effective work. Ruysdael, a painter in general much overrated in popular estimation, is seen perhaps at his best in "The Outskirts of a Forest," a picture showing a large mass of trees, with foreground figures by Nicolas Berghem; apart from the figures, it is like Rousseau's composition without Rousseau's broad and full execution of

detail. Among other works are Rembrandt's "The Scribe"; Terburg's fine picture "The Card Party"; a fine and characteristic Metsu — "Interior with Lady Seated, and other figures"; and Rubens's remarkably fine portrait of "Clara Elizabeth Eugenie, Governess of the Low Countries," a three-quarter length of great dignity of style. The collection also includes the remarkably frank painting by Jan Steen of himself, wife, and child, the dame in a heavy sleep over the table after a dinner in the garden, and Jan Steen himself, a brutalised-looking figure, pipe in hand, and puffing the smoke from his mouth. This was seen at one of the Burlington House Loan Exhibitions a good many years ago, when we appended the criticism on Parolles in "All's Well then Ends Well" — "Is it possible, that he should know what he is, and be that he is?" The picture is a clever but disagreeable one, in which the painter seems to have taken a kind of interest in putting on record his own coarseness and vulgarity.

THE Spring Exhibition at the Goupil Gallery is most notable for two small but beautiful

companion pictures by Harpignies, "Evening" and "Morning," the former especially remarkable for its truth and beauty of tone and atmosphere, and the poetic feeling which pervades it. The other works exhibited are of very mixed interest. In some of them, as in Mr. Priestman's "Riverside Pastures," and Mr. Peppercorn's "Breezy Weather" the taste for the exhibition of raw and crude sketches as pictures seems to have reached its extreme limit. Mr. J.C.W. Cossaar introduces "Waterloo Bridge" in more than one picture, but sadly maltreats it from an architectural point of view. Herr Ziem's "The Grand Canal, Venice" is a picture showing a very fine effect of light and colour, but the buildings are not upright, a point which with too many painters seems to be regarded as a matter of no moment. Mr. M. Mathews's "Windmill in Norfolk" is a fine sketch; Mr. Clausen's effective picture "Roadside Cottages" is somewhat spoiled by the careless drawing of the figure. M. le Sidaner, of Paris, who is one of the new exhibitors, paints winter and snow effects in a curious misty manner of his own; his large painting of "Chartres Cathedral," or rather, Chartres and the cathedral, is effective as a whole, but the cathedral is almost unrecognisable except for its general relation to the site; three other works of the same type, "Le Château," "Le Pont de Village," and "La Maison au Bord de l'Eau," are very effective in their peculiar way. Among others to be mentioned are Ter Meulen's "The Flock," an inspiration from Mauve; Mr. Victor Gilbert's fine little miniature, "Still Life;" and two or three flower-paintings by M. Fantin-Latour, in his well-known style.

PROFESSOR AITCHISON'S concluding lecture dealt with stained glass, and was illustrated by numerous coloured slides on the screen. The slides were prepared in the new three-colour process, and were the most successful that we have ever seen. After referring briefly to the discovery of glass, the Professor said that stained glass divided itself naturally into two groups: the Eastern and the

Western. The Eastern was characterised by the small surfaces of glass used, and the peculiar rich jewel-like effect produced by its use in perforated stone or plaster slabs with deeply chamfered arrises; the Western, of course, was used in wide expanses, and as a ground for picture subjects containing figures and historic events rather than the mystic patterns of the East. There is very little glass extant of an earlier date than the twelfth century, and the best that has ever been produced was during the thirteenth and fourteenth. The influence of stained glass upon mediæval architecture is second only to the influence of stone groining, which dominated the plan of the Gothic builders. Both groining and stained glass carried to excessive lengths are obvious results of the decadence of Pointed architecture during the fifteenth century. The art of stained glass, like so many of the crafts at the present day, is emerging from the darkness of the periods since the fifteenth and sixteenth centuries; its future seems to us to lie in the hands of the educated part of the community, and especially calls for workers prepared to give up the monetary advantages of being "something in the City" to lead a more healthy and useful life in the strenuous endeavour to master the peculiarities of a craft and apply it suitably to the needs of the present day. What the crafts lack is the best intelligence; mediocrity swamps them, and affectation and eccentricity bring them into disrepute with practical people. The subjects chosen by Professor Aitchison for the series of lectures now concluded have each a special significance for architects of the present day, and should open up to the eyes of architectural students at the Royal Academy to the width and diversity of their calling.

#### MAGAZINES AND REVIEWS.

IN the *Art Journal* Mr. Claude Phillips continues his very able and complete critical review of the pictures in the Wallace collection. It is to be hoped these articles will be subsequently issued in book form, as they will form an admirable guide for those who wish to study the pictures seriously. The Burlington House Loan Exhibition and the Arts and Crafts Exhibition are each the subject of a critical and illustrated review. We cannot agree with the critic of the former in regarding Tintoretto's very academical picture of the "Nine Muses" as the strong point of the exhibition. The strength of the exhibition is unquestionably in landscape, but among the figure paintings one is surprised to find no reference to so remarkable a work as Etty's "Satyrs and Nymph." Mr. Day, the writer of the notice on the "Arts and Crafts," which is sympathetic in general feeling, comments rightly on the absence in the exhibits of any lingering respect for tradition; "the personal note is too much insisted upon" — "great danger in decorative design, from which results the want of repose which is so much felt in the exhibition. The good-natured travesty in this week's *Punch* — "The home-made beautiful according to the 'Arts and Crafts,'" is without its point.

The *Magazine of Art* opens with an interesting article by M. Louis de Forcaud, Professor of Esthetics at the Ecole des Beaux-Arts, translated article, we presume, on "The German Emperor's Collection of French Paintings." Part of these were collected by Frederick the Great, and they are distributed among the Imperial residences at Berlin, Charlottenburg, Potsdam, and Sans-Souci, and are not very accessible to the public; some information about them is consequently of the most valuable. The writer, whose article is to be continued, takes occasion to tell us a good deal about the now rather forgotten painter, Pestel, who seems to have attracted Frederick's special deal; his other tastes were for Watteau and Lancret, when they could be got at a good



bargain, a point which Frederick by no means overlooked. The present article deals only with his foundation of the collection. Mr. Aymer Vallance writes on "British Arts and Crafts in 1903"—in reality a review of the Arts and Crafts Exhibition. Mr. F. Butcher, of Lucknow, contributes an article on "Indian Art at Delhi," being remarks on the Coronation Durbar Exhibition. We do not agree with him in admiring the two articles of Madras work illustrated in the first page, the round table and sideboard to wit; they are Pagan grotesque, however ingenious and finely worked; the elephant-headed table legs, which he admires, are most uncomfortable-looking and unconstructive. An illustrated article on Mr. Strang's etchings shows how completely, in his work, whether we like it or not, we have "got rid of the commonplace" which is the bane above all things of etching. Mr. Wyllie gives the second instalment of his essay on "Nature's Laws and the Making of Pictures." However clear he may be in his own mind as to what he means, he does not always succeed in making it quite clear to the reader. Although his five illustrations are numbered (figs. 1, 2, &c.), there is no corresponding reference in the text except in one instance, so that the reader is put to a little trouble and comparison to find out which illustration is referred to at the moment. And his use of the expression "vanishing line" is rather puzzling to the reader. We can see what he means in his comment on fig. 3, but it will rather puzzle the learner when he is told that the cart tracks "will vanish on the line marked by stars," when he sees that they do not by any means "vanish" there, but are still far apart on meeting that line. The principle is all right; it is only a question of phraseology. An editorial article under the head of "Chronicle of Art" speaks strongly and plainly on the subject of the Wellington Monument dispute, pointing out that the proposed sculptor has not been educated in the school of Stevens, and that the sculptor properly schooled to complete his work is either Mr. Gilbert or Mr. Brock; in which we agree entirely.

The *Berliner Architekturwelt* is largely occupied with illustrations and description of the Wilke house at Guben, of which MM. Spalding & Grenander, of Berlin, are the architects. This is interesting as a large and elaborate example of German house architecture in the ultra-modern style. It is a very clever design as a whole, and full of very clever detail; the drawback is, as in other German examples, that the cleverness is too obvious and insistent. The most pleasing piece of detail is the fireplace illustrated on p. 417, which shows an artistic treatment of metal-work.

The contents of the *Architektonische Rundschau* do not present much for special comment. We have another of those Medieval-looking "Bismarck towers" of which there has been such a crop in Germany, in illustration if not in execution. Professor Baumbach's house at Wilmersdorf, by MM. Spalding and Grenander, is much quieter in character than the same architects' Wilke House in the *Architekturwelt*, and has a pleasing effect as a whole, though there is too much tumbling about of high-pitched roofs at all angles. Perhaps the most interesting illustration in the number is the sheet of four small line sketches of the cemetery church and subsidiary buildings at Pasing, by Herr Berndt of Munich.

The *Fortnightly* contains a remarkable article by Mr. Russel Wallace on "Man's Place in the Universe," which is no less than an attempt to show the probability, on logical grounds, of the old pre-astronomical creed that intelligent man is after all the important and central fact in the universe; and that this globe, the small satellite of a third-rate sun, is on that account the centre of creation, in intent though not in size or mechanical position. This idea has had a fascination for many minds, even in these scientific days; and, of course, it may be so, for all we know, and the idea is from one point of view a sublime one; but we should hardly think Mr. Wallace's reasoning will convince any one of it. Part of his argument is that our system appears to be almost exactly in the centre of the rather flat circular plane of associated worlds the boundaries of which form the visible phenomenon known as the Milky Way. If man lived on the sun there might be more to be said for that argument; but why on his third satellite, and on that alone? Mr. Wallace,

though he ignores this possible answer, goes on to meet it by the argument that the earth is placed at the exact distance from the sun, and with the precise constitution, to meet the requirements for intelligent life; but the fallacy of this argument is that it ignores the possibility of intelligent beings having bodies constituted otherwise than our own. It is quite certain that no other planet except Mars is at present in a condition to support life at all like our own (some physicists deny the possibility as to Mars, though we think on hardly sufficient grounds); but is there no possibility of existence of intellectual minds in bodies quite different from that of man? Mr. Wallace's article will be largely read—the subject has a fascination for all thinking persons; but we do not think it will convince any one. There is something too disproportionate in the idea of this small planet being singled out from all the vast stellar universe as the sole abode of thought. The same issue contains an article which is amusing without meaning to be so; that by Mr. Arthur Symonds on "The Painting of the Nineteenth Century," in which we are bidden to accept Mr. Whistler as the really intellectual English painter of the nineteenth century, while nearly three pages are devoted also to that rampant colour-dauber Monticelli, one of the bad "sports" of modern painting. Things are come to a fine pass when this sort of writing is accepted, and seriously printed, as art criticism.

*Blackwood*, under "Musings without Method," devotes several pages, which are certainly very much "without method," to the question of the Wellington monument, taking the usual amateur Englishman's tone of sneering at all recognised artists as persons who either have no right to an opinion, or who are actuated by interested motives. The writer's language in regard to Mr. Spielmann, who is a very competent judge in the matter, and who has no occasion to "seek publicity" by writing to the *Times*, is absolutely impertinent. The writer of course entirely supports the Dean and Chapter in their unwarrantable private action in regard to a national monument. The article is significant, like that above referred to in the *Fortnightly*, as showing the kind of judgment which English magazine editors have in regard to art.

In the *Contemporary* Mr. Haldane's article on "The Labourer and the Law" is a kind of summary of the state of the law in regard to the action of trade-unions, as illustrated by recent cases which have been reported or commented on in our columns. The summary of his argument is that the workmen of this country have a number of grievances arising from the obscure state of the law; that public feeling is in favour of redressing these grievances; but it will ask that they should first be formulated in a definite and intelligible fashion. "It is no use entering upon the work of reform unless you know definitely what you want." The same issue contains an article by Mr. W. R. Lawson on "British Railways Waking Up," the subject and aim of which, in the light of recent events in the railway world, may be readily imagined. There is one point which is rather overlooked in the argument. The writer refers to the profitable working of goods traffic, or what they call "freight trains," in the United States, and ascribes it to the system of not letting any but fully-loaded trucks go out with a train; while in England, as every railway traveller can observe for himself, goods trains constantly traverse the line with many trucks only half loaded. But he neglects to say how long the American freight manager keeps his customers waiting for their goods while he makes up the full truckload. We got some light on that point in the late Mr. Norris's powerful novel, "The Octopus," under which title is figured the American freight railway system. That was a book written by a man of genius and keen observation, and we commend it to the attention of those who pine after American railway systems. The fact is that our railways endeavour to serve their customers with as little delay as possible, and their want of system in loading, which may reduce their own profits, is directly in the interests of the public at large.

In the *Nineteenth Century* Mr. J. Foster Fraser writes an article, the result of a visit to the United States, on "The Success of American Manufacturers." It confirms what we have been told by other witnesses, that the success of American manufacturers is largely due not to the superiority of the American work-

man, so much as to the alertness and open-mindedness of the employer, the extensive use of labour-saving machinery, and the encouragement given to capable workmen and those who can suggest improvements, and who are made to feel that any improvement they can suggest will meet with recognition and will be an advantage to themselves. He thinks the British workman the most intelligent of his class in the world—"Give him time, and he will turn out a better article than anybody else." But the American workman is alert, and does not feel that machinery is going to displace him:—

"It is exceptional indeed for a British employer to get an improvement on machinery suggested by a workman. In the first place, the British workman has not that zest for his work that the American has; in the second place, it is none of his business to invent; in the third, even if he thought of an improvement, he has a shyness about approaching the employer; fourthly, the chances are he might be snubbed for his trouble."

Nothing like this exists in America. There is a much closer relationship between employer and workman. . . . The workman knows if he strikes an improvement it is going to be a good thing for him personally. If he thinks of some alteration whereby he can turn out twice as much, he knows the employer won't expect him to turn out twice as much for the same pay. They are partners, and the workman will get at least half the advantage. So there is an incentive to all the mechanics of America to adapt. They make it their business to improve; and it is by this wholesale adoption of labour-saving machinery that the difficulty of high wages has been largely overcome."

This employment of labour-saving machinery, the writer adds, is the reason why, as the Englishman walks through American workshops, he is startled to see so few middle-aged men. What is done by a man of forty in England is done by a lad of twenty in America, "and where we would employ lads the Americans employ girls."

To the same issue of the *Nineteenth Century* Mr. Langton Douglas contributes an article, under the title "The Real Cimabue," to show that the real Cimabue was absolutely unreal, and has been given the credit of other men's works. This is likely enough to have been the case in some instances, and as to Vasari's inventive faculties we quite agree with him; but it appears to us that the fact that works were attributed to Cimabue which were not his is in itself an indication that he had done something to establish a reputation; and moreover one cannot help thinking that when Dante said that "Cimabue held the field" before Giotto, he was not speaking without more knowledge of the facts than can well be attained at the present time.

*Harper* contains an important article by Signor Boni on "Recent Discoveries in the Roman Forum," short, but worth careful reading from beginning to end. An article on Shakespeare's "Richard II.," by Mr. Swinburne, is accompanied by some clever illustrations by Mr. Abbey, including a coloured study of the supposed appearance of the weak monarch in the regal costume of the period. M. Janvier's article on "The Dutch Founding of New York" is accompanied by reproductions of some very interesting old views, including one of the earliest known illustrations of Niagara Falls, from an old copperplate engraving.

In *Scribner*, under "The Field of Art," "R. S." writes a second article on American Pottery, with some special attention to the Rookwood Pottery, made by a Company which has been in active operation for about twenty years. It seems to be ware with a decided glaze, decorated with flower designs naturalistic in form but not in colour, on grounds of different greys, warm browns and buffs, passing into each other in an irregular manner; the flower subjects on these varying grounds being in monochrome, generally white. In the illustrations they have an artistic appearance and show good outlines, but we should surmise that they look better in black and white illustrations than in the original colour.

The *Cornhill* contains an article by Mr. D. G. Hogarth, and of course a very competent one, on the Cretan Room at the Burlington House exhibition. The conclusions in it are much the same as in the article we have already published on the subject, though, with more space at his command, the author is able to go into more detail. The same number contains a very amusing article, "Travels with a T-Square," which recounts the adventures—probably to be taken *cum grano*—of an architectural draughtsman out of work, and his



endeavours to gain engagements in offices in various American cities. He appears to have at last found rest for the sole of his foot in a San Francisco office, "in the most comfortable drawing office among the most companionable fellows I had ever known." We should like to know how much of the writer's statement of his nomadic experiences is really true. If it represents facts, it is a curious study, and indicates that the "Yankee" is not yet quite extinct.

The *Revue Générale* contains a long and important article on mining law in France—"Le Régime Légal des Mines et ses Lacunes," especially as to the relation between surface rights and subsoil rights, and the manner in which it is dealt with by the Code Napoléon and by subsequent legislation. The article touches more or less on mining law in other countries, England included.

*Knowledge* is a very good number this month. Mr. Antoniadis's essay on St. Sophia, of which the second portion appears, accompanied by a plan showing the original walls and the subsequent additions, should be read by architects, whether they accept all the writer's conclusions or not. Miss Clerke, in the first of a series of papers on "Modern Cosmogonies," gives a concise and lucid sketch of the history and development of the nebular hypothesis; and Mr. Crommelin contributes the second chapter of his study of "The Path of the Moon," i.e., the actual course described by the moon in her path around the earth—a much more complicated subject than is perhaps generally supposed.

In the *Antiquary* the most noteworthy article is that by Mr. E. W. Brabrook on Mediaeval lavatories, suggested by the study of the remarkable example at Mellifont Abbey. "Notes from a Seventeenth Century" is contributed by Mr. Philip Whiteway, the diary being that of an ancestor of his own, William Whiteway of Dorchester. Mr. Le Blanc Smith commences a series of articles, with some illustrations, on "Some Derbyshire Fonts."

#### THE ARCHITECTURAL ASSOCIATION. "COMPETITIONS."

An ordinary general meeting of the Architectural Association was held in the Meeting Room of the Royal Institute of British Architects, No. 9, Conduit-street, Regent-street, W., on Friday last week. Mr. Louis Ambler, Vice-President, presided, in the unavoidable absence of the President, Mr. H. T. Hare.

The following gentlemen were elected members of the Association:—Messrs. F. J. Commin, W. Curtis Green, W. Gilbert, F. Jennings, Owen Dudley, and G. N. N. Clay. Mr. C. F. A. Voysey was also elected, by acclamation, and Messrs. E. J. Wellman and A. B. Yeates were reinstated.

Mr. R. S. Balfour, Hon. Secretary, announced the following donations to the library:—"Quantities," by the late Professor Banister Fletcher, presented by Mr. E. T. Batsford; and a cabinet for the card index catalogue of lantern-slides, presented by Mr. Wonnacott. A vote of thanks having been accorded to the donors,

Mr. H. P. G. Maule, Hon. Secretary, proposed a vote of thanks to Mr. Henry Tanner for permitting members to visit the National Savings Bank and Post Office Buildings, Addison-road, West Kensington, on the 21st ult.\* The motion was agreed to.

The Chairman said it was with much pleasure that he announced a donation of 10l. 10s. towards the New Premises Fund, received from the Birmingham Architectural Association. It was a matter for great gratification that the Birmingham Association had made this donation, and he desired to move a hearty vote of thanks to them.

Mr. Seth-Smith seconded, and the motion was heartily agreed to.

The Chairman announced that a letter had been received from Miss Penrose, thanking the Association for their vote of condolence passed at the last meeting on the death of Mr. F. C. Penrose.

Papers were then read by Mr. Alfred W. S. Cross, M.A., and Mr. H. B. Creswell on "Competitions." The first paper was read by Mr. Cross, and was as follows:—

As one who is greatly in favour of the system of obtaining designs for public buildings by means of competitions, I am, unfortunately,

\* See our issue for February 28 for an account of the visit.

unable to agree with many of the views adopted by Mr. Creswell in his extremely able paper. I have had, quite recently, the pleasure of perusing an equally excellent paper on the same subject by Mr. G. H. Willoughby, of Manchester, in which its author, a strong believer in the system, as he has shown both by precept and practice, writing from a standpoint diametrically opposite to that selected by Mr. Creswell, argues in its favour, as follows:—

"From my point of view, it is a mistake to suppose that the profession can dispense with healthy, stimulating competitions. A man never knows what is in him until he has measured himself with his fellows in real honest work of this kind."

Consider what a large field for effort is presented to our younger men at the outset of their career, when youth, with its enthusiasm and capacity for work, is so strong.

With many, the commissions which they have in hand fail to fully occupy their time. Does not the opportunity thus afforded through the medium of competitions, which is, I think, confined to our profession, create, if grasped, a lasting habit of steady, continuous application and activity—a prelude to the time when hands and head will be fully occupied on more certain work?

Let me remind you of the endless opportunities which cross our path, through the medium of competitive problems, for the study and investigation of the many kinds of structures the architect of to-day is called upon to design."

These words of Mr. Willoughby represent with more or less exactitude, the views of those architects who, while believing that competitions are desirable and tend to the advancement of architecture, are at the same time determined to do their utmost to remedy the undoubted evils connected with the competition system in vogue in this country, which evils, involving as they do many miscarriages of justice and frequent deviations from rectitude on the part of promoters and assessors, must be rooted out, and with this object in view a Society for the Reform of Competitions has been formed, and is now, I honestly believe, doing good work in its efforts to protect members of our profession against the wiles of unscrupulous promoters of competitions. But, after having made good their position with regard to promoters, competing architects should advance a step further and insist upon the employment, wherever practicable, of a jury of assessors in place of the present one-man system, which has proved to be a dismal failure. It is neither desirable nor necessary for me to enter into particulars, or to call attention to specific instances in which flagrantly unfair awards have been made, the general fact is common knowledge, and there are doubtless many members of this Association who have suffered, at times, from the incompetence, lack of sound judgment, call it what you will, of certain assessors.

In France, where, as a matter of course, "they manage these things better," and in America, the jury system is now almost always applied to important competitions, in the latter country with the following code for the conduct of competitions, as presented to the American Institute of Architects at their annual Convention in 1900, viz.:—

*Form of Competition.*—A competition as a means for the selection of an architect may properly assume one of the following forms:—

(a) "Limited" to a certain number of architects, each of whom is invited to take part.

(b) "Open" to all who desire to enter, or to all of a certain class.

(c) "Mixed." Certain architects being invited, but others being at liberty to take part.

*Payment of Competitors.*—In all competitions the first prize should be the award of the commission to design the building and superintend its construction, and the programme should definitely state that the successful competitor will be so retained, and that he will be paid for his services at the rates established by the American Institute of Architects. To allow for the contingency of delay, or of the discontinuance of the work, the programme should provide for a substantial payment to the successful competitor on the award of the competition; such payment to be regarded as on account of the final commission.

Payments to unsuccessful competitors should be as follows, viz.:—In limited competitions each should be paid a fixed amount. In open competitions prizes fixed in number and amount should be provided. In mixed competitions

the two classes of competitors should be paid in the manner above described.

*The Professional Adviser and the Jury.*—It is highly desirable, in the interests both of the owner and the competitors, that a professional adviser should assist in the preparation of the programme, and that the professional adviser, or a competent jury, consisting, at least in part, of experts, should assist in making the awards. The professional adviser, or jury, may have full power to make the award, or they may select a number of designs, and, placing them in order of merit, leave the final choice to the owner or his representatives. Wherever possible, the adviser, or the jury, should make a positive report in favour of one design and recommend the employment of its author as architect for the building.

*The Programme.*—The programme should be so drawn as to form a contract. It should—

(a) Name the owner of the structure forming the subject of the competition, and state whether the owner institutes the competition personally or through representatives. If the latter, it should name the representatives; state how their authority is derived, and define its scope.

(b) State the kind of competition to be instituted and, in limited competitions, name the competitors, or, in open competition, if it is limited, geographically or otherwise state the limits.

(c) Fix a definite time and place for the receipts of the designs; the time should not be altered except with the unanimous consent of the competitors.

(d) State the limit of cost, if fixed, the desired accommodation, and the conditions respecting the site.

(e) Fix uniform requirements for the drawings, giving the number, the scale or scales, and the method of rendering. As the representation of a general scheme (rather than of a design perfectly studied in all its parts) is the object of the drawings, they should be of the simplest kind, capable of explaining such a scheme.

(f) State whether the submission of more than one design by a competitor is forbidden or permitted.

(g) State whether the competition is to be anonymously conducted or not, and if anonymously, provide the method.

(h) Name the judge or jury, or provide a method for their selection. Define his or their power.

(i) Provide for placing out of the competition any drawing which violates the terms, or any set of drawings whose authors have so disregarded the terms as to deserve the extreme penalty.

(j) Provide that during the competition there shall be no communication upon anything relating to the competition, except in writing, between any competitor on the one hand, and the owner or any representatives of the owner, the professional adviser, or any juror, on the other, and that any information, whether in answer to such communication or not, shall be given in writing, simultaneously to all competitors. Give a date after which no question will be answered.

(k) Fix the nature or the amount of the awards or prizes.

(l) State, in case the professional adviser of jury are not empowered to make the award, in whom such power is invested.

(m) Fix the period of time within which the final decision will be rendered.

(n) Provide for sending the decision and a copy of the report of the professional adviser or of the jury to each competitor.

(o) Provide that no drawing shall be exhibited or made public until after the award and not then without the consent of the author.

(p) Provide for the return of successful drawings to their respective owners within a reasonable time.

(q) Provide that nothing original as to this competition in unsuccessful designs shall be used without compensation to the author of the design in which it appears.

Whilst one may not agree absolutely with each individual clause in the above exhaustive code yet, broadly speaking, it appears to have been carefully and impartially framed alike in the interests of both promoters and competitors, and it is fundamentally sound in its insistence upon the following essentials which should be borne in mind during the preparation of every set of conditions issued to competitors in this Country.

1. A definite pledge should be given by the



promoters as to their intention to retain the services of the successful competitor.

2. The conditions should be framed to constitute a contract between the promoters and the competitors.

3. The drawings required should be of the simplest kind necessary for explaining the competitors' schemes.

4. A copy of the assessor's report should be sent to every competitor.

5. No communication, except in writing, should be allowed upon anything relating to the competition between any competitor on the one hand and the owner or any representative of the owner, the professional adviser, or any juror on the other.

With regard to (1), this clause is essential to the success of any properly-organised competition. Promoters must be brought to understand that the payment of a premium is quite insufficient to reimburse the successful competitor for his outlay of time and money. As to (2) this proposal is an innovation as far as this country is concerned, but it is one that will form, sooner or later, an integral part of the conditions of the competitions for all public buildings. (3) Has been evidently framed with the object of minimising the amount of work required from each competitor, and any experienced competing architect will vouch for its necessity. (4) Constitutes a laudable attempt to allay many of the heartburnings that almost invariably follow an award. In my opinion, it is very desirable that a copy of the assessor's report, containing the award and his critical notes on the various designs, should be issued to every competitor. I have here a copy of such a report, kindly lent to me by its author, Mr. Paul Ogden, of Manchester, which is, in my opinion, ideal in its characteristics. It contains photographic reproductions of all the plans submitted, together with the assessor's criticism of each design, by which competitors are enabled to obtain a very fair insight into the reasons governing the award.

The last stipulation (5), although it might perhaps be strengthened, is, I think, a wise one, as under our haphazard system, or rather want of system, a competitor is often tacitly allowed to obtain special information from individual members of the promoter's committee or from officials and subordinates connected with them, and this course of action is to be deprecated, as the contest between the competing architects should be fought on the information conveyed by the conditions, and by the subsequent replies to questions, and by that information alone.

On the whole I think, gentlemen, you will agree with me that the problem relative to the conduct of architectural competitions having been successfully solved by the American architects it is the duty of all members of our profession in this country to support the movement that has recently been initiated to ensure a similarly satisfactory result here. By doing so you will be upholding the dignity of the profession, for what other body of educated men receives the insults that are constantly offered to us by promoters of competitions, who often advertise for designs for buildings which they have not the slightest intention of carrying out, or for which they have actually selected their architect before the issue of the conditions for their so-called competition. To put it briefly, competing architects must sift the good competitions from the bad ones, and protect themselves against unfair or incompetent assessors by insisting upon the introduction of the jury system of assessing. The only argument I have heard advanced, so far, against the appointment of jurors is that emanating, I presume, from those architects who have too great an appreciation of the value of the fees obtainable under the present system of assessing to make them desire any change; to the effect that the excessive cost of the jury system militates against its adoption, but if—as in America—no first premium be awarded, and the definite commission to carry out the work be substituted, there would not be, apparently, any insuperable difficulty in providing the necessary funds for the payment of three or more jurors.

Mr. H. B. Creswell then read the following paper:—

It is six years since I stood in this room, at the invitation of your Committee, to read a paper before you on this same subject of Architectural Competitions, which brings us here to-night, and I do not think that the interval has advanced this question any nearer

to a satisfactory solution now than it was then. Six years ago the conclusion was forced upon me that arguments and suggestions on the subject of architectural competitions had reached very much the same position in the history of the world as puns, namely, in this—that they had all been made, and I do not think circumstances have changed since then sufficiently to make discussion of this subject more profitable than heretofore.

I would like to remind you that the whole subject of competitions, in almost the same aspects and involving the same dilemmas, the same difficulties, the same differences of opinion, has beset our profession like an incubus, and has provoked lengthy discussions, protracted correspondence in the professional journals, special commissions, sworn fraternities, and self-denying brotherhoods continuously for nearly 100 years. I can assure any one of you who cares to refer to the records which will be found within the walls of this building, that he will be truly amazed at the huge amount of energy and mental activity in arguments, research, and classification of facts, which has been brought to bear on this subject; and, I may add, by some of the most conspicuous and able men of their day; and yet, although in the particular of professional assessors, promoters of competitions have fallen partially in line with our views, the main question remains no nearer solution, and the confusion in the conduct of competitions is perhaps as great as it ever was.

I find that the subject of competitions has been prominently brought before us here or at the Institute or elsewhere, during past years as follows:—

In 1838 a Committee was appointed by the Institute to consider this subject of Competition, who, having thoroughly investigated it, seemed appalled by its difficulties, and concluded by publishing a report containing much "valuable information," but leaving the remedy very much as it was before in the hands of the profession. In 1850 the Architectural Association considered the question and drew up a report containing a code of regulations which it was suggested would meet the difficulties of the case. In 1857 Mr. George Morgan read a paper before the Institute upon this subject, which led to a debate, in which every one agreed again that something ought to be done. In or about 1860 the "Architectural Alliance" took steps to draw up a form of circular suggesting terms of "General Conditions" which were sent to such Committees and Councils as showed symptoms of breaking out into competitions. In 1871, on the occasion of the General Congress of Architects, Professor Kerr read a valuable paper on the subject of the Commercial Aspects of Competitions. Everyone agreed that something ought to be done. A special committee was again nominated and deputed by the Congress to investigate the matter and report accordingly. In 1872 this report, together with a code of proposed regulations for the conduct of competitions, was read before the Congress of that year, and the Congress were, with one exception, unanimous in agreeing that something ought to be done. The exception was Sir Edmund Beckett, who made a very able and interesting speech in the character, as architects may consider, of Devil's advocate.

I may mention here that it is the recommendations made by this Report, revised again in 1883 and in 1892, which to-day stand in the Institute Calendar as "Suggestions for the Conduct of Architectural Competitions." In 1879 Mr. Thomas Porter read his exhaustive paper on the subject, in which the best that has been said in demonstrating the suicidal folly of the profession in acquiescing in the competition system is there printed and set down. After hearing that paper, everybody was as completely satisfied as they had ever been that something ought to be done. It was a past-President of the Architectural Association, Mr. Cole A. Adams, who the next year did—or very nearly did—the necessary "something" by drawing up and circulating a memorial which was signed by 1,300 architects, who thereby bound themselves to take part in no competition save where a "professional adjudicator of established reputation was employed." This was presented at the Institute by the late George Edmund Street in 1881. Since then the subject has been again discussed, and there have been papers read since by Mr. Bagallay and others.

It will be noticed that a periodic recurrence of the subject of competitions is endemical

with us—an affection of the spleen—and seems so essential a factor of the healthy existence of our profession that we may at least view this present outburst as an intimation of our healthy existence.

I am not going to restate in detail the injustices and stupidities which have been brought to the charge of those who organise competitions; they are vividly in the minds of all. I do, however, briefly propose to remind you how disastrous are the main principles which are involved in our system of competitions, because we are apt to reason from our own personal experiences, and personal ambitions and prejudices, and I think that it is this attitude which has produced and promulgated the confusion which makes impossible any chance of that clear view, and approach to unanimity, by which alone we could encounter and overcome the difficulties we discuss so exhaustively and with such futility. I will ask you to join me in my conviction that we shall never reach a solution until we can make our own immediate interests subservient to the wider interests of the profession at large. I will then ask you to let me suggest to you wherein the root of our trouble lies, and to state what I believe to be the only solution which will ever be possible until we are a closed profession, and registered, and placed under compunction to obey the rules which are made for us.

First of all I would remind you that competitions do not in any way influence the number of buildings erected. Hence the whole mechanism of competitions effects nothing more than the selection of those particular architects who shall be appointed to execute certain particular buildings. Their whole justification rests, then, on the substantiation of the fact that the process of selecting architects by competition, is better for the profession and for the national architecture, than if the architect were selected by his reputation or his proved fitness for the work. The question is *not*, gentlemen, whether competitions afford a short cut to notoriety for individuals, but whether, taken as a whole, that system of selection is the best system of selection. I am not going to urge the reasons which convince me that the competitive method of selection is a bad method, as a frequent usage, and bad in all cases except of limited competitions, but I will ask your permission to quote the mature opinion of Professor Kerr on this subject. He is reported to have spoken these words in 1871:—

"The only conclusion I can arrive at with any regard for common sense is that the system of architectural competition is radically unsound in principle, and in practice most prejudicial to the profession of architects, both financially and morally. Whether it benefits the public in any way may be for a moment questioned, but even on this point I believe the answer must be eventually in the negative. . . . I have never known any man succeed in establishing by competition any reputation which he would not have better acquired without it, except occasionally a bad reputation, which, but for competition, he might fortunately have been able to escape. I know of no other temptation in business so subtle as that which assails, as I think, a high-minded man when involved in architectural competition, and especially if he is to be successful. I know of men who have succeeded by competing in attaining to the promise of a position which they were not qualified to hold, but they have never been able to retain it, and have in several cases been ruined in their legitimate prospects by the consequences of such hasty and fallacious good fortune. I do not hesitate to say that competition success leads generally to personal and public disrespect; and this not through jealousy alone or personal offence, but by reason of the ordinary estimate of the qualities by which alone such success can be obtained."

The remarkable emphasis of these words from a man of the experience and acquisitions of Professor Kerr justify a dogmatic assertion, surely, that it is *doubtful* whether the apparent advantages of the competitive method of selection are not abrogated and overshadowed by the grave disadvantages attaching to it; and with that moderate statement before you, I will remind you at what costs and by what burdening of ourselves do we acquiesce in this system of competitions.

There are about thirty-six unlimited public competitions advertised yearly in England alone. The value of the average building is about 9,000l., the number of competitors about forty, and the value of the first premium about 56l. (with further premiums aggregating to 52l.).

With regard to the much-debated question of the cost of producing the competition



drawings, I will confine myself to the conclusion drawn in this matter by the special committee which sat to consider the subject of competitions in 1872. The Report of that committee stated that the cost of producing competition drawings, irrespective of principal's time, varied from 1 to 20 per cent., or from 2*l.* to 80*o*l.**; and we know that there are sometimes 100 to 200 sets of drawings, each set involving from four to twelve strainers.

Professor Kerr recalls cases of 200 sets of competitive designs in competition in his day, and we, most of us, remember the Emanuel Church, Exeter, competition, where there were 405 applications for the conditions, although, owing, no doubt, to the publicity which was given to the growing dimensions of the competition, only some 200 odd sets of designs were sent in, if my memory serves me rightly. I think I am right also in saying that the value of the building was only some 5,000*l.*, and that the cost of the producing the drawings submitted in competition exceeded considerably the whole cost of the building.

From this it is apparent that in a competition for a building costing 9,000*l.* the drawings would cost each competitor between 2*l.* and 80*o*l.** (my own personal estimate is 30*l.*, which seems a moderate one), so that we may consider that in a competition for a building costing 9,000*l.* the cost of producing the drawings would be 1,200*l.*, which is nearly three times the sum which would be paid by the promoters by way of commission to the architect for designing and carrying out the works, and it not unfrequently happens that the cost of producing the drawings in competition for a building exceeds, as in the case of the Emanuel Church, Exeter, the whole cost of erecting the building itself.

I have found that the value of buildings advertised in the years 1894 and 1895 was 540,000*l.*, which is a sum of 270,000*l.* in each year, and in 1888 Mr. George Morgan found that in the previous year, a year of depression in the building trade, public competitions were advertised for buildings estimated roughly to cost 300,000*l.* I may also say that I have it on the best authority—the authority of a gentleman whose opinion you would hardly question in this matter—that at least half the architectural competitions are not advertised in the London papers, so that we may decide that the value of buildings advertised in competition in one year in England amounts to not less than half a million.

The cost of producing drawings in respect of these buildings, deduced from the figures I have already given you, is 65,000*l.*, estimating the average competition at 9,000*l.*, and it has been shown by Mr. Porter that the waste drawings prepared in competition during the twenty-five years previous to the year 1872 if laid edge to edge would pave the way from the doorstep of this house we are now in to Grantham, and if laid flat one on top of the other would make a tower 1,000 ft. higher than the highest mountain in the world. I may add that I have tested the equation to satisfy myself that it is the drawings themselves that would afford this impressive spectacle, and we may not cajole ourselves into a belief in architectural competitions on the ground that this monument to our folly is composed of wooden strainers.

Gentlemen, it has been objected that the cost of producing these competition drawings should not be considered as lost to the profession, as the bulk of the money passes from the pockets of its senior to its junior members; but to say this is to revive the old economic sophistry which, on the ground that commercial prosperity relied on the circulation of money, used to advocate that it would benefit the country to break all its windows once a month—or, let us say, benefit the glaziers that they should break their own windows.

The difference between profitable and unprofitable labour need not be urged here, but it may be pointed out that if it is an advantage to the profession to produce nearly 65,000*l.* worth of waste drawings in every year, it would still more greatly benefit the profession if such drawings, when completed, were sacrificed as an offering to our common weal, and new sets prepared for sacrifice in the mael of competition. The advantages of competitions as viewed by some of us would then be doubled.

I always feel that we do not fully realise the significance of these facts, and perhaps you will bear with me if I draw the comparison in the form of wasted labour instead of wasted

money. If we estimate the proportion of the total of 65,000*l.* spent yearly in waste drawings which is paid away to draughtsmen at 58,500*l.*, which is nine-tenths of the total sum, and consider the average draughtsman as paid at the rate of 2*l.* per week, we find that there are in England alone at this moment nearly 600 healthy persons closely employed solely in the production of drawings the destiny of which is not in any wise so useful as to line the footpath from here to Grantham; and it is our profession that provides and maintains these men for this distinguished purpose. Competitions account for 600 supernumeraries in our profession—600 more architects and potential architects than can be distributed in the legitimate business of designing and erecting buildings.

With reference to some of these figures of mine and corroborative figures derived from Mr. Porter's historic paper on this subject at the Congress of 1871, which I made use of in my previous paper, Mr. Aston Webb, who was then present and who spoke, seemed much depressed at the depreciation of competitions, implied thereby, and said, I quote from the report in the *Builder*, "that he remembered Mr. Porter very well and it should be remembered that that gentleman himself very often took part in competitions, and although, according to his statistics, competitions had such disastrous results, he was a competitor on a good many occasions. It was impossible to check the statistics either of Mr. Porter or of Mr. Creswell and as had been said there were such things as 'lies, big lies and statistics.'" Now, gentlemen, anyone may check my figures who cares to give a certain, not inconsiderable, number of hours to the advertisement sheets and news paragraphs of the *Builder* during the years 1894 and 1895, and as to Mr. Webb's facile use of the word "lies," I believe Mr. Porter's reputation is as invulnerable to irresponsible aspersions of that sort as my own is untouched by them. However, I will say no more on that matter. Some people are not so sensitive or so circumspect in making implications of falsehood as others; in fact I am aware of a class of people wherein one man will call another a liar with the idea of conveying friendly congratulations. But what I do strongly protest against is that we should be so blindly concentrated upon our own personal interests and so consumed in self-appreciation that we grudge to extend to the subject a consideration which may show that the convenient way for us individually is not the best way for us collectively.

I once heard a young man referring to competitions as "the young man's friend." What he wanted to say was "I am a young man and have just won a competition."

It is exactly this personal, circumscribed, prejudiced attitude towards competitions which has kept us all these eighty years and more in hopeless quandary, and surely Mr. Porter was perfectly justified in competing while yet condemning the system under which he competed, and his pronounced expressions of opinion and the evidence of his bias against competitions gives special value to the propositions of his paper, and greater importance and weight to his wider depreciation of the whole principle of competitions by reason of his conviction being aloof from his personal proclivities. Personally may I say that I have never entered for any competition for the reason, as I believe, that I am deficient in British sporting pluck, but I should not hesitate to do so if it seemed profitable or amusing, or I found myself in circumstances advantageous to success.

The framing of competitions and the enactment of competitions is, as I would insist, purely a matter of business and of commercial enterprise. Upon no other basis is their existence intelligible. There is no question of philanthropic motives existing, nor of a mutual scheme for mutual benefit, that I ever heard of. The conditions of competitions as now drawn up may be, in general, very fairly described as a sham legal instrument. It is a sham form of contract wherein the obligations of the competitors are clearly and exactly defined, and the obligations of the promoters set in such loose, ambiguous terms as render them open to any interpretation that subsequent events may show to be most profitable to the promoters. The conduct of a public or limited competition is clearly a matter of contract, and it is the business of each party to see that his interests are properly protected in the terms of that contract. It is therefore weak

and futile for competitors to persistently cry out and protest when they find that they have the worst of the bargain. It is usual in such cases for us to charge the promoters with having broken their word, and with having falsified their explicit undertakings; but surely redress for such injury as is here claimed lies not in the oblivion of the sympathetic columns of the professional Press, but in an action in the High Court. The truth is, however, that it is very rarely that promoters of competitions go back on their precise undertakings, or falsify their explicit promises. This, I observe, is not for any fear of consequences or for conscientious scruples, but for sheer lack of any precise undertakings to go back upon—an utter dearth of any explicit promises to falsify. When an assessor's award is set aside, or when the winner of the first premium is supplanted in his commission to do the work, there are invariably protests long and loud; pathetic appeals to common honesty and fair treatment from us poor architects, who forget our greedy rivalries for the moment, and are bound in one common sympathy of discontent.

We are continually complaining that it is unfair and an indignity to the profession to expect architects to compete when no professional assessor is employed. Yet 50 per cent. of the competitions advertise no professional assessor. Instead, they advertise the absence of a professional assessor. Nevertheless, we respond to that invitation with our modest waggon-loads of elaborate drawings. We explain that it is an affront to offer a premium and to merge it in the commission. Yet we hustle each other to share in that affront, and the enthusiasm with which we respond to the invitation of the promoters might naturally be expected to further reduce the small proportions of twenty-two competitions in 100, which still omit to expressly stipulate that the premium shall merge in the commission.

We protest, and take frequent published occasions to flourish the fact in published printings that the reason we compete and the only inducement to our entering into the competition is that we shall be commissioned to carry out our work and complete the execution of our design. We declare that the premium offered is not a provocation to compete, and we say that, with few exceptions, the premiums are inadequate to repay the cost and the trouble of producing designs and drawings. Nevertheless, in spite of these forcible exclamations, I find in the two years 1894 and 1895 that in 54 per cent. of competitions there was an express stipulation that the promoters did not bind themselves to accept the first design, and in 35 per cent. that they did not bind themselves to accept any of the designs, and in none of the published conditions was a promise made to accept a prize design, nor do I recall any case in which the conditions have contained any such undertaking, although I fancy there may have been a few such cases. And there is no instance, I am convinced, nor will there ever be while competitions are promoted by sound-headed men, of the guarantee being given that the assessors' award shall be binding in respect of the commission. In spite of this bland indifference of our avowed and advertised principals on the subject of competitions, do we depreciate these competitions by standing apart, or are we not rather to be held accountable for the existence of such conditions by our persistent and boisterous participation in them.

The 5 per cent. commission is stipulated to include quantities or extraordinary expenses in 26 per cent. of competitions. The premiated drawings are to be the property of the promoters in 77 per cent.; the written rules and the unwritten rule of the profession are frankly ignored, and we give our approval to this state of affairs in the most emphatic manner possible, and proceed to keep this monstrous thing alive and healthy amongst us, in the face of rebuffs and affronts.

The very assessors who are selected from the pick of us to advise the promoters, themselves become parties to and elaborators of these very usages which we have never found words enough to deplore and execrate.

It has even happened that architects and members of the Institute have acted in the capacity of assessors in competitions where the conditions were not in accordance with the suggestions for competitions published by the Institution; and in thirty-two sets of conditions of competition, which I took as they came to



hand from the portfolio kept at the Institute library, I find that out of the twelve cases which provide for the appointment of an assessor, no less than eleven stipulate that the premium shall merge in the commission, that ten state that the premiated designs and drawings are to be the property of the promoters, and that in every single case there is an express clause relieving the promoters of responsibility to accept the prize designs, and in one instance of a competition for a 5,500l. building with a first premium to merge in the commission, it is stipulated that the 5 per cent. commission shall include travelling and all expenses.

Is it not, I will not say reasonable, but the only conceivable result, that promoters of competitions should treat our wordy protests with small consideration, as evidences only of professional jealousy and professional squabbles, when our weakness, our inconsistency, and our scrambling greed is so flagrant and so palpable a denial of all that we say?

What I wish to lead up to is the conclusion that the impracticable and unfair qualities of public architectural competitions as now conducted are not to be laid to the charge of the people who promote them, but are to be entirely laid to the charge of ourselves who have in all particulars and details made the procedure, traditions, and the conduct of competitions just exactly as they are and exist, in every respect and in every particular.

There is nothing unusual or difficult in our situation at the outset. We are dealing with ordinary business men of our own nationality, whose prejudices we thoroughly understand, and who are bound by the same laws as bind us. There is the fair commercial battlefield before us.

When a man or a corporate body—it does not matter which—wants a thing it is his reasonable duty to get it at the fair market rate, and to give no more for the thing he wants than what it is worth. I cannot see why British subjects or, indeed, anyone else ought to be placed under an obligation to reconstruct the ordinary bases of business transactions because they may happen to be dealing with the profession of architects. The attitude of these people is perfectly simple and reasonable, and is all, as business men, which we have any right to expect. They make a certain offer for a certain thing, and it is their business to see that they get what they want, and whatever they get they get at our price—please remember that, gentlemen—and not at any artificial price.

They get it at the market value, neither more nor less. If they choose to make an attractive offer they can command the ideas of the leading architects of the day. If the offer is an inconsiderable one, they will win only the services of incapable or unsuccessful men who value their services at a low rate, and I feel bound to confess that, as a matter of ordinary foresight, when organising a competition, knowing that the approval and gratitude of the profession at the offer of a fair premium would possibly take the form of some 3,000 deal strainers delivered at my door, I should feel, with all the good will in the world, not justified in offering a sum involving responsibility for such an exuberant display of gratitude.

I insist, gentlemen, that the whole matter is in our hands, and that the issue is clear and easy. We have only to make the demand, not indeed in peevish letters to the papers, or on long-winded occasions of this description, but to make the demand with the ordinary emphasis of men who know what they want, and who mean to stand by the principles of conduct which they know the fulfilments of their wants demands of them.

So surely as we declare in this manner that we will be parties to no competitions of which the conditions are unreasonable, ambiguous, or incompatible with personal or professional dignity, straightway such competitions will cease to exist.

Twenty years ago some effort was made to give some real expression to the general conviction that architects should not compete where no professional adviser was employed by the promoters. I refer to the memorial signed by 1,300 architects, who bound themselves not to compete except where a professional assessor was employed, which was presented at the Institution by Sir George Edmund Street in 1881.

What generally is the result of that comparatively limited and local effort?—I say local as affecting only a certain status of practitioners. It is this: that while the Special Commission of 1872 found that a professional assessor was

rarely or never employed, at the beginning of this century 50 per cent. of competitions advertised the employment of a professional assessor.

I think there is a great deal of what must appear to unprejudiced persons outside our profession as sheer foolishness and nonsense in all the outcry we make. The truth is that it is ourselves whom our quarrel is with, with the men who will sacrifice their dignity and walk in lower planes and work for less than what we can bring ourselves to consent to. We want the thing that is offered, but not at the price to be paid; and yet, for all our outcry against the moral obloquy of promoters of competitions in refusing to accept a design they do not like, I have yet to hear of any case in which the competitor who unfairly was handed the commission ever made any difficulty whatever about accepting it.

From the lofty tone we adopt in these matters we should expect the favoured architect to bow, present thanks, and decline on the ground that it was a gross injustice to his professional brother who had been awarded the premium, that the profession of which he was a member strongly disapproved of such irregularity, and that, therefore, he must decline to act.

Personally, I am thankful to think that no such prig exists in our ranks, but if our attitude was really genuine towards competitions, as we declare it to be, this is the attitude we should take individually in being met with a case of that sort. But were we genuine, such cases would not arise, because we should see that the conditions were properly drawn; we should not compete unless their terms and the details of the matter were in accordance with our principles; and if any attempt was made to jockey us, we should find our remedy in a court of law. If we cannot keep off unruly competitions by any other means, by all means let us *take the pledge*—let us join a certain active society lately started, and forswear competitions unless they are as we hold they should be. My own interest in that most praiseworthy society is somewhat abated by its formidable propaganda for *talking*. We have surely had enough and to spare of that; it is entirely useless unless architects abstain from competing.

The only way to secure that competitions shall be conducted as we wish them conducted is to have nothing to do with them unless they are as we approve.

Mr. R. S. Balfour read a letter on the subject which had been received from Mr. Sidney R. J. Smith. Mr. Smith said he had little to say on the subject, except strongly to urge the abolition of perspectives. They were quite useless to an assessor, and should not be necessary until plans were finally decided upon, for in a competition they misled committees. He was of opinion that a small piece of  $\frac{1}{4}$ -in. scale drawing was much more useful, for it showed what a competitor's capabilities of design and feeling were much more than a perspective or  $\frac{1}{4}$  scale. In a general way,  $\frac{1}{2}$ -in. scale and a small piece of  $\frac{1}{4}$ -in. detail should be ample for competitions, and plans, one elevation, and a section should be sufficient. The great thing was to minimise labour. He was strongly in favour of the jury system; there should always be more than one assessor, for if there was only one he might have "fads" or might miss points. He was sure that two men—one a practical man and the other an artist—would work better than only one. Reports were practically useless, and might be abolished with advantage. A few notes on the drawings were all that was necessary, and this should also be ample as a specification. Limited competitions, each competitor being paid, should be encouraged, or competition abolished altogether.

Mr. H. W. Wills, in proposing a vote of thanks, said he had listened with great pleasure to Mr. Creswell's paper, but he thought he disagreed with every sentence of it. Mr. Creswell had shown, in the preparation of his paper, and the collection of facts, an industry greater than that of the ordinary competitor. Many of them were able to get through a set of competition drawings in far less time than it must have taken to get together such a mass of statistics, the correctness of which he was perfectly willing to take as absolute. Those who decry architectural competitions should remember that though we might do away with them we could not do away with the competition between man and man. If an architect

did not get a practice in some other way, he went in for competitions. If he did not take part in architectural competitions he tried to attract the attention of, and please, those who had work to give and really competed for their favour, suiting himself more or less to his surroundings; and in many cases a man who got a practice in that way spent quite as much time in building up his practice as did the man who made competitive drawings. If he wanted to know whether the bite of a dog was a bad thing he would never go to the man who had never been bitten, but to the man who had had experience either as a doctor or as one who had been bitten. They could apply that to the architectural profession, and think of those who, like Mr. Aston Webb, Mr. Hare, and others had competed so successfully; if they did that they would not take such a gloomy view of the matter as did Mr. Creswell. Of course, there were a great many defects which needed remedying in the present system, and he thought that a great many of them would pass away in time. Competitions were now conducted more fairly than ever before, and improvement was still taking place. He was heartily in agreement with Mr. Cross's admirable paper. One of the greatest sources of disappointment architects had in competing for a building was when, having been placed first by an assessor, the promoters changed their minds, saying that perhaps they might put up the building in ten years time, but perhaps they might not do so at all. Supposing a building was going to cost 80,000l., and the promoters came to that conclusion, the successful architect would have probably expended an amount of time in preparing a design quite equivalent to the amount of time he would have spent had he been directly commissioned to prepare preliminary sketches. \* Competition drawings were fully equal to preliminary sketches, and he thought that one of the conditions of a competition should be that if the promoters did not erect the building, or did not accept the author of the first premium as architect, they should pay a percentage on the estimated cost of the building. If a condition of that kind could be arranged for it would do away with a great many bogus schemes, for people would not, merely for the sake of a building they only half-heartedly wanted, run the risk of the certain payment of a large sum of money. If, instead of only having to pay a premium of 100l. and then employing another architect, or no architect at all, they had to pay a sum seven or eight times as great, promoters would think a great deal longer than they did before they reversed an assessor's award. He thought that was one of the reforms which might very well be brought about. Another misfortune architects were sometimes subjected to, even where an assessor was appointed, was when it was clear from the conditions that neither the assessor or the promoters knew exactly what they wanted, and he thought architects should avoid, as far as possible, competing for buildings the exact nature of which was not clearly stipulated; and assessors would help to make competitions more successful if they insisted on the problem to be solved being clearly and definitely stated at the outset.

Mr. W. H. Selth-Smith, who seconded the motion, said he was very glad Mr. Creswell had dealt with principles. A great many of the matters referred to by Mr. Creswell were purely incidental, and accidents of practice—miscarriages of justice, little things which were inevitable while human nature is human nature and architects had to compete because promoters would have a competition, and assessors were not infallible. But there were principles which should govern things, and there were reasons which made competitions essential to architects; and, in his opinion, there would be no diminution of architectural competitions; all they could do was to regulate them and stop the abuses. In spite of what Mr. Creswell had said, he did not think any one would deny (except, perhaps, Mr. Creswell) that great progress had been made in regard to architectural competitions, which were arranged and carried out much better than they used to be. He had not been one of the very successful men in them, but, at the same time, he felt that the competitions he had been in for had been of distinct benefit to him and his staff, and he would have nothing but praise to give to the system if it could be regulated better than it is regulated now. They were members of the Anglo-Saxon race, which



delighted in competition. Why were they architects? He did not at all take the view that they had taken up the profession mainly for commercial reasons, but rather that they were architects for the sheer joy and delight of designing. They talked about themselves as if they were artists, and he hoped they were, and that they had that ideal before them; and they were not worthy of the name of architects unless they had that ideal and did all they could to promote it. The main stimulus in architectural competitions, so far as the profession was concerned, was the sheer delight of designing. Mr. Creswell had laid great stress on the unsatisfactoriness of competitions—that the intellectual competition was of no use to any one; but surely if physical competition was beneficial, intellectual and artistic was still more profitable. The main point was, not did competitions benefit the profession, but did they benefit art? Were the public buildings which were erected in England to-day of a better quality than those erected twenty-five years ago? He could not help thinking that there was an enormous improvement in the buildings of the country, and he thought that must be attributed to a large extent to competitions. Great strides had also been made in the regulations as to architectural competitions. The suggestions of the American Institute were extremely valuable, and if we could (and he thought we should) arrive at some kind of regulations on those lines, he thought we should have achieved nearly all that we needed.

Mr. A. B. Thomas, in supporting the vote of thanks, said it was always interesting to listen to an academic discussion on the merits of a recognised system or method of practice which had grown into general use; and it was a fact, although he did not mention it as an argument, that the majority of the great names which stood out in the architectural world had identified themselves with competition work and, he believed, without detriment to their work as architects. There was one important point to bear in mind, that a public authority having the control of the expenditure of public money, was bound to take the course which seemed to them best in the disposal of that money. While it was open to the public authorities to call in a specialist eminently fitted to deal with a particular work, they could, and sometimes did, appoint an architect whose chief recommendation was his local influence, more than his artistic or special capacity. On that ground it could be claimed for competitions that they were in the interest of architecture, and they were certainly in the interest of public money in that a properly conducted and properly assessed architectural competition should produce a design which, while not necessarily the least costly, would be appropriate and therefore properly economical. In regard to the paper by Mr. Cross, it was definitely laid down that the assessor's report should be printed and supplied to the competitors. That was generally contended, but he was not quite sure as to the wisdom of that. It was desirable that the assessor's award should be absolute, and where that was so it was undesirable to give the reasons for his conclusions. In legal absolute decisions, he believed that that was the practice. One could imagine the difficulties which might arise from the publication of an assessor's report, and, in his opinion, it was best that the assessor should clearly and definitely say which design he thought was the best, and that that should end matters so far as the competitors were concerned. Then as to the simplicity of drawings, that lay with architects themselves, most of whom would make their drawings elaborate, and take a pride in doing so. As to what Mr. Cross said about competitors privately communicating with the promoters of a competition in order to get information, he (the speaker) had been under the impression that, as a rule, the promoters took great trouble to supply the fullest information. The consideration competitors received from the authorities, the expense and trouble that was taken to supply information, was, in the majority of cases, very great; in most cases the promoters seemed to have a great desire to help the competitors all they could, and to secure anonymity. He did not at all see how it could be expected of promoters to say definitely before a competition was adjudged that they would carry out the selected design. He had known a case where the promoters of a competition were absolutely prevented carrying out a design after it

had been selected, and it would have been very hard on them had they been bound in any way. As to the conditions of the competition forming a basis of contract, he took it that they did. As to assessors, he felt he must put in a plea for sole assessors, and while he was listening to Mr. Cross he was thinking of the result of competition work in England, and contrasting it with the results abroad. In France and on the Continent, especially in regard to municipal work, one saw a great similarity in the designs selected for *Hôtels de Ville*; on the other hand, in England during the last ten years there had been considerable individuality shown in the selected designs for town halls, and he could not help thinking that this result was not only due to the individuality of the designers, but also to the taste and individuality of the assessors.

Mr. W. A. Pite also supported the vote of thanks, remarking that there was evidence of competition among people everywhere, and on the whole it seemed to be best that such should be the case. Many architects would never get a chance of designing buildings of any magnitude but for competitions, and as to whether the system benefited the art of architecture, it was only necessary to call to mind the names—the honoured names—of men they all knew, some of whom had stepped, so to speak, from a back office stool into the very front rank of the profession. Then there was another point: somehow these competitions seemed to stir one's zeal. Whether that was because of the sporting element in it all, he could not say, but it certainly seemed to make young men work for the best results. They had met that evening in order to discuss, to some extent, their wrongs, and they hoped soon to set matters right, though there were many reforms they wanted, and perhaps it was hardly possible to get all they wanted. Arising out of what Mr. Thomas had said, he might mention that there were competitions in which the assessor was told of a certain building which had been erected somewhere which was the key of the whole thing. If the competitor did not possess that key, he might as well not compete. Nothing had been said that evening as to the good old-fashioned "ghost" which some competitors were said to make use of.

Mr. John Murray said it seemed to be generally admitted that there was something radically wrong somewhere with architectural competitions. In his opinion, the system of offering two or three premiums was wrong, for it involved the expenditure by the profession of a great amount of time and money. If, in all competitions, small scale pencil sketches were asked for, young and old, and busy men could compete without a large expenditure of time and money. Say fifty or even two men competed by sending in small-scale sketches, about six might be selected for a second competition, and each be paid an equal sum to cover expenses. By the present system fifty or sixty men might compete, and the assessor at once eliminated about two-thirds of them because they had not carried out some leading point, which, perhaps, was only known to the assessor or committee; and it was a great hardship that a number of men who had gone to great trouble and expense were put out of court for such a reason. If the system of small-scale sketches were general, such sketches could be made in a short time without much outlay, and an assessor could judge at once upon a scheme. It was a well-known fact that the general scheme of the plan often won a competition, and that scheme was often worked out by the first few lines. That had been his own experience; some schemes he could have prepared in two or three hours had he followed out at first the correct idea, but in consequence of doubt he had spent two or three months of fruitless effort upon the work. The reform necessary to make competitions successful and a benefit to the profession might be carried out on the lines suggested. The suggestion was not new; it had been adopted in some of the largest and best competitions, and in all such cases, as far as he knew, the result had been most successful. If the Institute were to lay down suggestions on these lines, there would be good results. He thought that the one assessor system was the best, providing that in the event of the promoters not carrying out the selected design, the author of that design should have some compensation. It seemed a great hardship that a successful competitor should lose everything because the promoters wished to have some other design, generally not so good; but the

promoters ought to be quite free to select another design if they wished. A substantial compensation to be paid to the successful competitor would, however, act as a considerable deterrent to such a course. The remedies for the existing defects were in the hands of the profession, and unless architects, headed by the Institute as the governing body, lay down some rules for themselves and adhere to them, things would go on as before. No doubt matters had improved, but there was need of more improvement.

The Chairman, in putting the vote of thanks, said they would all regret the absence of the President, Mr. Hare, because of his great success in competitions, and because he would have been able to tell them practically all about the matter. It seemed to him (the speaker) that as we are not likely to do away with architectural competitions, we might as well accept them and devote our energies to improving them where we can. Every one seemed to agree that improvements must come from within the profession, and Mr. Creswell, who did not seem to approve of competitions, was in agreement with others, he thought, on that one point. He would like to draw more attention to the Competition Reform Society than had been given to it that evening. The Society was doing a great amount of good, and it was by joining it and by trying to get promoters of competitions to draw up their instructions and appoint assessors, &c., as architects desired, that improvement was to be brought about. In joining the Society—in taking the pledge, as Mr. Creswell wittily put it—they agreed to abstain from taking part in competitions which were not considered fair or were not approved by the Society. It seemed to him that Mr. Wills did not so entirely disagree with Mr. Creswell as he said he did, for there seemed to be agreement between them on one or two points. He (the Chairman) thought that the competition suggestions should form part of the contract, and also that the drawings should be as simple as possible, to as small a scale as would illustrate a design of a general scheme, without perspectives, and with only one section—and that a skeleton section, not a detail section. He also considered that the assessor's report should be supplied to competitors, for one could learn very much from the assessor's criticisms and the comparisons between one's own unsuccessful design and the others. He was sure that competitions were desirable for young architects, and he thought that they learnt much by competing. As to whether competitions improved the art of the country, he rather agreed with Mr. Seth-Smith that they did, and had. One could not go about the country without realising that, and in looking at the competition designs published in the professional papers one realised that the standard of art had improved; and there could be no doubt that some of our finest buildings were the result of competitions. As to payment to the designer of the plans placed first, he thought that Mr. Wills's suggestion was an excellent one, though he was afraid it was rather too utopian for realisation. He did not think committees would be got to pay the author of the design placed first  $1\frac{1}{2}$  per cent. on the estimated cost of a building if they abandoned the scheme; the first premium was generally so very much less. He did not agree with Mr. Thomas's suggestion that a committee ought not to be expected to bind themselves; on the contrary, he thought the committee should bind themselves to carry out the selected design, or, at any rate, one of the three premiated designs, unless, of course, there was some legal difficulty in the way, or the committee, as Mr. Thomas mentioned, were unable, through no fault of their own, to carry out any design; but that could always be stipulated. The practice of merging the first premium in the commission ought to be a thing of the past. It was really only a mythical and evanescent premium. An amusing case occurred in his experience recently. He was asked to compete with five other architects for a small building in the country, and a first premium, amounting to 3 per cent. of the cost was offered. He thought this read very well indeed, but in the next sentence he found that the first premium merged in the commission. It was quite true, as had been stated that evening, that there was a key to the problem set in some competitions which, unless one could find it, made it useless to compete. A notable recent competition was practically a puzzle, and only one of the competi-



tors guessed the solution, and he believed that that sort of thing had occurred more than once.

The vote of thanks, having been heartily agreed to,

Mr. Creswell, in reply, said that he liked Mr. Pite's remarks about the sporting element in competitions, and perhaps it was that element which induced men to compete. He met a curious instance the other day. A friend of his in a large provincial town—a young man in a good position—was approached privately by a member of a School Board which wanted a school. His friend was asked how a competition should be managed, and of course he spoke up for the Institute suggestions, and said that an assessor should be appointed, and pointed out emphatically that the profession expected that the architect selected by the assessor should be appointed to carry out the work—the premium was nothing, the appointment of the successful architect was the real thing. His friend and perhaps thirty other architects competed, and the assessor made an award which the Board did not approve of, and they selected another design—a very fine design, in Portland stone, of a two-story school. This happened to be his friend's design. The selection was entirely accidental, and his friend was charmed and delighted, as, of course, was quite right. His friend was a man of great resource, and the curious point was that in getting out the contract drawings he adopted a design which was entirely different from the competition design. The original design was a stock competition design, in Portland stone of two stories. It was a distinct competition design, the regular thing in that line; but the building that was put up was of one story in red brick with Bath stone dressings. The grotesque was not limited to small competitions. Important competitions often condemned themselves. There was the Law Courts competition, for instance, and Sir Gilbert Scott's Treasury building. The Chairman had said, with some hesitation, that Mr. Creswell did not seem to approve of competitions. That did not appear to be the question, but whether competitions were a good thing or not. Whether they were good or bad did not affect the question of whether he would personally compete or not; he did not think the moral obligation had reached that point. But if he competed in face of the condition which said: "the Council do not bind themselves to carry out the design which is accepted," he would not write to the *Builder* and complain if he did not get the work to carry out. To do that was, in the circumstances, very inconsistent.

Mr. Cross also replied. He said he was glad the Chairman was a supporter of the Competition Reform Society. He was sure that it was necessary that there should be some society to deal with the wiles of promoters, for architects had been badly treated for years past, and in a measure it was their own fault. Some such combination ought to have been promoted years ago. The Institute ought to have taken up the matter in earnest, but unfortunately, the subject had always been cold-shouldered by that body for some reason which he could not understand; and so competing architects had found it necessary to take the matter up themselves in earnest. In time the subject would also be dealt with in earnest by all architects, he believed, including the Council of the Royal Institute of British Architects.

The Chairman announced that the next meeting will be held on the 20th inst., when Mr. W. H. White will read a paper on "Ancient and Modern Town Houses."

The meeting then terminated.

**REBUILDING SCHEME, ST. BARTHOLOMEW'S HOSPITAL.**—The Building Sub-Committee of the Lord Mayor's Inquiry Committee on St. Bartholomew's Hospital met on the 6th inst., when the Lord Mayor (presiding) announced that he had now obtained the necessary consents to his scheme for utilising the site of the chapel and the house of the chaplain for hospital purposes. It was resolved to suggest to the Governors that, in view of the changed circumstances arising from the probable acquisition of the site of the church and the utilisation of the north wing of the hospital, which contains the great hall, their architects should prepare block plans for the gradual but ultimate reconstruction of the entire hospital in an up-to-date manner, due regard being paid to the value of the ground.

# ARCHITECTURE AND THE AGE.\*

THERE is one weak point in the Episcopalian use of Pointed church architecture, due to the symbolism that pervades it, influencing its plan adversely. I suppose we all have had our experience of what it is to sit behind the aisle pillars of an ordinary church, or the massive crossing pillars of a cathedral, when some eminent divine was preaching whom we would much like to see and hear. In these circumstances the reflection would be quite justifiable, symbolical plan or not [the object for which I am here transcends symbolism]. The church would have better subserved its object if the obstructions had been out of the way. In this connexion we cannot help hoping that the five gentlemen who have been honoured with the competition commission to design a cathedral for Liverpool may so far turn aside from the ancient method, face the present problem, and provide a large preaching area free of great obstructive central and other pillars. This is not beyond the wit of the architectural man to devise, if modern methods of construction are adopted and the earlier modes used only so far as consistent with the advanced condition of architectural knowledge. The arbiters will be in sympathy with it, because they say the "Liverpool Cathedral must be an original work of art, and have a character of its own, one fitted for the requirements of the present age."

A large space provided at the intersection of the various parts like that at St. Paul's Cathedral would be commendable. Such an arrangement will, of course, exclude a central tower, but not prevent the use of a dome-like structure on the lines of the Ely Cathedral plan.

A most excellent suggestion made in a lecture given to the Edinburgh Architectural Association by the distinguished Professor of Fine Art at the University of Edinburgh, that the plan of a church in Cologne, apsidal in choir and transeps, might well be considered as the model of an ecclesiastical auditorium, has a distinct bearing on this problem.

Were the church for Nonconformist usage, there would be no ritual difficulty to meet. Two London churches have happily realised the expanded area by the use of the octagon on plan, and another by employing a hexagon, and, as is well known, there are churches all over the country, particularly in Scotland, which are large and unencumbered with pillars.

But in the effort to secure expansion of area, the attainment of good acoustical qualities has also to be kept in view. One of the ablest writers of the day, once a minister, and therefore an authority on the matter, has repeatedly blamed architects for neglecting this. Good reason he had, as his own church—a modern one—was a conspicuous offender, the remedy in the case being a large "velarium" over the pulpit. With the knowledge we have of the laws of acoustics given in the admirable manual of Professor Roger Smith, and the instances therein furnished of large buildings in which speaking and hearing are all that could be desired, the mistakes so often made are unpardonable, and quite unworthy of a profession living and working in an age of exact science and successful engineering and mechanism.

When such cases occur, they are due either to neglect in studying the laws which operate in favour of a good auditorium, or the designer is so devoted to precedent that he has not the courage to make the needful advance on what has been done before.

It would not be fair, of course, to condemn buildings in which a view of low compass failed to make an impression. It is probable that hardly any one else than the late Mr. Spurgeon could have made himself heard to the utmost limit of an audience of 20,000, as he successfully accomplished in a gathering in the Crystal Palace at the time of the Indian Mutiny in 1857; but an architect should be able, at any rate, to design a building satisfactory in its acoustics which shall hold 4,000 or 5,000 people, as has been done, for instance, in the case of the Free Trade Hall in Manchester. From the questions of style and ethics we have been considering, let us turn for a little to a quality by which they are all affected, one that in the present variety of practice calls for special attention, and that is the *meaning* or *expression* which a building ought to have.

\* The second part of a paper read by Mr. G. S. Aitken, of Edinburgh, at a meeting of the Northern Architectural Association, Newcastle-on-Tyne, on the 25th ult. For the first part of the paper see our last issue, p. 248.

It is not enough that an architect should skillfully plan and apply his knowledge of style with wisdom and taste: he has to aim that some meaning be suggested by his work. This meaning is not simply the conveyance of personality into his design. Personality is an unconscious influence, a something he cannot help imparting; we see the man in the work; unhappily not always, for many a time an architect cares only to do what others have done, admiring their work so much that he has no ambition to create any of his own. Expression is a subtle something beyond personality, and has to be *consciously* applied.

An architect sits down to the pleasant task of designing a bank; how is he to treat it so that it will appear as such, and not be mistaken for some other place of business? Or his study may be a church, and as he is a man of independent mind, unconcerned for precedent of medieval or other work, how is he to prevent his design being supposed to be that of a secular building?

Both bank and church may be admirably designed, but, if they have not the tone we call meaning or expression, will fail to indicate their purpose. The method most generally adopted to gain this end is the addition of forms symbolic of the use to which the building is put, and this has been cleverly done at the Natural History Museum at South Kensington by using representations of some of its contents. In many of our civic edifices it has been managed by employing the armorial bearings of the city or of the county families, or sometimes by introducing pictures of historical events which took place in the vicinity. An exchange with the figure of a grasshopper on its summit may recall to the observer the name of the merchant prince Sir Thomas Gresham, and its walls be frescoed with representations of the processes of manufacture and modes of transit on which commerce so largely depends. But none of these methods of distinguishing a building can be strictly considered as expression.

Some years ago an article appeared in the *Builder* in response to a letter sent by the present writer, who had suggested that expression in architecture should be given more attention. The article laid down in reply two points of view from which expression may be considered: (1) Either for its own sake merely as a means of heightening individuality and character in a design, or (2) in relation to the purpose of the building and as a means of expressing something of that purpose in its outward form. Some of the ideas proposed as meeting the first point of view were consistency between the various parts in mass and detail. A steep-roofed church and spire went well together, or a flat roof and tower; a mansion might be dignified or picturesque, provided the several parts were treated with consistency, but the mixing of stone gables and half-timbered work in the same house was not conducive to expression.

The second view might be partially met by avoiding such matters as huge masses of wall, and small slits for windows in mansions and town halls; a court of law should not be marked by spires and towers; a set of commercial offices ought not to be bedizen with carving. At the close of the article the writer seemed to consider that individuality would help to secure expression, and remarks it was impossible "to make any building express its purpose with such a degree of certainty that any person ignorant of this could gather it from the external aspect of the building."

These two points of view sum up all that need be said about expression: that it is a something plus individuality, and also that it may aid in indicating the purpose of a building.

That it is something beyond individuality a little consideration will show. The personality of architects is dissimilar as the trees of the forest. One is refined, another vigorous; one architect has a tendency to breadth in his work, another to minuteness; one is grave in his treatment, another always sees architecture in a lighter aspect. Now, either of these men may have to design buildings which call for the indication of qualities other than those of their own temperament.

The man given to fine detail, if entrusted with the erection of an edifice which should be characterised by stateliness, will have to go out of his individuality to realise such a quality, and therefore we may conclude that expression is something beyond personality, calling



for the use of conscious exertion and the reasoning faculty. To many, of course, this counsel is needless, habitually in designing work they ask themselves the question, now, what character beyond my own personal faculty of expression am I called on to impart to this building? and hence the greater success of some buildings than others in attaining that end.

It may not be always possible to learn from the external appearance of a building what object it serves, yet we may ensure it some degree of meaning by keeping in view the purpose it is intended for, and what of composition and detail are likely to accentuate that. A bank should have an expression of solidity to indicate security, its entrance ought to be spacious enough for its business purpose, but not so large as the door to a hospitable interior; its decoration should be grave and sumptuous rather than ornate, the material used ought to be of the best, and the nationality of the bank be hinted at by the use of granite if its head office is in a granite district, or marble if it has foreign connexions, and so on. A happy illustration of this is to be noted in Mr. Norman Shaw's shipping offices, at Liverpool, the intermixture of marble there at once carries one on an imaginary voyage to other lands.

A geological museum would be very one-sided in its recognition of the materials which illustrate the science it is devoted to if it were built entirely of one kind of stone or of brick. Terra-cotta associated with stone, both varied in kind, would suggest to the onlooker the differing geological leaves of the earth's volume.

A church should be both cheerful and grave, leaving lightness to the concert hall, arranged internally in such a way that the congregation may follow the reading and singing, and the minister be able to see the whole of his audience.

But expression implies not only indications of the purpose of a building, but something imparted to it equivalent to the moral qualities in man. The human eye may flash indignation or beam with gentleness, the lips may signify firmness or laxity, so may a building be dignified or mean, graceful or clumsy, thoughtful or commonplace.

Happy is the architect who has all this in view, and beyond it puts into the building his own personality.

We are not this evening compiling an encyclopedia of modern architecture, but touch only on those examples of our time that will serve either for counsel or congratulation, and therefore do not discuss schools, hospitals, asylums, free libraries, and so on, although they are chiefly creations of modern times. It would be wrong, however, not to say that they each in their own way, as much as the other classes of architecture treated, show skill and scholarship.

In passing, it is interesting to reflect how much the architect has been indebted to others for the success with which he has been able to carry out his work. The specialist has discovered there is a curative power in well-designed architecture, and hence the service it performs in asylums and hospitals. It would be interesting to know who was the first to depart from the quadrangular plan of infirmary which held good up to fifty years ago.

For the modern system of school planning we shall not go wrong in giving the credit largely, if not exclusively, to architects working out the Education Act of 1870. In this, as in other branches of architecture, many minds have been at work; the oculist is concerned about the aspect of light in which the young scholar works, the educationalist is authoritative on the various grades of division for which the architect should plan; and it is possible that the present commission on physical culture may issue in some further changes in school construction.

There is one phase of social life that largely fills the view at present, to which it would be unpardonable not to refer, in which architecture is likely to play an important part, and that is the scheme of the "Garden City." It promises to help in the dissolution of the evils attending city congestion, and to place the worker in the happiest possible material condition. While the scheme is as old in this country as the erection of the village of Saltaire, the present idea is to avoid the street arrangement that largely prevailed there, and surround the houses with garden space. To this end

the architect may do much to construct houses varied in type, economical, and pleasing.

It is more than half a century since Saltaire was begun on several acres of pleasantly-situated land that had never known a dwelling-house.

A splendid mill, the pioneer of wide-spaced bays in which the older forms of heavy cast-iron beams was superseded by those of lighter construction, devised by Sir William Fairbairn in wrought iron; the mill and all the other buildings in the village being designed by Messrs. Lockwood & Mawson. There were rows of two-story cottages, a Congregational and Wesleyan church, mechanic's institute, high and technical schools, and public baths and hospital, a park covering 14 acres; many of the cottages had gardens, and there were besides 200 allotment gardens let to the cottagers.

For this humanitarian attempt to improve the sordid condition of workers who, under other auspices would have had to live in large towns; Sir Titus Salt deserved all the honour conferred upon him.

At the end of the half century a further step has been taken which seeks to place the workman in still more rural conditions, and provide him as much as possible with some of the amenities which the dwellers in country mansions possess—ample gardens and plenty of verdure. Here the principles of sociology have justified themselves, the scheme is an advantage all round; the employers have contented workmen who enjoy the prospect of continued good health, longevity, and the certainty of a happy mental life. "Bournville," which stands for this description, is the work of members of the "Society of Friends," a sect which has always been foremost in efforts to improve the condition of their fellows.

William Allen, I may remind you, the founder of Allen & Hanbury's, and a member of the Friends Society, was constant in his efforts during the end of the eighteenth, and beginning of the nineteenth century, to carry out similar beneficent views. He was on friendly terms with several of the reigning European monarchs of the time, whom he regularly visited, seeking to interest them in the abolition of slavery. It is true he did nothing like the work at Bournville; his business did not call for it, and he would have been in advance of his time had he done so.

Port Sunlight is the other conspicuous instance of the present day, and the very name has a benediction in it. We seem to see the village with its varied picturesque buildings and church in perpetual sunshine. Here different architects have been engaged with the most pleasing results.

These are not garden cities in the sense in which the new scheme called the "Garden City Pioneer Co." aims at; but as Mr. Cadbury says with regard to his system at Bournville, "it would be the greatest boon to the toilers of this country if it could be carried out to any large extent."

The idea, chiefly philanthropic, is full of promise for the future welfare of the people, pleasant natural surroundings, well drained streets and houses, comfortable homes, and at a distance from the smoke, dust, and turmoil, of the city or large town. These are conditions in which the architect will be expected to do his part, and find more than academic interest.

In a general survey of our subject, it will only be right if we recur in a few sentences to the question of styles with which we began, assuming that we need no longer concern ourselves with any discussion on their respective merits.

It is not likely the old war cry will ever be heard again, the change that has come over the views of the older practitioners in favour of eclecticism may assure us in that, and perhaps if Mr. Street had lived, his superabundant vitality in the practice of pure pointed architecture would have tended in his mellowing years towards some favourable recognition of the value of the Renaissance. Had this happened, he would have been like another of the successful living architects of the day who began his career as an ardent Gothist.

I remember a lecture he delivered, in the course of which he compared a Gothic front with a Classic portico that stood about a stone's throw from the place where the lecture was given. Its columns he considered useless, and the shade they threw on the wall behind an offence.

He has been so consistent in his opposition as

never to have employed anything of this nature in his works, but has not been able to confine himself exclusively to Pointed architecture as in his early enthusiasm he proposed to.

Classicism, treated with Gothic feeling, has forced itself upon him, which shows that how-ever resolute, an architect cannot work apart from the forces of artistic evolution. The two styles are founded on eternal principles impossible to ignore.

The position seems to stand thus at the present day, in all buildings except churches the Classic style is either used in its Palladian form, or that of a version inspired by Gothic feeling; in other words, we are working in a time of compromise. If a new phase of style is to appear, it will be by unconscious, not deliberate effort, and it is a great mistake some practitioners have made in ignoring principles of construction altogether, in their endeavours to devise something new, inverting or exaggerating architectural forms and indulging in a general topsy-turveydom. Such work cannot last, unacceptable at present, it will be increasingly disliked as time goes on, and run the risk of oblation some day.

If there is to be a new version of architecture it may come by the fusion of the great principles formerly referred to, and the union of the two forms of Classic and Gothic detail. The latter was foreshadowed in the Elizabethan and Jacobean days and the times of French and Scottish Renaissance where details of the two styles are so far successfully intermixed.

This phase has been extensively revived in civic and domestic architecture in recent years, but intermixed detail is one thing, and the avoidance of violated principle is another.

The Classic pediment exactly suits its columniated substructure, and a Gothic gable its tracered fenestration, but it has yet to be proved that a steep gable and a flat pitched one can dwell in esthetic harmony together.

It is sincerely to be hoped the new version will arise, for, notwithstanding Ruskin's strong bias in matters architectural, the undertone of his writings was always sound, and when he says ("Modern Painters") "that none was ever truly great but that which represented the living forms and daily deeds of the people among whom it arose; that all precious work records not the past but the present," the import of the passage may be applied to architecture as well as painting. The only truly great architecture is that which is the creation of its own and not of another age.

The present day architect has much to help him in the direction of fresh conceptions, new materials are being constantly presented to him, new compounds of old ones, devices for the increase of comfort and conservation of health, new problems in plan arrangement for buildings devoted to the care of mental and physical disease, to religious or mental culture, to buildings for legitimate amusement, or for arduous study.

The architect as well as philanthropist is concerned in city slum problems at the one extreme, and in the many forms of art applied to the town hall, mansion, and cottage at the other, the judicious study and working out of which materially contribute to the mental health of a people by giving them satisfaction and comfort.

What an effect a well-planned house has on the life and temper of the inmates, and how great the responsibility of the architect in this matter. He may by negligence or incapacity affect the happiness and well-being of generations of people and their influence on others.

The church architect has also much in his power, a congregation is not so largely the subject of spiritual influence as to be untouched by the architecture of the building in which it assembles. The church may be plain, if so, good and well, no harm is done; it may be sensuous, and the balance is towards what may unduly affect the emotions at the expense of the intellect. Or it may be bad architecture, and the man of taste suffers irritation, and is adversely influenced as an auditor.

But what of the preacher? he, too, as a being subject to like influences, may be mentally depressed or raised. If the building is not properly arranged as an auditorium, and with an absence of the objectionable, the value of his work must be affected.

How needful, therefore, for the architect to be a man of culture, that he may have a mind open to all claims upon him and the best way to meet them. A man of taste, that he may do the right thing, whether in the use of form or the application of colour. A man of some



degree of personality, that he may, avoiding the slavish copying of past work, give the world the best of his own.

An alert man, ready to use the new inventions, taking care to do this with a well-balanced mind. An enthusiast, in favour of all that is good in the old, and yet looking forward to what may come, as well as backward to what has happened.

A man in sympathy with the great students and thinkers who are able to influence his labour more than many seem to consider. One, thankful to all the great art writers who have worked in the right spirit, although he may not agree with all their conclusions.

Seeing poetry in his art, that gives it proportion, grace, and lovely colour, as well as the prose that ensures stability of construction and consideration for the material needs of man.

In sympathy with Nature if he would have his work full of perennial freshness, and seeking to become master in the knowledge of those principles by which through the Creator the world lives, moves, and has its being, so that they may have an influence on and find a place in the work he brings into existence.

#### ARCHITECTURAL SOCIETIES.

**NOTTINGHAM ARCHITECTURAL SOCIETY.**—The President, Mr. Arthur Marshall, A.R.I.B.A., took the chair at the annual dinner on the 4th inst. of this Society at the Victoria Station Hotel, the vice-chair being occupied by the Vice-President, Mr. A. W. Brewitt. The company included Mr. T. Butler Wilson (President of the Leeds and Yorkshire Architectural Society), Messrs. A. Brown (City Engineer), F. B. Lewis (City Architect), H. Vickers (President of the Nottingham Master Builders' Association), H. G. Watkins (Hon. Secretary), and others. The toast of "The King," proposed by the President, having been duly honoured, Dr. Boobyer, Medical Officer of Health, gave the toast of the evening, "The President of the Nottingham Architectural Society." In the course of his remarks, he said that a great deal had been said about education, and he felt convinced that it was to education they must look for the maintenance of our position as a nation as well as for the regeneration of the unfortunate people who inhabit our poorer districts. Education and the housing problem were inseparable. He was struck with the absolute necessity of education in the training of the reasoning faculties and instruction in certain rudimentary essentials before anything better could be hoped for at the present time. The architectural profession, the municipality, and all who had the interests of the people at heart must try to bring about their amelioration, to which we were all looking forward in the future. The President, in returning thanks, referred to the importance of the Society to architectural students and the advantages it offered to them. Some of the most successful architects of the day had been students connected with the Society. Proceeding, he welcomed the presence of the President of the Leeds and Yorkshire Architectural Society. He referred, in conclusion, to their Honorary Secretary, Mr. Watkins, of whose services he spoke in appreciative terms. The toast of "The Visitors" was proposed by Mr. E. R. Sutton, who mentioned in the course of his speech that the Nottingham Society was the oldest Society allied with the parent Institute. Some of the founders of the Society were still among its members. Mr. Butler Wilson, President of the Leeds and Yorkshire Architectural Society, replied. He might, he said, speak about secret commissions and registration, but there was a skeleton in everyone's cupboard, from the Cabinet Minister to the crossing-sweeper. He claimed for the Royal Institute of British Architects that it had done more for the architectural profession than had any other society or institution, and he was convinced that with the assistance of allied societies such as the Nottingham one it was the one hope of architects as a body. The most reasonable form of registration was the securing that every architect, however recognised, should be a member of that great body. Proceeding to speak of architecture in relation to history he said they went hand in hand, and referring again to the Society, he emphasised the importance of unity and the establishment of a complete body of men pledged to secure a high standard of architecture. If they supported

the R.I.B.A. loyally and truly they would get registration in the highest form. The toast of "The Master Builders' Association" was proposed by the Vice-President and responded to by Mr. H. Vickers. The health of the Hon. Secretary (Mr. H. G. Watkins) was also proposed by the Vice-President, and Mr. Watkins replied.

**THE ARCHITECTURAL ASSOCIATION OF IRELAND.**—On Saturday, last week, the Architectural Association of Ireland paid a visit to Miss Purser's new stained glass works, 24, Upper Pembroke-street, Dublin. The manager, Mr. Child, showed them (as far as possible in the time) all the various processes, painting, acid, staining, firing, leading, etc., which go towards the execution of a church window. A large window for Loughrea Cathedral, made in Ireland from a design by Mr. Whall, was on view as well as specimens of plain glazing for domestic purposes. The party also inspected the stock of beautiful glass of all colours and thicknesses and the various specimens of leads.

**ROYAL INSTITUTE OF ARCHITECTS OF IRELAND.**—A meeting of the Council of the Royal Institute of the Architects of Ireland was held at No. 20, Lincoln-place, on the 2nd inst., Mr. G. C. Ashlin (President) in the chair. A resolution was passed on the subject of the desirability of holding a conversation before the close of the present session, and the matter was referred to a sub-committee. A report was read from the Hon. Secretary on the subject of examinations in connexion with admission to the Institute, and a committee was appointed to confer with the Committee of the Architectural Association of Ireland on the subject. A letter was read from the Master Builders' Association in reply to a communication from the Hon. Secretary on the subject of the master builders' rules with reference to tendering. The Council having fully considered the matter, directed the Hon. Secretary to inform the Hon. Secretary of the Master Builders' Association that they adhere to their resolution of February 2, to the effect that these rules have interfered with the proper discharge of the duties of the members to their clients. The Council is, therefore, obliged to withdraw the recommendation which was addressed to the members of the Institute in 1896 advising them to endeavour to comply with these rules.

**EDINBURGH ARCHITECTURAL ASSOCIATION.**—No. 3 of the third volume of the "Transactions" of this Association is a more valuable issue than we generally find in the publications of Architectural Societies other than the Institute. It contains a careful and well-reasoned paper by Mr. Thomas Arnold on the restoration of the Mausoleum at Halicarnassus; one on Inverkeithing and the mansion and church there, by Mr. Henry Kerr; and a very well illustrated paper by Mr. J. Campbell Irons on "The Architectural Antiquities of Leith." It is a pity, however, that the publication in "parts" is not arranged so as to take in three whole papers, instead of leaving the last-mentioned paper by Mr. Irons with its conclusion abruptly cut off.

**MANCHESTER SOCIETY OF ARCHITECTS.**—About 450 members and guests assembled at the City Art Gallery on Friday, February 27, and were received by the President and Council. Selections of music were played during the evening by the Manchester military string-band, and there was an interesting and representative exhibition of work by the members. Among the guests who accepted were Mr. Alfred Hopkinson, Principal of Owens College; Mr. David Morgan, President of the Cardiff, South Wales, and Monmouthshire Society of Architects; Mr. A. H. Crawford, President of Edinburgh Architectural Association; Mr. Silvanus Trevail; Mr. John Belcher, Vice-President of the Royal Institute of British Architects; Mr. John Slater, Vice-President of the Royal Institute of British Architects; Mr. J. Flew, President of the Bradford Society of Architects and Surveyors; Mr. Arthur Clynne, President of the Aberdeen Society of Architects.

**ROYAL INSTITUTE OF ARCHITECTS OF IRELAND.**—On the 8th inst. in the hall of the Royal Society of Antiquaries, Stephen's Green, Dublin, Mr. Percy Fitzgerald, M.A., F.S.A., delivered a lecture on "Robert Adam and his Architecture and Art." The chair was occupied by Mr. George Ashlin, President. Mr. Percy Fitzgerald said that the subject of his lecture was one of the most wonderfully endowed men of his generation, a man who was

filled with the fullest artistic instinct—one of whom it might well be said that everything he touched he adorned, and one who by instinct reached things which it took others years to effect. Adam was an artist. Discussing Adam's accomplishments, the lecturer pointed out that he was first an architect who designed and built public buildings, noblemen's palaces and country houses, squares, streets, private houses, theatres. Next he was a decorator, one of the most beautiful and ornamental. He decorated his own houses. His decoration being structural and in relief—not painted—it was inseparable from his buildings, and could not be altered. His arrangements of interiors were all novel and striking—witness his wonderful ceilings, which are to-day what they were about 130 years ago. Next he was a sculptor—they knew the wonderful Adam chimney-pieces and his modelled figures for decoration. Fourthly, his iron work—balconies, railings, fireplaces—all was marked by a wonderful freedom of treatment. Fifthly, he was a great designer of furniture. Everyone knew the wonderful Adam furniture that rivalled that of the French masters under the last Louises. He devised girandoles, vases, cornices, curtains, carpets, paper-hangings. Adam was also a goldsmith, who created beautiful things in gold and silver and other metals, like the work of the old Italian goldsmiths. Further, he was a contractor on a vast scale, the work on his own buildings being carried out in a very business-like style. Also he was a painter, and did landscape and other subjects. He was actually inventor of a style of his own—a unique thing—a style that could be recognised, and had held its ground for 130 years. Not only did he form a style but he also imposed it on his generation. Adam began his labours about the middle of the eighteenth century, when the old classical style was in vogue, and his first thought was to find a new style. The lecturer then explained how Adam found beautiful buildings in the cities by the Adriatic, and by modifying their style produced that which characterises his work. Discussing Adam's style, the lecturer said he might be designated a pictorial architect. His designs affect the eye much as a picture does. Examples of his various public buildings and of his interior decoration, ornament, furniture, and metal design were then given on the screen, the lecturer remarking that in Dublin he had seen in several houses fine examples of the Adam style of decoration. A vote of thanks to the lecturer, moved by Mr. R. Carroll and seconded by Mr. Albert Murray, brought the meeting to a close.

#### ARCHÆOLOGICAL SOCIETIES.

**BRITISH ARCHÆOLOGICAL ASSOCIATION.**—A meeting was held on the 4th inst., at 32, Sacville-street, Piccadilly, Mr. C. H. Comp-ton, V.P., presiding, when Dr. Phénix, V.P. of the Association, read a treatise on the "Civilisation of Crete, Cyrene, Corinth, and Early Rome," in which he gave the results of a half century's research in those places. The practical observations following on literary researches originated in the notice of some steps cut in the Esquiline Hill at Rome as far back as 1856, and these several localities had been examined repeatedly during the interval, as on each occasion new results came under the author's observation. The reasons for prosecuting the inquiry in those particular places were the extreme antiquity of the Mediterranean, their freedom from political molestation, which had prevented physical destruction of the evidences of their early local work, and the peculiarity of their abundant and never-failing supplies of water, all which had attracted wealthy populations and unlimited outlay. The formation of Cyrene was most peculiar, and probably originated the other works described. It exhibited a series of uniform rounded rocky projections from the tableland northwards in symmetrical and close proximity, which gradually swelled out into successive spreading terraces, upon which roads, following the semicircular projections, had been cut in the rocky sides of each hill, which roads were reached by stairs, also cut in the rock, from the level of each road to those above them. The whole was pierced by innumerable tombs with architectural façades, sumptuous baths, and highly-cultivated lands. The evidences of high-class civilisation were shown by the still remaining engineering, not



only in the cutting of the rock levels, but in the constructions for retaining from loss the water-burdened soil in the succeeding slopes. At Corinth many of these evidences had been carried out on an enormous scale, the levelling of such soil having been extended over many square miles. The city was built upon the upper level, the surplus earth forming its gardens and fields. The art civilisation of Crete was shown by the recent excavations by Dr. Evans, while the sites of temples, carefully orientated, on the heights of Cyrene, with accounts from Pausanias and Strabo as to the art decorations of Corinth, references to Herodotus and others as to the quarternary harvests of Cyrene, in each year, proved the great results from their scientific culture. Following the rock-cut terraced roads of the latter place, Cleone, in the vicinity of Corinth, also a place of very ancient occupation, was a unique Grecian city of rock-cut terraced dwellings of ancient Hellenic masonry, occupied by the custodians of the worship of Helios and the conductors of the Nemean games, and opposite to it, on the Parnassian mountain, is the rock-cut terraced city of Delphi, occupied by the priests of Apollo, the worship in both having displaced that of the dragon and the python; and in each of these localities, viz., Sikyo, and Parnassus, seats of learning and artistic scientific culture attended the change. The references to ancient Rome were historic, but in Etrurian environs two heights were specially referred to as rock-cut places of worship—the Ara Mutiae and Mount Saraste. Finally, drawings were described exhibiting localities in Britain possessing all the examples of terraced cuttings, of successive concentric roads, with uniform and symmetrically selected levels, like those of Cyrene, mostly in the vicinity of the Icknield Way, which, from its Greek name (Icknos), a way or road, was used by the Iceni, or Iceni, long before the time of Caesar, who distinctly states that the private as well as public documents in Britain were written in Greek, and refers also to the great commercial occupation of the South-Eastern region. Along the Icknield Way were pointed out great heights, evidently places of worship, while Greek and Italian names along its course, workshops, the objects in gold and enamel which have been repeatedly found, all indicate high-class civilisation in Ancient Britain. The paper was listened to by a large and much interested audience, but owing to the lateness of the hour there was no subsequent discussion.

**ROYAL ARCHEOLOGICAL INSTITUTE.**—At the general meeting, March 4, Sir Henry H. Howarth in the chair, Viscount Dillon read some "Armour Notes," in which, after touching on the development of various kinds of armour, he quoted from contemporary authorities notices respecting the exterior appearance, the garments worn immediately under, and the value of armour as a protection. Instances of what the wearers were able to do, and the drawbacks connected with the use of armour, were also cited. Some of the causes of the disuse of it, owing to inferior manufacture, change of military ideas, and increased power of gunpowder, were also referred to, and the paper concluded with notices of juvenile suits and the treatment of the question as to whether the men of to-day were really unable to find armour large enough to wear. The President, Mr. Waller, Judge Baylis, Mr. Rice, and Mr. Green took part in the discussion that followed.

#### COMPETITIONS.

**DISTRICT COUNCIL OFFICES, PONTYPRIDD.**—There were fifty-five designs sent in for the new offices to be erected by the Council, and the assessor, Mr. James S. Gibson, has placed the following in their order of merit:—1st, Mr. Henry T. Hare, London; 2nd, Mr. S. D. Adshead, London; 3rd, Mr. A. Colbourne Little, London. The work has been entrusted to Mr. Hare, and premiums of 60*l.* and 40*l.* awarded for the other two designs.

**EXTENSION OF ST. MARY'S CHURCH, BALHAM.**—The work of the extension of the nave of St. Mary's Church, Balham High-road, is now being carried out. The work involves the bringing forward of the front of that edifice to something like 50 ft. nearer the roadway, the removal of the present transept gallery, and the provision of accommodation for about 180 more worshippers. The work, which is being carried out by Mr. Walter Wallis, from plans prepared by Mr. W. Newton Dunn, is computed to cost about 5,000*l.*

### Illustrations.

#### MEMORIAL WINDOW, CHAPEL ROYAL, SAVOY.

**THIS** illustration represents the memorial window to the late Mr. D'Oyly Carte, which was fixed some little time since in the Chapel Royal, Savoy.

The wish of the subscribers being for a "musical" window, the designer selected for the upper lights the "singers in heaven," St. Cecilia, David, and Miriam, surrounded by angels singing and playing musical instruments, with a scroll running across the three lights with the text "Young men and maidens, old men and children, praise the name of the Lord, for His name only is excellent." The lower lights illustrate the words: "The singers go before, the minstrels follow after, in the midst are the damsels playing with the timbrels," this quotation being written on a scroll across the upper portion of the lights, while below the figures is a quotation from Milton's ode, "At a Solemn Music":—"O may we soon again renew that song, And keep in tune with heaven, till God ere long To His Celestial concert us unite, To live with Him and sing in endless morn of light."

The window has been designed and executed by Mr. E. J. Prest, of the firm of Prest & Co., London.

As the chapel interior is dark, the colour scheme of the window consists for the greater part of broad masses of toned white in the draperies of the principal figures, with rich colour concentrated in the purple robe of David, and in the kneeling angels in the side lights. The window is painted in the traditional manner, glass having been used that will bear firing without loss or change of colour, and without recourse to "plating."

#### CHURCH OF ST. MICHAEL AND ALL ANGELS, COLEHILL.

**THIS** small but picturesque church was built near Wimborne, from the designs of Mr. W. D. Caroe. The construction, as will be seen, is of a simple and picturesque character. The base of the nave is of brick with timber construction above, the nave arcade being also of timber, as in the case of some of our smaller ancient country churches.

#### CHILDREN'S INFIRMARY, LIVERPOOL.

We give elevation and plans of the proposed new Children's Infirmary for Liverpool, designed by Messrs. Haigh & Thompson, of that city, whose plans were selected in a recent competition.

The building is designed on the pavilion plan. There are two pavilion wings, one running north and south, on the Mulberry-street boundary of the site, and the other with a corresponding aspect, parallel to the Liverpool Gymnasium, but 27 ft. away. Between these wings is placed the administrative block, facing Myrtle-street, but set well back, with the principal entrance in the centre. The nurses' home is arranged on the St. Mary's Recreation Ground boundary, but is connected with the main central block by a bridge. The pathological department is situated in the north-west angle of the site, and the boiler-house and detached isolation block between it and the nurses' home.

There are five main wards in the pavilion blocks for twenty cots each, one on the ground floor and two on the first floor for medical cases, and two on the second floor for surgical cases. In the centre of these two latter, in the administrative block, and facing the north, is placed the operating-room, with anaesthetic and sterilising rooms adjoining. The ground floor of one pavilion is planned to accommodate three resident medical officers, with sitting-rooms, dining-rooms, &c., together with the secretary's office. The boardroom and lady superintendent's quarters are situated near the principal entrance. On the first and second floors, over the principal entrance-hall, are the playrooms for children, with large outside sun balconies facing the south. The various floors of this centre block contain the clinical, ophthalmic, linen, and clothes rooms, ward kitchens, food stores, &c. The porters have their sitting and bedroom accommodation in the basement, on which floor are also placed the reception-room, dispensary, stores, linen,

airing, sorting, and folding rooms, and linen and blanket rooms in connexion with sewing-room. The kitchens, larders, dairy, &c., are on the third floor, and the maids' sleeping accommodation over each ward pavilion.

The various floors are served by two staircases, one being the main or principal, in the centre of which is a large lift which travels from the basement to the top story. This lift is for the conveyance of patients, staff, cooked food, goods, ambulance, &c. The cooked food, in hot-jacketed trolleys, will be conveyed in this manner to the different wards, dining-rooms, &c. The nurses' home provides accommodation for forty-two nurses, with separate sitting and bed rooms for the sisters. An infirmary is also provided for sick nurses, and the isolation block is planned for four cots, and is in itself a complete small hospital.

Generally, the buildings are planned in detached blocks, so as to ensure a perfect circulation of air all round each, and in no case will a single soil drain pass under the buildings, all being readily accessible for inspection. All sanitary conveniences are completely cut off by disconnecting lobbies. Electric light will be used throughout. Warming will be by open fires, supplemented by steam or hot-water pipes and radiators. The ventilation is to be on the "natural" principle, all windows opening and arranged so that they can be cleaned from the inside. To the buildings throughout adequate fire-escape stairs are provided. Fire-proof construction will be provided throughout the main buildings, and hydrants placed in convenient positions.

#### LEVERINGTON CHURCH—MEASURED DRAWINGS.

**THESE** measured drawings of the south porch of Leverington Church, Cambridgeshire, form a portion of the drawings for which the Pugin Studentship was awarded this year, by the Council of the Institute, to Mr. J. Harold Gibbons, of Manchester.

The porch was restored about fifteen years ago by the late J. L. Pearson; previous to that it had been almost entirely covered with plaster; when this was removed, the groining (filling in) was found to be brick, which was replaced by stone, and the tracery to the window over the entrance was removed.

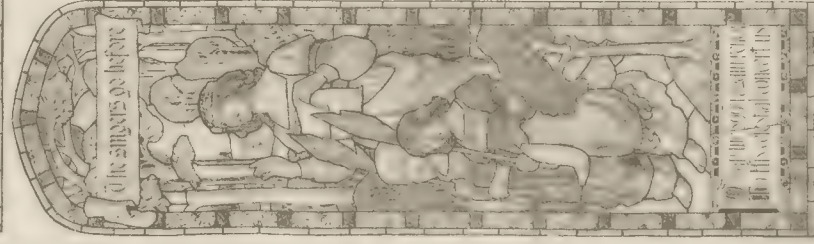
The stone principals supporting the flag roof are interesting, and the traceried stone ridge is very good, and does not appear to have been at all restored.

The sketch of tower and spire is taken from the south side. The angle turrets at the base of the spire are of later date and appear to have been added after the completion of the spire, probably to counteract the thrust of the spire.

#### ENGINEERING SOCIETIES.

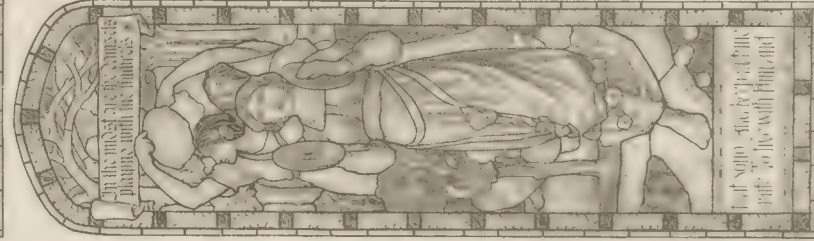
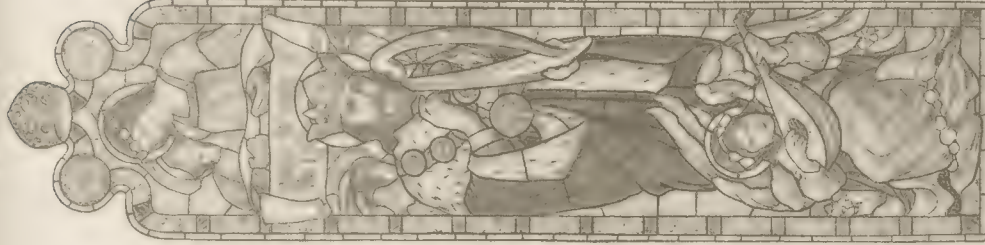
**SOCIETY OF ENGINEERS.**—At a meeting of this Society, held at the Royal United Service Institution, Whitehall, on the 2nd inst., Mr. J. Patten Barber, President, in the chair, a topical discussion on "Road Traffic in and near Large Cities" was opened by Mr. W. Worby Beaumont, Past-President, and of which the following is a résumé:—The author first pointed out that the congestion of traffic in the main streets of London and other great cities in Great Britain had intensified to a disconcerting degree in the past few years, and none of the efforts for alleviation had had any marked effect. It would be remembered that he dwelt upon the roads and traffic questions in his address as President in 1898, and referred to changes that were then becoming inevitable in street construction and traffic methods. The time had now arrived when it was imperative that the traffic requirements must be faced by the governing authorities. A great increase in the size and number of main streets or arteries must be provided for, and every opportunity must be taken before the difficulties in the way became even greater than they were now. The difficulties relating to road traffic in and near large cities manifested themselves chiefly by the congestion or not-room enough conditions observable every day. The cause of that was, in most places, the gradual conversion of a business and residential centre into a vast congeries of offices and warehouses, the workers in which no longer resided in the houses in that centre, but at various distances miles away from it. The people going to and from their offices, and the merchandise going to and from the warehouses, might be reckoned





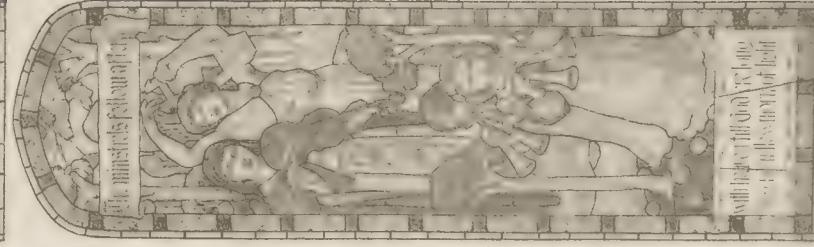
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OF THE GREAT SINGERS  
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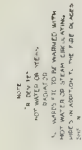
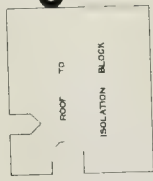






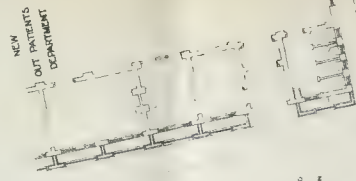
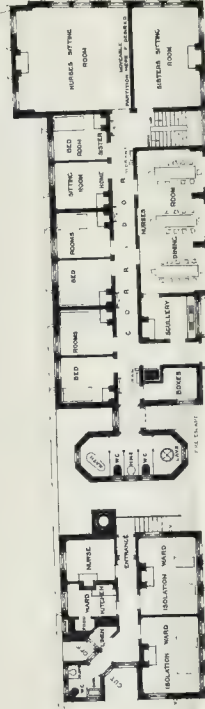


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## PLAN OF FIRST BOOK.

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R. JENNETS  
HOT WATER OR STEAM  
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ALL WARDS ETC TO BE WARMED  
WITH HOT WATER OR STEAM  
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TO THE FINE PLACE A MECHANIC



# PLAN OF GROUND FLOOR

SCALE OF FEET

MACH & THOMPSON  
ARCHITECTS  
REXCHANCE STREET E

LIVERPOOL INFIRMARY FOR CHILDREN SELECTED DESIGN

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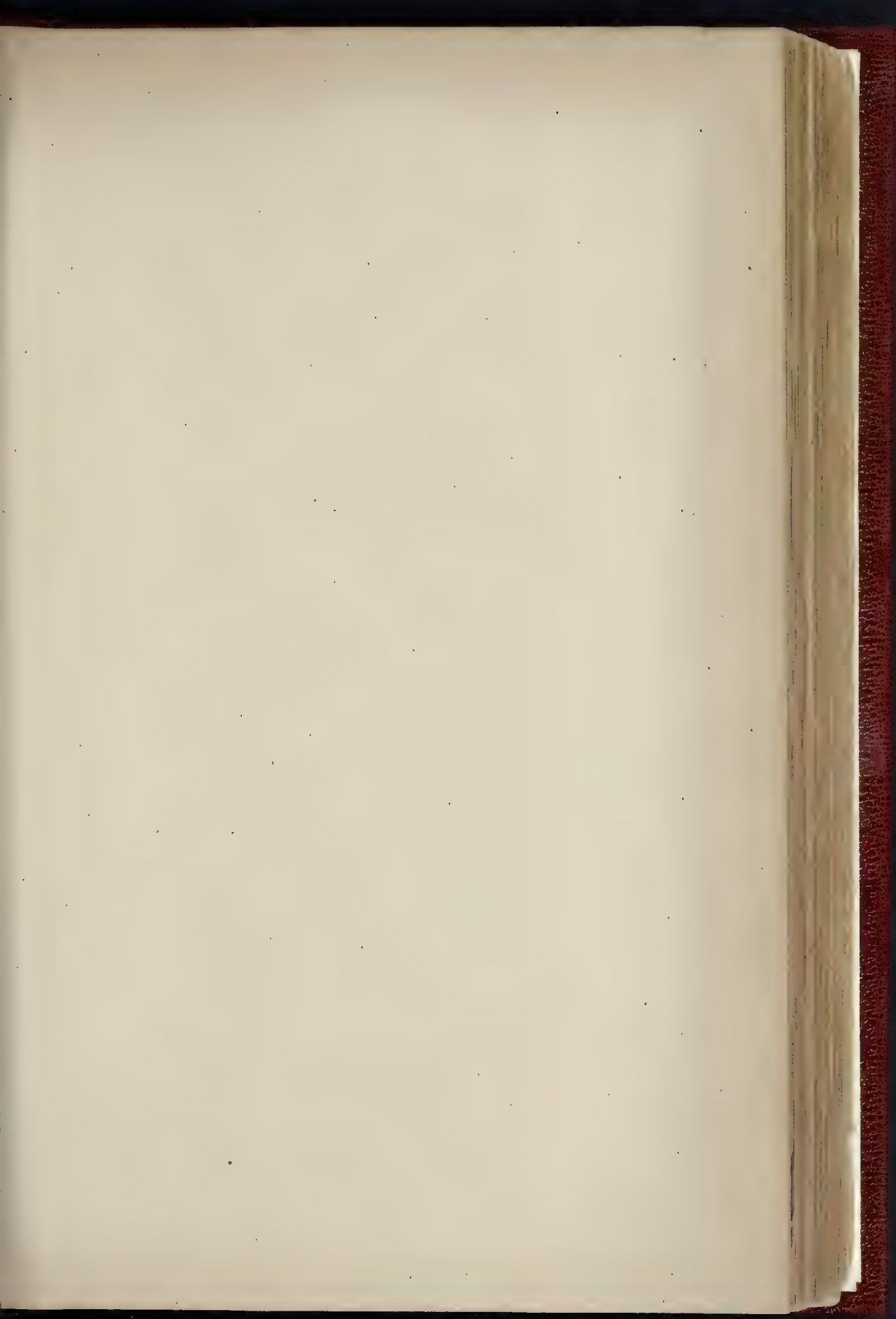






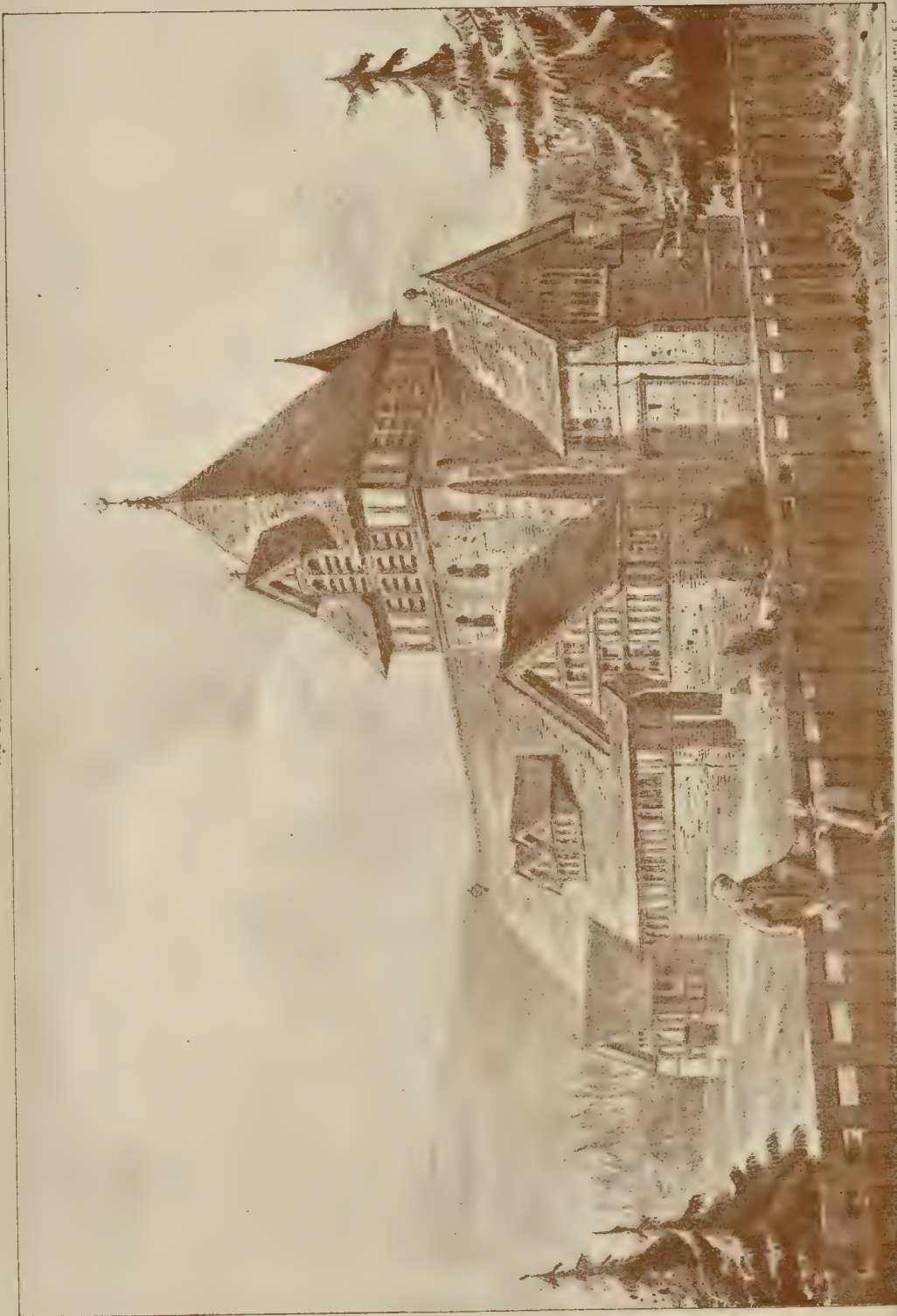




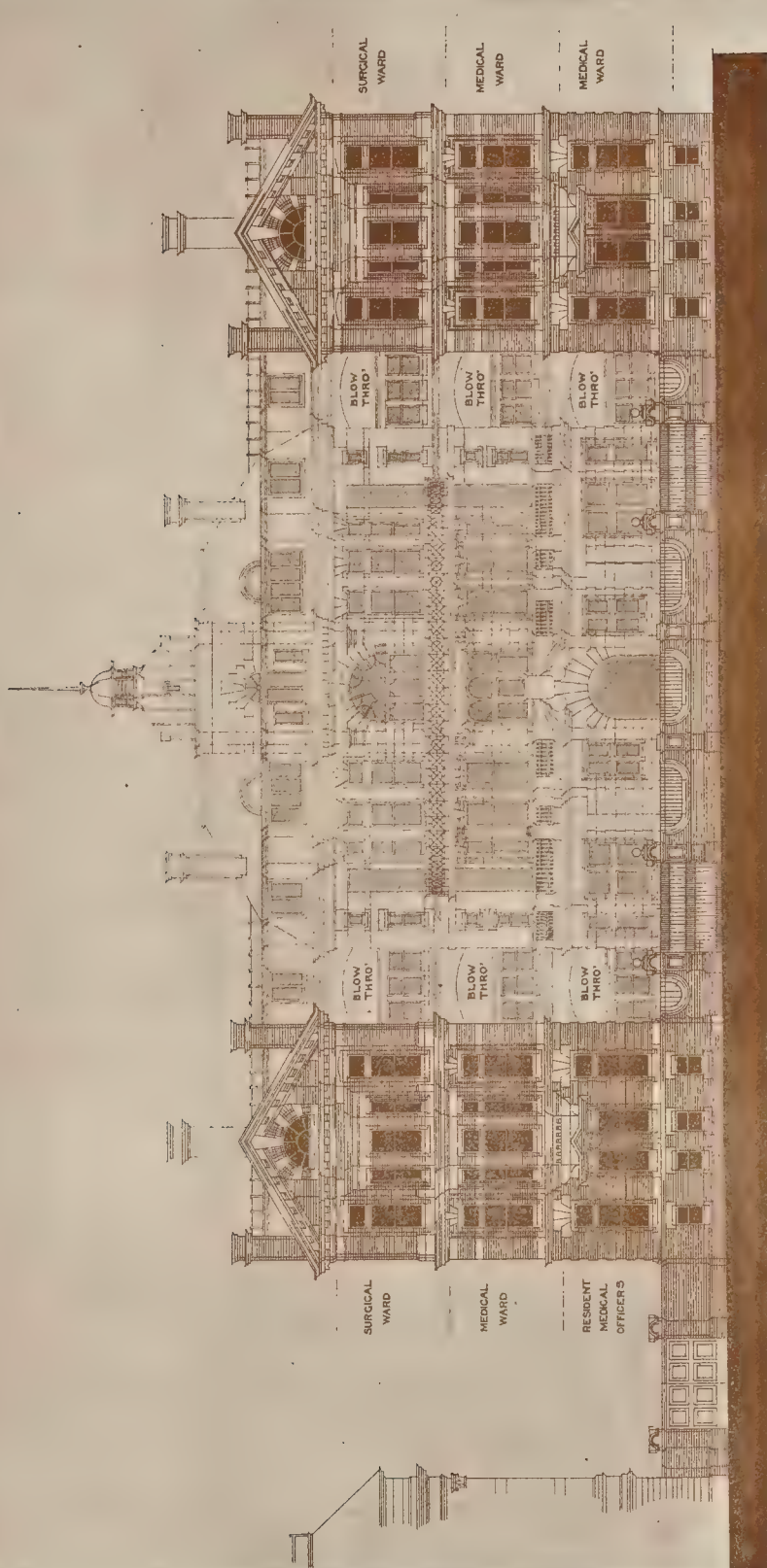




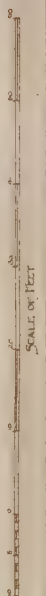
THE BUILDER, MARCH 14, 1903







# ELEVATION TO MYRTLE STREET



HAIGH & THOMPSON  
ARCHITECTS  
2 EXCHANGE STREET E  
LIVERPOOL

IN PHOTOGRAPHICALLY ENGRAVED BY J. S. EAST HARDY, STREET FETTER LANE, E.C.

LIVERPOOL INFIRMARY FOR CHILDREN: SELECTED DESIGN.







in thousands, as compared with the numbers which would obtain with the requirements of the residential population for which the streets were originally made. Not only had those houses increased in business requirements demanding traffic facilities, but increase in the number of houses, offices, &c., had taken place along the old lines of route which had in effect been lengthened and lengthened while their width remained unaltered. Moreover, tangled masses of lanes and alleys, where once were houses and cottages with gardens round them, had grown into business hives all having outlets on the few arteries, and adding to the demand for space in the already congested thoroughfares. The cities had, in other words, developed by accretion along main thoroughfares, and by internal growth, and at the same time had it appeared to be absolutely incumbent upon the Local or State Authorities to decide upon the laying out of new main thoroughfares on broad principles. The cities had grown gradually like vast extensible bottles, the necks of which had remained unaffected in size or number, until now they were utterly inadequate for the requirements of the vast populations. They were, in fact, like a great water-supply system, the branches of which had enormously outgrown the capacity of the mains. The difficulties were becoming greater because the rate of growth of wheeled traffic was greater than the rate of growth of the population, partly in consequence of cheapened road surface conveyance and partly because of the distances growing more and more beyond the walking distances for the masses. In some of the suburban districts and in country roads tramways had added materially to the convenience of suburban and outlying populations, but tramcars in city streets were the cause of frequent blockings of the traffic, their hard and fast line of route made them incapable of accommodating themselves to the other and more numerous vehicles. That difficulty was greatly increased in many districts where the great growth of branch and suburban populations had increased the local traffic on the main roads and the number of vehicles which must be accommodated outside the business establishments along them. The great question was, how is the conducting capacity of the existing principal thoroughfares to be increased, and how are new main thoroughfares to be obtained on anything like a satisfactory principle or design? There could be no doubt that much of the difficulty in London would be removed by the coming general use of motor vehicles for all purposes, firstly, because of the smaller space they occupied as compared with horse vehicles; secondly, because of their manoeuvring capabilities; and, thirdly, because of the greater speed they would make possible. That might be said to be an alleviation which would come of itself, but that was only partly true. The regulation of street traffic must be something more than mere crossing work. The power of control of heavy, slow traffic must be given to the police authorities, so that street and road capacity should not be thrown away as it was now, by careless and bad drivers, who wasted several feet of the width of the middle of the road, which could not be used by other vehicles. Drivers of heavy vehicles and of omnibuses habitually wasted the road space now, and it should be within the power of the police to stop that by penalty for disobedience to regulations. The maintenance of the road or street surfaces should be much better than it was now, and more continuous. Vehicles of every kind should be fitted with effective brakes. The great necessity, however, was for more and wider main thoroughfares. It meant, in fact, the Haussmannising of a great part of London, and it meant that London must recognise the hard fact that immense sums of money should have to be spent to remedy the evil of neglect, and it must wake to its duties of day to secure the planning of a well-considered system of wide and well-made thoroughfares into and out of the growing London before building operations made as costly, and in some respects as impossible, as it was now nearer the centre. Improvements in the modes of locomotion could do much, but at the present rate of growth of wheeled traffic it would not do more than provide for that increase even with great improvement and extension of the chief thoroughfares. Well organised motor omnibus services would save much in space and time, but that would not be until omnibus companies

could use motors on a larger scale, so that no vehicle should run more than a certain maximum per day, and so that the mechanical requirements of a thorough system of daily examination, adjustment, repair, and making ready were perfectly carried out under a properly organised staff. In conclusion, Mr. Beaumont observed that improvements in the streets and roads must be taken in hand seriously and at once, for London was a vast hive, into and out of which not only all the bees flocked in morning and left at night, but into and out of which all the carriers of their honey did the same through a very few small doorways.—A long and interesting discussion followed Mr. Beaumont's opening remarks, during which a consensuous opinion was expressed as to the necessity of improving the existing condition of things, although a variety of conflicting views were advanced as to how improvement should be effected.

**THE JUNIOR INSTITUTION OF ENGINEERS.**—At the meeting of this Institution, held at the Westminster Palace Hotel on March 6, the Chairman, Mr. Kenneth Gray, presiding, the paper read was "Practical Notes on the Use and Maintenance of Electric Motors for Factory Work," by Mr. W. T. George. A description of alternate (polyphase) and continuous current motors was first given, and by means of diagrams various features in their construction and operation were illustrated. Continuous current motors, having regard to their more general use, were dealt with at length, and the plan adopted by large manufacturing companies for generating and distributing their own power, when extending or putting down new plants, was discussed. The effects of starting large motors on lighting circuits, and the necessity of proportioning the fuses accurately in order to protect the various circuits, were then considered. Shunt series and compound motors were treated, and reference was made to the respective class of work suited to each kind of motor. The various parts of a motor likely to require special attention were enumerated, and the author, in pointing out the necessity for regular and systematic testing for leakage, demonstrated with the ohmmeter and generator, and showed the lamp test. The advantages of electric driving over other methods were indicated, and the utility of keeping a record of all breakdowns, &c., as they occurred, was dwelt upon. Observations on the general management of motors concluded the paper, which was followed by a discussion.

#### THE LONDON MASTER BUILDERS' ASSOCIATION.

The thirty-first annual general meeting of this Association was held at the offices, Nos. 31 and 32, Bedford-street, Strand, W.C., on the 26th ult., the President, Mr. G. J. Lough, in the chair.

The minutes having been read and confirmed, the Report of the Council for the year 1902 was read and adopted. The Report stated that there had been an appreciable decline in the bulk of trade done during the past twelve months, but the falling off was not, in the opinion of the Council, of such magnitude as to warrant the agitation that was now being made on behalf of the real or so-called "unemployed." The new subscription rule (No. 16, which was adopted tentatively for one year on June 6, 1901) was made permanent at a special general meeting held on December 18, 1902. The operation of this rule had produced very favourable results, and the Council hoped that it would be able eventually, by the continued support of the trade, to place the Association funds in a condition worthy of employers in the building industry of the Metropolis. No strikes had been reported as having occurred on the works of any members of the Association during the past year. Disputes of a minor character had taken place, but in almost every instance the differences had been settled by the Conciliation Boards.

After referring to the L.C.C. Building Acts (Amendment) Bill, now withdrawn, the Report proceeded as follows:—

"Your Council regrets that Parliament has not intervened to restrict the building operations of municipal bodies. The members of this Association are assured that when the Government affords the opportunity the proper representations will be made on this important matter. Your Council has good reason to anticipate that in the near future a form of contract will be agreed upon by the Royal Institute of British Architects and the Institute of

Builders, and has taken joint action with the latter body to abolish the objectionable practice on the part of some public bodies and individual architects who require priced bills of quantities with tenders. Your Council has noted the results of the Taft Vale Railway and other disputes of a similar character, and the efforts that are being made by trade-unions to alter the law, with a view to protect their funds from penalties resulting from the actions of their officials. The Builders' Benevolent Institution offices have been removed to the premises of the Association. The late Secretary, Major Bruton, was compelled, through ill-health, to resign his appointment, and your Secretary, Mr. T. Costigan, was appointed his successor with the full consent of your Council. At the request of the Plumbers' Company two representatives of this Association (Mr. H. H. Bartlett and Mr. Jos. Randall) were appointed to co-operate with that Company in the formulation of a form of indenture for plumbers' apprentices. An agreement was come to and a copy of the approved form was sent to each member of this Association. During the past year fifty-six meetings have been held, and were all well attended. Your Council trusts that the work will commend itself to the Association. The audited accounts will be presented to the general meeting and, in accordance with Rule 10, it will be necessary to elect a President, two Vice-Presidents, a treasurer, an honorary auditor, and eight members on the Executive Council. Your Council reports, with the deepest regret, the loss by death of Mr. A. Walter Spencer (Junior Vice-President) and Colonel A. Stewart Harrison, V.D. Both these gentlemen were highly esteemed and respected by their colleagues on the Executive Council and by the members of the Association."

The audited accounts and the balance-sheet having been adopted, the following officers were elected, *i.e.*, as President, Mr. Ernest J. Brown; Senior Vice-President, Mr. James Carmichael; Junior Vice-President, Mr. Frederick Higgs; and treasurer, Mr. John Greenwood.

The proceedings then terminated.

#### THE DECORATION OF ST. PAUL'S CATHEDRAL.

On Monday evening a meeting of the Incorporated Institute of British Decorators was held in Painters' Hall, Little Trinity-lane, E.C., Mr. J. D. Crace, President, in the chair, when Sir William Richmond, K.C.B., R.A. delivered a lecture on "The Decoration of St. Paul's Cathedral."

The Chairman, in introducing the lecturer, said that Sir William had for some years past been engaged upon that wonderful work, the decoration of St. Paul's Cathedral. Whenever he, the Chairman, entered a building which had any claim to be considered architecture, he always thought of what decorative treatment it would admit of, and, of all the buildings he had ever been in, St. Paul's Cathedral appeared to present more difficult decorative problems than any other, and these problems had been faced with great success by Sir William Richmond.

Sir William Richmond said he did not propose to address them as a lecturer, but more as one who was taking part in a *causé* on the subject. He did not stand there to teach them what they knew, but as a fellow student, who had tackled, no doubt, a very difficult task and had done it to the best of his ability. They all knew how many differences of opinion there must be in matters of taste, and time alone would settle the position which any work of art was to achieve. If what he had done in St. Paul's was proved 100 years hence to have been a mistake, he hoped it would be hacked out. Up to the period of what he was inclined to call sham classic, all over Europe the churches were decorated with colour. It was the introduction of the Palladian style—a noble style, no doubt—that drove colour away. In Italy, many of the fine mediaeval churches are cased in the Palladian style, and underneath the architecture upon the walls there were precious paintings of more sympathetic times. He was therefore in a sense, "taken on the hip" when he frankly proposed to colour a Palladian building and to use that colour lavishly, though, he hoped, with discretion. He was told by a great many people that it was an impossible nut to crack, but he replied: "It will crack it."

At the time of the Prince of Wales's recovery from his serious illness 100,000l. was collected for the decoration of St. Paul's Cathedral, and about 30,000l. was wasted by the authorities in experiments, all manner of experiments being tried. The putting up of scaffolding underneath the great dome in order



to place cartoons there cost between 800l. and 1,000l., and that being so, he did not want to make any more experiments. The work began in this way: Mr. Bodley, who was entrusted with thinking out some scheme of decoration, asked him (the lecturer) for his views, which he gave him. Now those views were absolutely decided long before he was asked even to consider the decoration of St. Paul's, and they were decided rather curiously. When he was a little boy, thirteen years of age, his mother took him to hear a service in St. Paul's. He looked up to the mighty roof, and coming out he said to his mother, "Some day I will cover that with mosaic." Years after that, when he was nineteen years of age, he made his first visit to Italy, and he said to himself then—it was forty years ago—"I will now begin to prepare myself for the great task which may some day come to me." He visited then, and he had visited since, all the churches covered with mosaics in Italy, many in Asia Minor and all in Greece, so that in a sense he was prepared—anyhow to think about the decoration of St. Paul's. He made up his mind to stick to two things in carrying out the decoration of St. Paul's. One was that the work should be carried out by Englishmen, and not by Italians, and that if he could not find Englishmen who could do the work he would not send to Italy for them, but that he would teach and train them himself. The second thing he decided was that he would never have anything to do with that odious modern invention, paper mosaic; that he would set the tesserae in cement and not stick them on with a bit of glue on to a piece of paper and then pile them on to the wall—a most childish and vicious operation. Work which was applied could be done anywhere; it could be done in Italy and carted over here, and the man who did it never, perhaps, saw the building in which it was to be placed, and did not know what the environment was—perhaps never saw the work executed at all. An axiom he would go to the stake for was that decorative work, if possible, should be done *in situ*, and with the experience he had had in covering nearly 15,000 sq. ft.—including windows—of wall, he knew that that axiom was sound, for it was impossible to tell, except on the spot, how colours or even forms would tell. Light was such a subtle thing—so deceptive, so often misleading, that a red or a blue or a yellow, or even a white, might entirely change its relative value. The Committee entrusted the work to him and he made it a condition that he was not to submit his designs to the British public. The British public had not made up its mind in the least degree as to what it liked, and it was for artists and decorators to help them make up their mind. Neither had the critics of the Press unanimously made up their mind, for one set would be found praising one class of work and another set would be demonstrating its folly. He did not intend to alter any of his designs, except from the point of view of either ecclesiology or archaeology, and he said to the Committee: "You must trust me as the artist; I am supposed to know my business." He determined to begin in the east-end, on the north-east sanctuary wall. For the mosaic he went to Messrs. Powell, of Whitefriars. He asked them if they could make him some glass mosaic as good as the old Greek glass, and he was told that they could, and he was bound to say that they had manufactured glass mosaic as good as the old Byzantine glass. Then as to laying the mosaics, he had first to teach the workmen how to work. He got together a number of boys and young men who could not draw, and he built a studio in his garden, and there he taught the students how to lay the tesserae from his cartoons. The labour was great: they started at eight o'clock in the morning and worked till eight o'clock at night. He knew it was no use to make the first experiments upon the walls; therefore he had large slabs of slate cut, well scored with diamond shapes; and upon these he laid the cement. He found the receipt for the cement by accident in the library at Bologna. The cement, which was used in the decoration of the baptistry at Florence, was composed of wax, lime, and resin. It was very good for its purpose, for it kept sufficiently moist for five to eight hours, and could during that time be worked as wax, and then it became as hard as stone and did not shrink. From his drawings tracings were made, and the outline was then pricked into the cement.

A mosaic worker was then given a series of colours, say four, with a rough colour drawing by his side, and was told how to place the cubes. As the boys became more intelligent (and he found that by kindness intelligence grew) they worked better, and after four months they produced two large angels which are now to be seen in St. Paul's on the north-east wall of the Sanctuary. A start was made in the choir vault, and he determined from that time to work direct upon the wall, for he had trained the men sufficiently. With a staff of nine he started on the enterprise, having two assistants who traced for him. He made for the design of the vault of the choir over 3,000 drawings, and his *modus operandi* was as follows:—He put down as swiftly as he could an idea on paper while it was fresh in his mind, and then he put tracing paper over that, and corrected it until it began to look right. The same with the colour scheme: first a blot of colour, then tints carefully chosen and corrected; and perhaps for one design he made twenty colour sketches. The design was scored in in charcoal by one of his assistants, and then he (the lecturer) determined the colour. He took a tessera which represented the colour he had in his mind, and he mixed his tints to that, and put them on as swiftly as he could. In putting them upon the walls the workmen became so dexterous after a couple of years that with a very slight hint of colour they were able to carry out his scheme with admirable skill. As a fact, he had never seen such fine mosaic work—he was referring to the labour only—in any country in the world as his workmen did in the four quarter domes of St. Paul's. We had no business to say that Englishmen were not artistic. What were called the lower classes were full of taste, and they only wanted good guiding and kindness to do as noble work as was ever done by the Italians.

The beauty of mosaic as an art was that it gave pictures in bricks; but directly the artist attempted to imitate an oil or water colour and painted in a material which was not at all ductile he committed a great mistake, and that was the mistake which had almost invariably been committed in England by people who designed in mosaic. He very much disliked the huge prophets in the big spandrels under the dome of St. Paul's; they were very fine designs, but not designs which ought to have been executed in mosaic; they ought to have been painted upon the walls in oil or water colour. Mosaic, when used in that way, gave an inferior representation of a superior medium. That kind of bad taste was catching, and it was caught in Italy, at St. Peter's, at that bad time of art when the huge mosaics were done at the east end and over the side chapels. At that time people were treating the wall as they treated a picture. The same remarks applied to St. Mark's, Venice. Severely was the mother of mosaic, simplicity, its father, and without those two conditions, and unless they accepted those two conditions, they had better never touch mosaic work. He made a greater many mistakes at St. Paul's, but never the mistake of being too simple; he made many by being too complicated. If he were to imagine the most delightful mosaic which could be made, it would be something like this: a simple, graceful, majestic outline of a Greek vase filled with the most simple colours, absolutely irrespective of light and shade, and only dominated by tint and tone. There could be no good reason why the mosaic drawing should not be as splendid as the drawing on the Greek vase, for what they could do in mosaic was essential and what they could not do was accidental. The Greek, with his magnificent conceptions, his limitless intuition, and his ingenuity, showed simplified nature; he gave it all to them, and yet there appeared to be nothing. That was the principle upon which all great decorators should go. In decoration it was no use to copy nature; they must have learnt nature and have nature at their fingers' ends, and they must learn that lesson which came to them late in life, *i.e.*, what to leave out.

Michelangelo said that one never learnt from one's successes, but one always learnt from one's mistakes. At the initial part of the work he made two mistakes; he used too much white and too little black. White expanded at a distance, and it had a tendency to spread. Colours needed to be separated by a black line, or they merged. One of the essentials of good mosaic decoration was the use of few colours.

He began with thirty, then reduced them to fifteen, and finally to five. He found out how to use these five colours and make them tell, and also to get a greater variety by using five colours dexterously than by using thirty clumsily. Pliny told us that the later Romans had a mixed palette, and they painted bad pictures, and that the ancient Greeks had only four colours, and with these they painted pictures valued at the price of a great city. In order to get white in the quarter domes underneath the big dome of St. Paul's he had to use the very brightest yellow he could procure. If he had used white it would have looked quite blue. He would like any of them who were interested in what had been done at St. Paul's to go on a fine day into the left aisle and look at a window which was in the quarter gallery at the east end, and then at the windows in the dome, and let him know which was the whitest. The windows in the dome were made of what is called cathedral glass—an abominable colour, a sort of green stuff which is called white. He determined to make white by colour, and he produced a design for white light in sheet lead. He used red, blue, and yellow only—no green—that was an abominable colour to use: if they wanted darkness, they could use green. White, blue, and red in proper proportions produced white at a proper distance. His windows made in that way with sheet lead were whiter than the green things put up in the dome.

Speaking of stained glass, he said that it seemed to him that the art of stained glass was going out of the country because the designers were determined to make pictures. The most beautiful windows that were ever made were those which were outlined with lead only, and with no pigment added to them. Those were the early windows, such as were to be seen in the upper church at Assisi, which were perfect jewels. At South Kensington the other day two students painted two little specimens of windows as light and coloured as they could. One student took a piece of white glass, and painted and modelled it very elaborately. The other leaded his window well up in bright colour, and when the two were placed side by side at the end of the room the leaded window gave the bright light. Light permeated transparent colours, but it could not get through pigments.

The work at St. Paul's had, for a time at any rate, been suspended. He was finishing one aisle, or one bay of the aisle, and it would be opened before long, and it would give an example of the manner in which he would like some day to treat the two aisles. There were angels on a gold ground—he had used red and gold rather freely. If they looked at his scheme and compared it with the bare walls of the vaulting of the aisle they would see that his mosaic and the decorative parts looked as though it were on a paper wall because the scheme had not been carried across. In the completed part they would see that it not only formed the vaulting of the aisle, but that the colour formed the buttress. It was curious to see how that since the aisle had been decorated with colour and brought up to the same point of interest as the face of the wall how infinitely stronger structurally the church looks, and that was a matter they must always keep before them as decorators. Colour could either strengthen the appearance of structure or weaken it.

It was unfortunate that architects were not a little more broad-minded, and that they insisted so much upon their noble art standing alone. It never did. That was the most ridiculous position for architects to take up; in the first buildings ever put up colour was introduced. The Parthenon was coloured from top to toe, and if some of the sham Classic architects were to see that building as it was, they would say it was not to their liking. Every Norman church in England was painted, and there were over 2,000 churches in England now, notwithstanding the Puritans and iconoclasts, that retain vestiges of mediæval paintings; and England was renowned on the Continent as having a greater number of painted churches than France and Italy. Until the architect, the sculptor, and the painter worked together in unison we should not get the finest art, or art as it used to be in this country. It had been his endeavour at South Kensington that the students should not limit themselves to one art—they learnt to execute work in concert.

A vote of thanks to Sir William Richmond, proposed by Sir H. Knight, and seconded by Lieut.-Colonel Prendergast, brought the proceedings to a close.



THE ARCHITECTURAL ASSOCIATION  
SPRING VISITS:TIL—CHURCH, FARM-STREET, AND DUKE OF  
MARLBOROUGH'S HOUSE.

ON Saturday, the 7th inst., the Association visited the Church of the Immaculate Conception, Farm-street, and the Duke of Marlborough's house in Curzon-street. Members met at the church, where the architects, Messrs. Romaine-Walker and Besant, met them. The nave of the church, the sanctuary of which is towards the north, was originally designed and carried out by J. J. Scoles fifty years ago, an eastern aisle being added later by Henry Clutton, while the altar was designed by A. W. Pugin. Messrs. Romaine-Walker and Besant are now decorating the nave with marble, and are adding a western aisle which is in many ways a most interesting piece of work.

The great difficulty to be overcome was the fact that the west boundary of the new aisle is a high party-wall, and therefore to obtain light continuously along its length, without sacrificing space for a light area, was a hard problem to solve; but the use of the confessional supplied the key, and by a most ingenious arrangement, a series of side chapels has been planned, with canted sides, enclosing a small semi-octagonal chamber between each chapel. These chambers are roofed in about 8 ft. from the ground and lighted by a skylight and will be occupied, often for hours at a time, by the confessor, and are a great improvement on the cramped boxes usually to be seen. In the canted sides of the chapels above these chambers, and looking into the light areas thus formed, are large windows, which will give ample light to both aisle and nave. Opposite the square ends of the chamber, and sufficiently distant to leave room for the penitents' boxes, the shafts carrying the vaulted roof are arranged in pairs, and so spaced that an ambulatory is formed between them and the confessionals, adding much to the air of mystery and secrecy, so important an element in the Roman Church. The vaulting, unlike that on the south side, has rising and falling ridges; the ribs are of Monks Park stone, and the infilling is of chalk, with narrow bands of York stone, the three colours blending well together. The north end of the new aisle terminates in a chapel dedicated to St. Ignatius, and here a light area, 14 in. in width, is arranged between the party wall and the church, the party wall being faced with white glazed bricks, and the area being covered in with a prismatic pavement light at the roof level, by which means the area will remain dry and clean, and probably the light from the windows will be amply sufficient.

Mention must be made of the chapel of Calvary to the left of the entrance from Farm-street, with its vaulted roof without filling, through which the subdued light will softly fall from the skylight above. The church is still very unfinished and choked with scaffolding, which facts, coupled with a somewhat hasty visit and a very large number of members, makes a more detailed and appreciative description impossible.

From the mystical atmosphere of the Roman church, Mr. Romaine-Walker led the party to the great mansion he has designed for the Duke and Duchess of Marlborough in Curzon-street, on the site of the old Curzon Chapel.

The essence of the scheme seems to be display, display, and ever display; for the house is clearly not a "home" or even a "London house," in the accepted sense of the word, but a sumptuous shell, which will be gilded with all manner of costly lining. The great motif in the plan is therefore a Society function: the arrival, entertainment, and rapid departure of guests are the problems which the architects have mainly had before them. With these objects in view, the style selected for the outward Architectural expression of them is that of the period of the world's history known as Louis Seize.

The site is an isolated rectangular one, about 100 ft. by 60 ft., bounded by streets on all four sides. The main entrance is from Curzon-street, and so contrived at the East Chapel-street corner that upon important occasions guests can depart into both streets at once. After passing through a vestibule with the Duke's room on the right, the hall and grand staircase is reached in the centre of the house looking into East Chapel-street, and with subsidiary staircases on either side. Opening centrally off the hall is a circular reception-room recessed from the West Chapel-street front in

order to allow of the unobtrusive planning of the unfortunately necessary water-closet.

At the south end of the building, and entered either from the staircase hall, or through a vestibule from the reception-room, is the dining-room. This room will be decorated in imitation of the Wren period, with panelling and carving and family portraits, and will be the only room in the house which is not given over to French art.

The first floor is entirely devoted to reception purposes. A great gallery 100 ft. long by 25 ft. wide by 30 ft. high, which will have a coved and painted ceiling, occupies the whole of the west side, the great stairs, subsidiary stairs, and drawing-rooms taking up the remainder of the floor. The second floor contains the private rooms of the Duke and Duchess, and the upper part of the gallery; the third floor contains nurseries, and two two-roomed suites for guests; while the attics are given over to maid servants. Kitchen and offices are in the basement, and sub-basements provide storage space and cellarage.

The lighting of the basement has been difficult, and until the house is more complete it is not possible to say with what success sufficient light and air have been given to the workers of the establishment. At present little more than the bare shell is completed, and until the scaffolding and gantry are quite cleared away it is hard to judge of the Portland stone elevations.

The hall and grand staircase will be decorated with stucco, which is now being carried out by French workmen.

Messrs. Cornish & Gayner, of North Walsham, are the builders of both the buildings visited.

Members of the Association will look forward keenly to another visit so kindly promised by Mr. Romaine-Walker, who, with his partner, was indefatigable in doing everything to make the visit the success it undoubtedly was, and at the end a hearty vote of thanks was accorded to them for their kindness and trouble.

## SANITARY INSPECTORS' ASSOCIATION:

SANITATION, ETC., AT PORT ELIZABETH.

THE monthly meeting of this Association was held at Carpenters' Hall, London-wall, on the 7th inst. Mr. Isaac Young, Chairman of the Council, presided.

A paper on "The Liverpool of South Africa," prepared by Mr. S. Henry Kemp, Chief Sanitary Inspector of Port Elizabeth, was read by Mr. C. C. Tidman. It contained not only a review of the sanitary methods at Port Elizabeth, but many comments as to the defects of the system in vogue compared with the more up-to-date practices in Great Britain. The town was not, in the first place, well supplied with water. The present average supply did not exceed 400,000 gallons, which worked out at less than 9 gallons per head after the shipping, factories, and other calls had been supplied. The waterworks, owned by the ratepayers, are situated about thirty miles from the town, in the beautiful district of Van Staadens. The water originally flowed between two hills, and at a point where it changed its course southwards a concrete well was constructed; the water passed direct into the main, and was thus conveyed into the town without filtration. However, some ten years back a new dam was constructed at a higher point, and when the reservoir is full, over thirty million gallons of water are impounded. In the centre of the dam is the valve tower, in which are two valves, at 14 ft. and 28 ft. below the sill; the water can thus be taken from either depth as required. The space between the lower valve is reserved for deposit of sediment, &c., which is periodically drawn off through a 16-in. sluice valve. Four filter beds have been provided, and it is possible to filter one million gallons daily. The water is conveyed into town by means of a 12-in. cast-iron pipe by gravitation, and is stored in the service reservoirs two miles on the east side of the town. The high-water mark at the storage reservoirs is about 980 ft. above the level of the sea. Some few years back the Council erected a pumping station three miles below the Van Staadens reservoir, and by pumping the water that accumulates from the various small tributaries to a tank and filter bed some 300 ft. above the level of the river, the water there enters the main. The supply, although splendid in quality, is totally insufficient, and several schemes have been

before the public for some time past, but it is only since the termination of the war that they have taken any definite form, and he was pleased to record that at a recent meeting of ratepayers a scheme for trapping the supply of the Sand, Palmiet, and Bulk rivers, and thus supplementing the present daily average supply by an additional two million gallons, at a cost of 360,000l., was unanimously agreed to. It is now estimated that in the severest drought the supply will not fall below one and a quarter million gallons per day. As to sewage, the pail system had been in vogue for thirty years, but the collection is left to the discretion of each householder. This, however, is about to be altered for a system of drainage, constructed at a cost of 200,000l. Much was, Mr. Kemp held, required in the way of removing overcrowding, and as to sanitary law, a general amendment was necessary. On the latter subject Mr. Kemp remarked: The first Public Health Act saw daylight in 1833; but the title seems to have been ill-chosen. It would have been better titled as the Infectious Diseases Notification Act. However, in 1897 a further Bill was introduced to amend and supplement the 1833 Act. This Act gives very extensive powers in the way of framing regulations dealing with many vital points; but the Government has not done all it could by way of approaching the various authorities to frame their necessary regulations. A small Bill dealing with dairies and cowsheds passed through Parliament in 1891. In 1897 the Port Elizabeth Municipal Act appeared, but owing to cutting up by the law agents prior to finding its way before the House, many of its good points were omitted, and, as it at present stands, it is of little use to our department, with the exception of one of its last clauses, which gives the Town Council the power to frame regulations dealing with certain nuisances not mentioned in the Public Health Amendment Act, 1897. A Sale of Food, Drugs, and Seeds Act was passed in 1890. The administration of the Act is placed in the hands of a special public officer who has charge of the whole Colony, and the Sanitary Authority finds no place in the working of an Act which is morally a part of its duty. The Act is all that can be desired, with the one exception mentioned, viz., the administration of it should be in the hands of the Local Authority, at any rate as far as Cape Town, Port Elizabeth, East London, Kimberley, and Grahamstown are concerned. Many of the regulations dealing with nuisances under the Public Health Acts are absolutely void of common sense. The correct reading of some would puzzle a court composed of a dozen K.C.s, and every one of them would differ in opinion. Others would make good reading for *Punch*. Several still on the Statute Book are *ultra vires*, while others are made unworkable by the resolutions of the Town Council from time to time. My honest advice is to consign the whole lot to the waste-paper basket and start afresh. Regulations dealing with even the fundamental principles of building construction are conspicuous by their absence. On other matters they seem to have scored pretty freely. Inspectors in the Colony have a distinct advantage in being in the position to take cases before the magistrate without even consulting the Council or any of the committees. In many instances there is no doubt but what our object would be frustrated if it were not for this provision. Another good provision is that our intimation notice is our statutory notice also, and the one service is all that is necessary.

On the motion of Mr. J. J. Smith, seconded by Mr. Alexander, a vote of thanks was accorded to Mr. Kemp for his paper.

## BOOKS RECEIVED.

CONTINUOUS CURRENT DYNAMOS AND MOTORS, By W. R. Kelsey, B.Sc. (The Technical Publishing Co.)

SPECIFICATION FOR A LANCASHIRE BOILER AND BOILER SEATING. By "Inspector," M.I.M.E. (The Technical Publishing Co.)

THE GEORGIAN PERIOD: MEASURED DRAWINGS OF COLONIAL (U.S.A.) WORK. Part XII. (B. T. Batsford.)

THE AMERICAN VIGNOLA. Part I.: The Five Orders. By W. R. Ware, Professor of Architecture in Columbia University. (B. T. Batsford.)

POOR LAW SCHOOL, KENTISH TOWN.—The foundation stone of this building was laid in Leighton-road recently. It is to be built from the plans of Mr. Albert E. Pridmore, and is estimated to cost 16,000l.



### THE ARCHITECTS' BENEVOLENT SOCIETY.

THE annual general meeting of the subscribers and donors of the Architects' Benevolent Society was held in the rooms of the Royal Institute of British Architects, No. 9, Conduit-street, on Monday, Mr. Aston Webb, A.R.A., President, in the chair.

The annual report was read by Mr. Percivall Curry, hon. secretary, and it was, on the motion of the Chairman, adopted, as was the statement of accounts. We take the following from the Report:—

"The Council of the Architects' Benevolent Society have held seven meetings during the year, the average attendance of members being nine. Fifty-two applications for assistance have been investigated, and the sum of 593l. 10s. has been distributed in relief. In addition to this, the sum of 205l. has been paid to the Society's pensioners. The investments which the Council were enabled to make last year in consequence of Mr. Cates' bequest and the generous response to Mr. Macvicar Anderson's appeal, are now bearing fruit. Had it not been for this addition to the dividends, the Council, it is feared, would have had to report a serious diminution of the income occasioned by the falling off in the amount received in subscriptions. At the close of the financial year, thirty subscriptions were in arrear, notwithstanding repeated and urgent applications for payment. It is hoped, therefore, that the claims of the Society will become more generally recognised, and that the progress which has been made within recent years, both financially and in practical usefulness, may not be checked through the lack of adequate support. Architecture is not one of the most lucrative professions, and those who practise it are not always in a position to make provision for later life or for those depending on them, or to anticipate the needs occasioned by disease or accident. The Society meets the necessities of such cases as these; and the Council, on behalf of their poorer brethren, look to those in prosperous circumstances for sympathy and help."

The resolutions moved by Mr. J. T. Christopher, and adopted at your last meeting, were subsequently confirmed by a general meeting convened for the purpose on March 24. The immediate result of these changes in the by-laws was to enable the Council to extend its investments to Colonial stock by the purchase of 363l. 2s. 3d. New Zealand Three per Cent. Inscribed stock (which is now a trust investment), at a cost of 350l.; and further, to increase the number of the Society's pensioners from six to ten.

The sum of 154l. 4s. has been received in donations during the year and placed to the credit of capital account. Your Council have the pleasure to report that the subscription of the Royal Institute of British Architects has been increased to 21l.; and that twelve new names have been added to the list of subscribers.

At the request of the Council, Mr. W. Hilton Nash kindly prepared a design to take the place of that hitherto used on the cover of the Red Book. The design was accepted, and Mr. Nash cordially thanked for his services in the matter.

The following gentlemen, being the five senior members, retire by rotation from the Council:—Mr. Zeph. King, Mr. G. Isakipp, Mr. J. T. Wimperis, Mr. Arthur Green, and Mr. E. Monson. To fill the vacancies caused by these retirements the Council desire to nominate Mr. E. A. Gruning, Mr. Edwin T. Hall, Mr. Lewis Solomon, Mr. William Woodward, and Mr. H. H. Collins.

The balance-sheet and income account for the year ended December 31, 1902, audited by Mr. Edmund Buckle and Mr. George Hubbard, are herewith submitted.

The Council have to thank the Royal Institute of British Architects for their increased subscription, and for office accommodation and the use of rooms in which to hold their meetings. Thanks are also due to the Secretary (Mr. Locke) and the other officials for their cordial interest and help in any matter connected with the Society."

The Chairman said that architecture was one of the least lucrative professions, and there were always those who needed help from a society like this. The Society was one entirely for architects, and it carried on its work without any personal publicity, so as not to hurt the feelings of any one. It was as well to make that known, as there were many deserving men, no doubt, who hesitated to come upon the Society for fear that publicity would be given to their application. Outside the Council no one knew who received help. It was a matter for congratulation that the Society had been able to increase the number of pensioners to ten, but the Society would like to increase the number still further, as there was nothing so helpful to a man as a small pension which he could rely upon. At present the number of architects who helped the Society is small, and it was not altogether creditable to

the profession that so few subscribed in comparison with the number who might.

Mr. Henry Lovegrove proposed a vote of thanks to the outgoing members of Council. In the course of his remarks he repeated the suggestion that in order to make the Society better known, a yearly dinner might be held. The Society ought to be better supported than it is.

The motion was seconded by Mr. Scamell and agreed to.

On the motion of Mr. J. Macvicar Anderson, seconded by Mr. Lovegrove, the Council was elected as follows, *i.e.*, Messrs. Sydney Smirke, H. L. Florence, G. C. Awdry, J. T. Christopher, F. T. Baggallay, J. J. Burnet, J. H. Christian, R. St. A. Roumieu, G. Scamell, E. A. Gruning, E. T. Hall, Lewis Solomon, W. Woodward, and H. H. Collins.

On the motion of Mr. H. L. Florence, seconded by Mr. G. C. Awdry, a vote of thanks was accorded to the Hon. Treasurer, Mr. W. Hilton Nash, who briefly replied.

Mr. Watson then proposed a vote of thanks to the Hon. Secretary, Mr. Percivall Curry.

Mr. Awdry, in seconding, suggested that it might be possible to let architects who are not subscribers know, without giving names, a little of some of the sad facts which came before the Council from time to time.

The motion having been agreed to, and Mr. Curry having replied,

A vote of thanks was, on the motion of Mr. Nash, seconded by Mr. King, accorded to the auditors, Messrs. E. Buckle and G. Hubbard; and Messrs. Buckle and Hunt were elected as auditors for the ensuing year.

A vote of thanks was, on the motion of Mr. Inskip, accorded to the Royal Institute of British Architects for the use of the Rooms and for office accommodation; and a vote of thanks to the Chairman brought the proceedings to a close.

### THE SURVEYORS' INSTITUTION:

#### VALUATION FOR RATING IN IRELAND.

AN ordinary general meeting of this Institution was held on Monday, at No. 12, Great George-street, Westminster, S.W., Mr. Arthur Vernon, President, in the chair.

The minutes of last meeting were read and confirmed, and Mr. Penfold, hon. secretary, announced some donations to the library, a vote of thanks being passed to the donors.

Sir John G. Barton, C.B., then read a paper entitled, "Valuation for Rating in Ireland." The author dealt at length with the early history of Irish valuation, the annual revision of the valuation, and the revaluation of county boroughs. He said that speaking generally the system of valuation in force in Ireland has many advantages. In the first place, in the carrying out of the work by a central department who have no interest in making the individual valuation dealt with high or low, and are in no way influenced either by the rating authorities on the one hand, or the ratepayers on the other. In the second place, in having the work carried out through a staff of professional valuers and surveyors who enter the service after passing through a surveyor's, architect's, or engineer's office, and who are all trained in the department on similar lines, and act under the same code of regulations. In the third place, in insuring through a central authority controlling and regulating all the work done by the valuers, that all the valuations made throughout the country each year shall be relative in the several rating areas, and that valuations which run into several rating areas, such as railways, tramways, &c., shall be valued as a whole, and a division made proportionate to their rateable value in each. To some extent this uniformity of valuation has been secured in London through the assessment conferences. In the fourth place, in having available for the use of the public and the courts a record in the valuation department of the history of the changes in area and valuation, of practically every holding in the country and an account from an agricultural point of view of its soil and subsoil, and how it was tiled when the original valuation was made.

The blot on the system, in the author's opinion, is that proper provision was not made for perennial revaluation, which in cities should be carried out every ten years or twenty years, according to the percentage of increase, and in the country every thirty years. Had this been done, and the annual

revisions been more effectually made, Ireland would, he believes, be the most equitably valued portion of the United Kingdom.

A vote of thanks to the author having been agreed to, the meeting terminated.

### THE BUILDERS' ACCIDENT INSURANCE.

THE 22nd annual general meeting of the Builders' Accident Insurance, Ltd., was held at the offices, 1 Nos. 31 & 32, Bedford-street, Strand, W.C., on the 4th inst., Col. Stanley G. Bird, C.B., in the chair.

The minutes having been read, the Secretary, Mr. R. S. Henshaw, read the Report and Accounts. The Report stated that during the period under review, the Company had received notice of 1,037 accidents. The slight reduction in the premium was attributable to the Directors declining to renew some heavy risks which experience had shown to be unremunerative. A reduction in the loss ratio amounting to about 10 per cent., coupled with the fact that new business had exceeded that of last year by nearly 25 per cent., showed that the judgment of the Directors had been discreetly exercised. Notwithstanding the fact that it had been possible to give members on renewal a larger rebate than in the previous year the funds of the Company had been augmented.

The Chairman, in proposing that the Report and balance-sheet be received and adopted, said that this time last year they proposed to classify the risks, that was to say, to make a very great reduction in the rate of the premium they were asking. They thought it was not fair that they should make the same reduction to the whole of the policy-holders, but that those who had good risks ought to have a greater advantage than those who, possibly, were not so lucky or had some very bad risks, and it was indicated at that time that they proposed to take off 33½ per cent. In very good risks they had allowed the full amount of 33½ per cent., and in others 20 per cent., and so on, by a graduated scale until they came to the very bad risks, and in those cases they had made no reductions at all. Some they had increased, others decreased, and one or two they had said good-bye to. Taking the figures for 1902, the amount of premium was somewhat smaller than it was in the previous year, and that was accounted for by the fact that they had to decline to renew some risks amounting altogether to nearly 3,000l., but they had almost overtaken that loss by the extra amount of new business they had been able to do. The policy-holders had appreciated the benefits of this reduction, and many of the old insurers who had insured with the Company before and left had come back again. It was hoped that the new business would be very much more remunerative than the old. The difference in the expenditure between 1901 and 1902 was very nearly 3,000l. While other companies had been obliged to harden their rates, the Builders' Company had been in the happy position of building up a reserve and giving very consistent and steady rebates, and that had been going on not for one year, but for several. In 1899 the rebate that was allowed to policy-holders was 3,075l., and in 1,902l. the rebate that was allowed was 6,300l.; as to the Act, when the company started, it was suggested that they were going to have an arbitrator to work between employers and employed and that they would not require a lawyer. Every week some fresh case was started in the Law Courts, and the Law Courts put a different construction upon the Act—or, rather, enlarged the scope of it. We were getting more "Judge-made law" pretty well every week, and it made the Act much more terrible in its effect. The number of new policies issued last year was 48 per cent. more than for the corresponding period in 1901, while the premium was 25 per cent. more. Since the beginning of this year 82 per cent. of the proposals accepted had been completed, which was 12 per cent. more than for the same period of 1902.

Mr. G. J. Newson seconded the adoption of the Report and balance-sheet, and the motion was agreed to.

The next business was the re-election of the retiring Directors, Mr. H. H. Bartlett, Sir John Mowlem Burt, Mr. F. J. Dove, Mr. Thos. F. Rider, and the Chairman.

Mr. Thomas Lascelles proposed that those gentlemen be re-elected Directors of the Com-



pany. Mr. Ansell seconded, and the resolution was carried unanimously.

Mr. G. J. Newson moved, and Mr. Ansell seconded, that the directors be paid their fees, and this was also agreed to.

Mr. Jones proposed and Sir John Burt seconded, that Mr. Charles Forde be re-elected auditor, and that he receive the same fee as formerly. This having been agreed to, a vote of thanks was passed to the Chairman and the proceedings terminated.

#### THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday afternoon in the County Hall, Spring-gardens, S.W., Sir J. McDougall, Chairman, presiding during the first part of the sitting.

**New Chairmen.**—The first business was the election of the following new Chairmen for the ensuing year, *i.e.*, Lord Monkswell, as Chairman; Mr. E. A. Cornwall, Vice-Chairman; and Mr. R. A. Robinson, as Deputy Chairman.

**Loans.**—On the recommendation of the Finance Committee it was agreed to lend Poplar Borough Council 10,473*l.* for paving works; Kensington Borough Council 27,500*l.* for widening part of High-street, Notting Hill; Poplar Union 4,600*l.* for land and premises for a receiving house for children; Shoreditch Borough Council 1,270*l.* for sinking an artesian well at the public baths, Hoxton; and St. Olave's Union Guardians 48,000*l.* for cottage homes.

**Subway for Tramways, Holborn to Strand Thoroughfare.**—After discussion it was agreed to spend 208,000*l.* in respect of the construction of the tramways subway authorised by the London County Council (Subways and Tramways) Act, 1902, between Southampton-row and the Victoria Embankment.

**Proposed New Asylum.**—In accordance with Standing Orders, it was stated that the recommendation to expend 560,500*l.* on the erection of a new asylum on the Horton Estate would stand over for a week. The Asylums Committee propose to appoint Mr. G. T. Hine as architect.

The Chairman (Lord Monkswell) said he was not satisfied that the Council had, in the Report before it, the full detailed information which could be given, and he should rule that a more detailed Report must be brought up next Tuesday, so that the members might have a week to consider it before discussing it.

**Tramways: Reconstruction for Electrical Traction.**—The following recommendations of the Highways Committee were agreed to:—

(a) That the tender of the British Westinghouse Electric and Manufacturing Co., Ltd., be accepted for the supply, for the sum of 5,367*l.* 14*s.* 3*d.*, of the high and low tension and exciter switch-boards required for use at the sub-stations to be established at the Elephant and Castle, New Cross, and Camberwell, respectively, in connexion with the reconstruction for electrical traction of the London County Council tramways.

(b) That the British Westinghouse Electric and Manufacturing Co. be allowed to sublet the following portions of the work in connexion with the manufacture and erection of the switch-boards, referred to in the foregoing resolution, to the undermentioned firms (or to such other firms as may be approved by the engineer under the contract), namely (1) to Messrs. Kelvin & James White, Ltd., the manufacture of the low-tension indicating wattmeters; and (2) to Messrs. W. T. Glover & Co., the manufacture of the high and low tension cables for the switch-boards.

**Workmen's Trains.**—The Housing of the Working Classes Committee reported on this subject. They have prepared a digest of the improvements which have been effected in the past few years in the provision of workmen's trains by the various railway companies. As a result of their action also, clauses have been inserted in several "Tube" Bills binding the promoters to provide adequate early morning trains. The Council's model provision insists on the companies issuing "at all stations" workmen's tickets available for any train starting from the station at which such ticket is issued and timed to arrive at any station at or before eight o'clock a.m. at fares which shall not exceed one penny for a single journey and twopenny return for any distance on the railway. These tickets will be obtainable either on the morning when they are required, or the previous day. The Committee claim that "both by procuring clauses in special Acts and by the use of the machinery provided by the Cheap Trains Act, 1883, a great deal

has been done by the Council in the last five years to increase the facilities enjoyed by workmen who require to travel by rail in London."

**Tube Railways.**—In moving the reception of the Parliamentary Committee's Report, Mr. Radford called attention to the paragraph dealing with the action proposed to be taken by the Government on the London Underground Railway Bills. The Committee had considered the decision of the Government to allow the Charing Cross, Euston, and Hampstead, Great Northern, Piccadilly and Brompton (Various Powers), Baker-street and Waterloo, and the City and North-East Suburban Electric Railways to go forward, and considered that all the Bills should be postponed. They asked the President of the Board of Trade to receive a deputation on the matter, and they had now received a letter from him refusing their request.

Mr. W. H. Dickinson said the matter was of supreme importance, and he protested in the strongest terms against the action of the Government in taking these four Bills out of the purview of the Royal Commission which had been appointed. The Government must have taken this step either under a total misapprehension as to the contents of the Bills, or because some pressure had been brought to bear on them by the capitalists who were behind the Bills. The object of these four Bills was to hand over the powers that had already been given under them to one Company, and that one Company would control a capital of 33,000,000*l.* and sixty-eight miles of lines. It would create a huge monopoly, and a new departure would be created with regard to railway legislation. It was certainly a matter which should be inquired into by the Royal Commission, and he trusted the matter would be brought before Parliament.

The Report was adopted.

**Convalescent Homes for Children.**—Replying to Sir W. J. Collins, Mr. Piggott, the Chairman of the Parks Committee said the principle of using some of the mansions in the Council's parks as Convalescent Homes for children had been approved, and certain houses had been suggested in Committee for that purpose.

The Council adjourned shortly after seven o'clock.

#### APPLICATIONS UNDER THE LONDON BUILDING ACT, 1894.

THE London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses:—

##### Lines of Frontage and Projections.

**Hampstead.**—A modification of the conditions upon which consent was given to the erection of residential flats, with projecting one-story shops and bay windows, on the west side of Finchley-road and east side of Fortune Green-lane, Hampstead (Mr. W. H. Pearce).—Consent.

**Westminster.**—An iron and glass shelter in front of Bolney House, Ennismore-gardens, Westminster (Messrs. Aldin Brothers & Davies for Mrs. Tate).—Consent.

**Lewisham.**—Retention of a conservatory in front of The Cedars, Sydenham Hill (Mr. C. A. Body).—Consent.

**Wandsworth.**—A building on the western side of Roehampton-lane, Putney, northward of Manresa House (Mr. D. Blow for Mr. H. Smith).—Refused.

##### Line of Frontage and Artisans' Dwellings.

**Hackney, Central.**—Blocks of dwellings on the south side of Dalston-lane and east side of Navarino-road, Dalston (Messrs. N. S. Joseph, Son, & Smith for the Four per Cent. Industrial Dwellings Co., Ltd.).—Consent.

**Dalston.**—Blocks of intended dwelling-houses, to be inhabited by persons of the working class, and proposed to be erected, not abutting upon a street, on a site at the corner of Dalston-lane and Navarino-road, Dalston (Messrs. N. S. Joseph, Son, & Smith for the Four per Cent. Industrial Dwellings Co., Ltd.).—Consent.

##### Width of Way.

**Hoxton.**—The re-erection of dwelling-houses on the east side of Wilson-street, Shoreditch, to abut upon Whitecross-place (Mr. A. Whitelaw for the London and North-Western Railway Co.).—Consent.

##### Width of Way and Line of Frontage.

**St. George, Hanover-square.**—Erection at No. 24, Norfolk-street, St. George, Hanover-square, of a three-story bay window next Norfolk-street; a projecting porch, with two-story bay window over, next

Green-street; and an extension of the existing balcony next Park-lane (Mr. W. Flockhart for Mr. H. J. Duveen).—Consent.

##### Deviation from Certified Plans.

**Marylebone, West.**—Deviations from the plan certified by the District Surveyor, under Section 43 of the Act, so far as relates to the proposed re-erection of an addition at the rear of No. 63, Upper Berkeley-street, Marylebone (Messrs. Mullett, Booker, & Co. for Mr. S. Quick).—Consent.

##### Formation of Streets.

**Wandsworth.**—That an order be issued to Messrs. H. E. Milner & Son sanctioning the formation or laying out of new streets for carriage traffic on the Furzedown Park estate on the south-east side of Rectory-lane, Tooting (Sir Charles Seely).—Consent.

\* \* \* The recommendations marked † are contrary to the views of the Local Authorities.

#### TRIBUNAL OF APPEAL UNDER THE LONDON BUILDING ACT, 1894:

##### A PICCADILLY BUILDING SCHEME.

THE Tribunal of Appeal under the London Building Act, 1894, sat at the Surveyors' Institution, Westminster, on Friday last week, to hear an appeal by Mr. John Lorden under Section 13 (Sub-sections 3, 4, and 5) and Section 43 (Sub-sections 1, 2, and 3) of the London Building Act against the determination of the London County Council by their resolution of January 27 last, "that the Council, in the exercise of its powers under Sections 13 and 43 of the London Building Act, 1894, do not sanction certain deviations from the plans certified by the District Surveyor under such sections of the Act, so far as relate to the proposed erection of a building on the site of Nos. 108, 109, and 200, Piccadilly, and Nos. 2, 3, 4, and 5, Church-place, as shown upon the plans submitted with the application of Mr. R. Sawyer on behalf of Mr. J. W. Lorden."

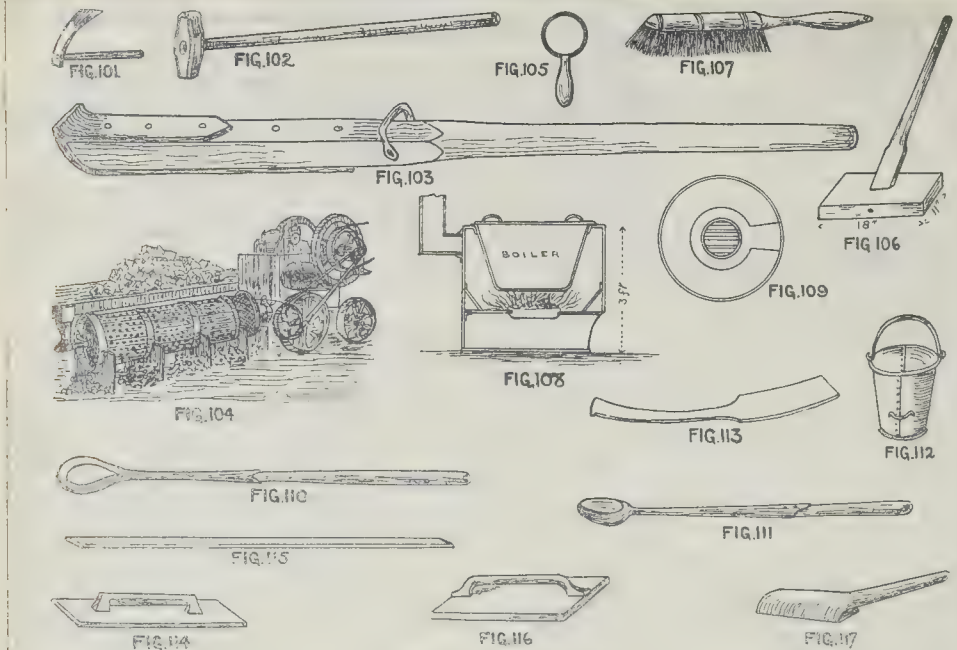
The members of the Tribunal sitting were Messrs. J. W. Penfold (in the chair), Hudson, and Gruning. Mr. C. A. Russell, K.C., appeared for the appellant, and Mr. Godfrey (from the Solicitor's department of the London County Council) for the respondents.

The site, Nos. 108, 109, and 200, Piccadilly, and Nos. 2, 3, 4, and 5, Church-place, forms part of a larger site lying to the west of and extending from the Geological Museum in Piccadilly, along Piccadilly to the corner of Church-place, then occupying the whole eastern side of Church-place, and then returning along Jermyn-street to the Museum. The whole of the space is being, or has been, cleared for the purpose of erecting buildings upon lease from the Crown and under building agreements granted by the Commissioners of His Majesty's Office of Woods. The appellant's building agreement contained a clause requiring that the elevation facing Church-place shall be "of handsome architectural design" and form part of one general elevation of building extending from the Geological Museum in Piccadilly to the Geological Museum in Jermyn-street. In November last Mr. Sawyer, appellant's architect, applied to the London County Council for permission to deviate from the plans certified by the District Surveyor under Section 43 of the Act. This was refused. On behalf of the appellant it was submitted that the proposed raising of the new building to a height exceeding that of the buildings formerly on the site would not materially lessen the air space in Church-place, inasmuch as the churchyard opposite is practically an open space above the line of the old buildings. Further, to set back the line of frontage to 10 ft. from the centre of Church-place above the height of the old building would be of no real advantage; on the contrary, it would spoil the façade. To form an open space 10 ft. in width along the south side of the site above the height of the old buildings is not necessary or required in view of the large open space at the rear of the proposed new building, which far exceeds the air space called for by the Act at the rear of a building.

Mr. Andrews intimated that while the London County Council objected to the plans as a whole, they regarded the scheme for providing air space at the rear as particularly objectionable. Under the scheme there would be inadequate outlet for the exit. A modification in the latter would materially affect the consideration whether the air space was sufficient as a whole.

Mr. Sawyer, architect to the appellant, gave evidence, and in reply to Mr. Russell submitted details of the scheme. The area of the site, he said, air space being taken into consideration, was 6,500 ft. super. The area of the open space at the rear of the new building at the first-floor level was 1,730 ft. super., and of the new building at first-floor level 4,830, while the area of the old building at the first-floor level was 4,220 ft. super. This left an excess of area of the new building over the old at the first-floor level of 610 ft. super. As to the cubic air space of the new building, the amount proposed to be provided at the rear above a line 16 ft. above the mean level of the pavement in Church-place to the level 80*s.* length, 57*4* height, 216 depth = 88,751. With the triangular space the





Illustrations to Students' Column.

figures were 1—59 0 length, 12 3 depth, 6 3 height—2,250. This made a total of 51,010 cubic ft. The open cubic air space required by the Act above a line of 16 ft. above the mean level of the pavement in Piccadilly was 58 2 length, 10 0 depth, 48 9 height—28,356; triangular space, 58 2 length, 14 4 depth, 28 9 height—11,983; total, 40,339. The cubic feet of air space provided in excess of that required by the Act was, the witness contended, 50,671.

In the course of a prolonged discussion, an alternative for increasing the air space at the rear of the building was referred to, but was not accepted by the appellant. Eventually, the further hearing of the appeal was adjourned mainly with the view of giving the appellant an opportunity to revise this part of the scheme, if thought fit.

## The Student's Column.

### BUILDERS' TOOLS AND THEIR USES.

#### CHAPTER 6.

##### Paviors' Tools, including Asphalters.

**T**HE following tools and appliances are employed by the pavior, those of the asphaltier being described separately:

- |                          |                  |
|--------------------------|------------------|
| 1. Axe Hammer            | 5. Broom         |
| 2. Stone-breaking Hammer | 6. Stone Breaker |
| 3. Handspikes and Levers | 7. Ring-gauge    |
| 4. Rake                  | 8. Roller        |
|                          | 9. Scraper       |

In addition to the foregoing, the pickaxe, lines and pegs, mattock, maul, rammer, shovel, pade, crow and pinching bars, rods, squares, levels, mash hammer, screen and sieve, trowel, straight-edge, mallet, &c., are also used, but they have been already described in the previous chapters.

The *Axe Hammer* is almost entirely used for picking up and setting square setts, paving pebbles, &c., the chisel end being required for lifting, and the hammer head for tapping the stones into their places (fig. 101).

The *Stone-breaking Hammer* employed by the breaker is of two sizes, with small cast-steel heads fixed at the end of a long, straight-grained, and flexible ash stick. The weight of the first is about 1 lb., with 6 in. head, and handle 1 ft. 6 in. long. The other weighs 2 lbs. to 5 lbs., with 7 in. head, and handle 2 ft. 6 in. long. The sizes of the larger stones are reduced with the latter before breaking them into the proper dimensions for road-metal (fig. 102).

*Handspikes and Levers* are used for lifting and setting square setts, blocks of stone, &c., and raising and fixing heavy articles generally. The lever is properly a platelayer's implement, for lifting and arranging tram-lines, &c., between which square setts are laid. It is of ash, some 7 ft. long, squared at the end, and shod with iron, which is sometimes notched like a crowbar (fig. 103). Handspikes, or marline-spikes, are similar to levers, but are not shod with iron.

The *Rake* is so familiar that it is unnecessary to describe it beyond saying that it is useful to the pavior for raking gravel, and that the solid end bolster teeth vary in number from six to eighteen, the handle being of ash, about 5 ft. long. The rake employed for filling in ruts and hollows in the surface of roads, should have very large prongs,  $\frac{3}{4}$  in. apart, fixed into a wooden head about a foot long.

The *Bass Broom*, with coarse bristles, is requisite for sweeping up the debris and rubbish off the surface of the part just paved, as well as for brushing in the sand and gravel thrown over granite and pebble paving.

The *Stone Breaker* may be not inaptly described here. Stone-breaking machines were first introduced to reduce the great expense of breaking by hand, though the wear and tear is very considerable, sometimes rising as high as 60 per cent. of the first cost of the machine in one year. Hand-broken stone, being divided by a blow and not by gradual pressure, is more sharply fractured than machine-broken stone, which is frequently flaky or with rounded edges and cracked. One of the best machines is probably Baxter's patent knapping-motion stone breaker, used for crushing stone and producing road metal (fig. 104). The stone to be broken is carried to the wooden platform at the side, and put into a hopper. The material is crushed into various sizes, which then pass into the inclined perforated cylinder, coming out of the graduated holes according to the size of the diminished pieces, into stalls or divisions below, from whence it is wheeled to the works. The apparatus is worked by a belt from an engine erected in a temporary shed behind. One of Baxter's 10 by 9 (size at the mouth of machine) stone breakers, driven by a 5 h.p. engine, and running with a speed of 275 revolutions per minute, will produce 8 tons of road metal (size  $2\frac{1}{2}$  in. ring) per hour, at a cost of 4½d. per ton.

The *Ring-Gauge* is useful for testing the size

of the broken stones, which are usually specified to be capable of passing in all directions through a ring of  $2\frac{1}{2}$  in. (or other gauge) internal diameter (fig. 105).

The *Roller* consolidates the gravel, asphalt, or other paving material, and this should be done when the stuff is first laid down. An ordinary cast metal hand, or garden, roller may be used 2 ft. in diameter, and 2 ft. in width, and weighing about 4 cwt. A water ballast roller is a hollow cylinder, filled with water by means of a plug at the side. A 4-cwt. water ballast hand roller filled with water would weigh 8 cwt. A horse roller is usually much larger and heavier, being fitted with shafts for pony or light horse power. For extensive and important surfaces a steam roller, weighing from 10 tons to 15 tons, is indispensable.

A *Scraper* is necessary for keeping roads properly and free from mud. It should be of iron, 6 in. deep and 18 in. long, slightly curved at the extremities to prevent the escape of the liquid mud, and with a long wooden handle. Road-scraping machines, as well as sweeping machines, with a long cylindrical revolving brush (invented by Sir Joseph Whitworth), are useful where there is much work in keeping road surfaces in order.

#### Asphaltier.

The following tools and utensils are employed by the asphaltier:—

- |                     |                    |
|---------------------|--------------------|
| 1. Concrete Beater. | 9. Bucket.         |
| 2. Lines and Pegs.  | 10. Spatula.       |
| 3. Brush.           | 11. Hand float.    |
| 4. Cauldron.        | 12. Floating Rule. |
| 5. Hammer.          | 13. Sieve.         |
| 6. Stirrer.         | 14. Beater.        |
| 7. Gauges.          | 15. Small Beater.  |
| 8. Ladle.           | 16. Hand Roller.   |

The author is indebted to the instructions issued by a well-known asphalt company in their little book for most of the information regarding the appliances of the asphaltier and mode of laying.

Perhaps it will be best to describe the general process of laying asphalt, dilating upon the tools as we go along, in the order they are used.

For pavements, &c., a concrete foundation is first laid, which is levelled and rammed solid with a *Concrete Beater* (fig. 106), the bottom of which is made of beech and the handle of ash the area having first been set out with *Lines and Pegs*. In humid weather dry sand, or some



under dust, should be sifted over the concrete. Either of these will take up part of the moisture, for it is important that the concrete should be dry, as well as firm and solid, before the asphalt is applied. Before applying the asphalt this sand or dust must be brushed off, the most convenient *Brush* to use being of the form shown in fig. 107, having coarse hair,  $\frac{1}{4}$  in. long. The *Cauldron* for melting the asphalt is shown in section in fig. 108, and fig. 109 gives its plan. The furnace is made of 6-gauge common-plate iron, with a 6 in. lining all round, the boiler being of  $\frac{1}{4}$  in. best plate iron, with  $\frac{1}{8}$  in. Low-moor iron bottom. The cauldron is 3 ft. high and 2 ft. 10 in. diameter, and it should be placed close to the work, as it is of importance that the asphalt should be very hot, that it may not only adhere firmly, but be spread more evenly. Peat and oak wood should be issued as a fuel for heating, coal being objectionable on account of the smoke it creates, whilst coke should never be used, as it is injurious to the material and destructive to the cauldron.

The asphalt, having been broken with a *Hammer*, is then put into the boiler, employing 1 lb. of mineral tar to 1 cwt. of asphalt to properly flux the latter, the quality of tar, however, varying according to circumstances, a larger proportion being required at first to start the fusion. The asphalt and tar are mixed together with the *Stirrer* (fig. 110), the handle being similar to that of the ladle, and the loop should be made of  $\frac{1}{2}$  in. by  $\frac{3}{8}$  in. iron, tapered off to  $\frac{1}{4}$  in. on the outside edge, 3 ft. being occupied from the first lighting of the cauldron to melt the entire mass with which it is filled. The stirrer is 5 ft. long.

Having selected the *Gauges* (or long strips of pine, about 2 in. wide, required to form boundaries for the laying of the asphalt) suited to the class of work to be executed, place one with bricks or other weights bearing upon its outer edge that there may be no irregularity in the thickness of the asphalt, parallel to one of the sides of the concrete surface, which should be perfectly dry, to be covered, at a distance of 3 ft., which will form the width of the several layers of pavement or paving. Asphalt is usually laid in squares, partitioned off with wooden gauges, which are afterwards removed. In this space the spreader kneels, and as the asphalt or mastic, which should be quickly conveyed in a viscous state as hot as possible by the cauldron man in a *Ladle* (fig. 111, the ladle being of best charcoal plate iron of 10 gauge, hollowed out in deep, and the socket, shank part, and rap to be made of  $\frac{1}{2}$  in. by  $\frac{3}{8}$  in. best iron; the handle of ash or holly, or in a previously heated iron *Bucket* (fig. 112, made of 20 gauge charcoal plate iron, with an additional iron handle at the side for assisting in pouring out, the bucket being hot), is poured down, it is to be spread and rubbed with the *Spatula* (fig. 113, made from an oak stave of a cask), or *landfloat* (fig. 114, of deal, free from knots, and with an oak handle), held in the right hand, while the left is bearing hard upon the other part of it, the spreader's knees being protected by sackcloth caps when kneeling. To facilitate this work an ordinary *floating Rule* or straight-edge (fig. 115), from 3 ft. to 12 ft. in length, may be first used in a sawing direction from left to right over the asphalt, which will level it to the thickness of the gauge, and any unevenness on the surface may be easily corrected by the *spatula* or handfloat.

Just before the asphalt becomes set, a third workman should sift gently over it from a dust sieve (of copper wire, 20 in. diameter, and twenty-four meshes to the inch) some surface powder composed of equal parts of silver sand and slate dust, and immediately afterwards rub upon the asphalt with the handfloat, and if its work is well executed it will be as even as a piece of rubbed slate.

When the first layer of pavement is finished, the adjoining space should be covered at a later period. The object of leaving alternate areas is that the workman employed in a rubbing may not have occasion to kneel upon any part of the asphalt until cool; nor should the gauge be removed until the asphalt has become set.

Next this vacant space two gauges are laid down at the same distance apart, and weighted as before mentioned. The space between them is then covered with asphalt, and rubbed in the manner before described. In about an hour the asphalt will have become quite firm and cold, when the gauges should

be carefully removed by a blow from a broad-faced hammer, or eased off with the point of a knife.

When the surface is intended to be gritted, a workman should immediately follow the spreader, moderately and evenly distributing from a sieve a clean grit of a size according to the nature of the work. The grit will, if heated, be found to unite more firmly to the asphalt, which can readily be done in small works upon the lid of the cauldron. A double-handled *Beater* (fig. 116, of Honduras mahogany)—the bottom, or striking part, should be slightly bevelled from the centre) is to be used, with which the grit should be stamped vertically, with rapidity and much force, into the surface of the asphalt. A *Small Beater* (fig. 117, also of mahogany) is sometimes employed for beating the grit into the asphalt in corners, or for making good the joints round a sink, drain trap, &c.

A *Hand Roller*, as formerly described, is very serviceable for rolling and consolidating tar and asphalt pavements.

## Correspondence.

### NEW ART IN STAINED GLASS.

SIR,—I cannot plead guilty to any unfairness in selecting for criticism from Mr. Sparrow's paper the single point of leading; for if we once allowed it the importance claimed by him, so as to require figure-work to be thereby dominated, much as a geometrical pattern must be, we shall have introduced into the art a change of principle that will lead those who adopt it very far indeed. It is a revolution, and it is the one new principle upon which Mr. Sparrow insisted.

So long as design in stained glass is concerned with arrangements of abstract lines, as in Early grisaille, in which the painting is merely a sort of diaper upon the pattern given by the leads, these latter perform a humbly ornamental as well as useful function; but the more of nature comes into the design, the less it is possible to rely upon the leading as an explanatory factor. Do what you will with it—widen it, thicken it, throw it into the outlines, yet the eye steadily refuses to accept it as other than a mechanical device for holding bits of glass together. As a line to draw with, it is both ineffective and coarse; regarded as a constructive expedient, it is found to play an unobtrusive part in the general effect of the window, much as the grey network of joints between the tesserae does in the case of mosaic.

May I humbly hope that Mr. Sparrow will now admit that though I have plunged into the very "depths of degradation" in "servile imitation of all the weaknesses and failings in old work," my degradation is yet not without motive, nor my servility without sense.

F. C. EDEN.

### OBITUARY.

PROFESSOR T. ROGER SMITH.—We much regret to announce the sudden death, on Tuesday last, of Professor Thomas Roger Smith, of Temple Chambers, Temple-avenue, E.C., senior member of the firm of Messrs. T. Roger Smith & Son, and father of Mr. R. Eley Smith, Professor of Architecture and Building Construction, King's College, London. Mr. T. Roger Smith was admitted as an Associate of the Royal Institute of British Architects in 1856, and elected a Fellow in 1863; he was President of the Architectural Association in 1860-1 and 1863-4, and for some time was a member of the Council, Royal Institute of British Architects. He was Professor of Architecture at University College, London, District Surveyor for West Wandsworth, President of the British Institute of Certified Carpenters, and Examiner in Carpentry and Joinery, and in sanitary building construction, to the Carpenters' Company. In May, 1900, he was appointed one of four members of the Royal Institute as a Committee to meet a Committee of four of the Surveyors' Institution as a Joint Committee to take such steps as they might deem necessary for securing an amendment in the Law of Ancient Lights, and was subsequently appointed Chairman of that Joint Committee. Last February he was re-elected a member of the Council of the Sanitary Assurance Association, and on May 5 of last year, at the annual general meeting of the Royal Institute, he was re-elected a member of the Statutory Board of Examiners under the London Building Act, 1894, and other Acts, of which Board he was Chairman in 1899-1900. He also was appointed in succession to the late Professor Banister Fletcher as Chairman of the Joint Committee for the Trades Training School of the Carpenters' and other allied City Companies. He acted as assessor in several important competitions, including those for new schools for the Northampton School Board, 1891; the Bedford General Hospital, 1896 (Messrs. Stephen Salter & Adams, first premium); and the Municipal Tech-

nical Institute and Public Library at Eastbourne, 1900 (Mr. P. A. Robson, first premium). His firm were amongst the architects nominated in 1893 to compete for the North London Polytechnic, and in 1901 for the reconstruction and enlargement of the Royal Infirmary at Hull. Professor Smith was architect of the North London Hospital for Consumption, at Hampstead, begun in 1880, and enlarged by Messrs. T. Roger Smith & Son, twelve years afterwards (see the illustrations published in the *Builder* of December 25, 1880, and December 31, 1892); of the Ben Jonson Board School, Stepney, 1872; the Sanatorium at Reedham, illustrated in our number of July 14, 1883; and of the new laboratories at University College, London (illustrated by us on June 3, 1893), of which the engineering and electrical "sides" were opened in May of that year. The firm of Messrs. Roger Smith & Gale prepared the plans and designs for a house, and for some stabling at Otford, Kent, noticed in our reviews, "Architecture at the Royal Academy" of June 19, 1886, and June 20, 1886. Professor T. Roger Smith was author of a "List of Curves in Complete Sets of Twenty-three Templates," published in February 1901, by Messrs. Cassell & Co., and of a large number of papers and lectures read and delivered at Carpenters' Hall, University College, London, Sheffield and elsewhere, upon various topics relating to the history, science, and practice of architecture and building. Of his papers we may particularly mention those upon "Sanitary Building Construction and Planning: Soil and Local Physical Conditions;" "Ventilation, Warming, and Lighting;" "Timber and Timber Structures;" "Terra Cotta;" "Building on Paper;" "Sir Christopher Wren;" "Oriental and Indian Architecture;" "English Halls and Mansions;" "Westminster Abbey;" "Exeter Cathedral;" "Canterbury Cathedral" (incomplete owing to his decease)—of some of which reports or abstracts have from time to time been printed in our columns. He also wrote for "Weale's Series" a valuable little book on acoustics in connexion with architecture, especially as affecting the planning of rooms for music.

MR. C. B. TROLLOPE.—We regret to announce the death, on the 2nd inst. in his seventy-third year, of Mr. Charles Brown Trollope, senior partner of the firm of Widnell & Trollope, of 20, Tothill-street, Westminster. He was a pupil of the late Sir Henry Hunt, and upon completion of his articles in 1852 commenced practice as a surveyor in partnership with the late Mr. F. G. Widnell. In the course of his long professional career he was engaged on the following public buildings and works, in addition to a large private practice:—The Houses of Parliament (when rebuilt), the Royal Courts of Justice, the Natural History Museum at South Kensington; the fortifications at Dover, Plymouth, and Pembroke; the Church House, Dean's Yard; and a number of considerable works for the Admiralty, War Office, Office of Works, and various public bodies. Mr. Trollope had been in failing health for some time, and for the last few years had been unable to take an active share in the business of his firm.

MR. J. SWINBURNE.—The death took place on the 5th inst. of Mr. Joseph Swinburne, architect, Newcastle. Mr. Swinburne, who was only thirty-two, was the son of Mr. J. F. Swinburne, of Exeter, and was an architect with Messrs. Oswald & Sons, Newcastle.

MR. E. H. SHORLAND.—We regret to announce the death of Mr. E. Hooper Shorland, of the firm of Shorland & Brother, of Manchester, well known as heating and ventilating engineers. Mr. Shorland died at his residence Brooks's Bar, Manchester, on the 6th inst. The business will be carried on by Mr. F. H. Shorland, the surviving partner.

### GENERAL BUILDING NEWS.

BAPTIST CHURCH, SOUTH BENWELL.—On a plot of ground adjoining the Baptist Church Hall in Buddle-road, South Benwell, new premises are to be erected. The plans, which have been prepared by Mr. Hanson, of South Shields, show an audience hall capable of seating 800 people, and a number of rooms around and beneath. The scheme is estimated to cost about 5,000l.

ADDITIONS TO ULVERSTON PARISH CHURCH, LANCASHIRE.—Recently a good deal of renovating work has been carried out at the ancient parish church of Ulverston, and now the parishioners have decided upon a scheme for extending the chancel. Plans were submitted by Messrs. Austin & Paley, of Lancaster, and the estimated cost of the work is 1,550l.

SCHOOL, BEDMINSTER.—A new school, for the care and education of mentally deficient children, has been constructed, at the instance of the Bristol School Board, in Orchard-place, Stillhouse-lane, Bedminster. It is constructed of pennant stone, with Bath stone facings. There are a central hall and six classrooms, and the floors are laid with wood blocks. The architect is Mr. W. L. Bernard. Accommodation is provided for sixty children.

VOLUNTEER PREMISES, LIVERPOOL.—New headquarters for the Liverpool Scottish Volunteers are to be erected in Fraser-street, opposite the Shakespeare Theatre. The new building, of which Messrs. Woolfall & Eccles are the architects, will



**SOUTHAMPTON MASTER BUILDERS' ASSOCIATION.**—The annual dinner in connexion with the Southampton and District Builders and Decorators' Association (affiliated to the Southern Counties' Association) was held at the South Western Hotel recently, the President, Mr. Junior-Balfill, presiding. The loyal address was delivered by Mr. H. J. Balfill, Vice-President, who, in his speech, said that the President had submitted "the A. T. Dunford and Corporation," Sheriff Hollis and Alderman F. A. Dunsford replying. Mr. Costigan, Secretary London Master Builders' Association, next submitted the toast of "The Local Master Builders' Association." He described the building trade as the greatest industry in the world, and said that the time had come when they as employers must assert their position with no uncertain voice, and it was only by strong combination that they could hope to oppose those who were now trying—in Parliament and the various public bodies—to attain their extermination as employers. Business nowadays was not done on the sentiment, but on the hard fact. If employers were to take the common sense to take measures to protect themselves, they would find when the time came for the workmen to show their hands open that they had to deal with a band of determined men who were carrying everything before them, notwithstanding the fact that they were paid so much by their own inherent strength, and it was almost going to pay them for their weakness. It was therefore that he led them to the question of combination, and in that they were shamed by the workmen they employed. He agreed that men had a perfect right to combine, but employers had also the same privilege to the fullest extent to curb all unreasonable demands.—Junior-Balfill carried out briefly proposed, pointing out that the members of the Association for the year were the builders, Mr. A. T. Dunford (Hon. Secretary) also responded, and observed that the time of peace they had recently enjoyed was soon to be at end, for on May 1 almost the whole of the trades of Southampton would have to apply for an increase of 1d. per hour. It being then, therefore, to put together the members of the Borough Bagshaw proposed the toast of "The Members of the Town Clerk (Mr. R. S. Linthorne) and Dr. Lauder replied. In response to the toast of "The Architectural Profession and other Guests," proposed by Mr.



Harold Marshall, Mr. A. F. Gutteridge observed that the interests of the architects and builders could almost be considered mutual, and that any interference they might meet with with reference to building operations was not only an injury to one of the parties, but an injury to the public generally. At the present time an unfair interference with building operations was existing, inasmuch as the by-law which had been in operation in Southampton since the beginning of last year had tended to restrict building to a very large extent, and at the present time the architects had under consideration suggestions that had been made to meet several cases in which their applications had been refused by the Town Council, and which were felt as hardships by the trade. The architects were strongly of opinion that the Council would be prepared to meet them fairly in the matter. In fact, they were now waiting for the Council to nominate a sub-committee to meet them. There was no doubt, however, that at the crux of the whole question lay with the Local Government Board. Councillor Blakey responded as a guest. Other toasts included "The National Association and Kindred Associations," submitted by the chairman and responded to by representatives of the Bournemouth Association.

#### CAPITAL AND LABOUR.

**NORTHERN BUILDING TRADE.**—On behalf of the members of the Northern Counties' Federation of Builders, notices have been given to the bricklayers and labourers employed in the different towns on the north-east coast of a reduction of wages, the former from 10d. to 9d. per hour, and the latter from 6½d. to 6d. Certain alterations in working hours are also suggested. Notices have also been served on the joiners in the Tyne district of a reduction of wages from 10d. to 9d. per hour and alteration of rules. The notices will expire on September 1. The chief alteration in the rules proposed is that disputes be referred to representatives of the masters and men, with ultimate reference to arbitration in case the parties cannot settle the difference.

**BRADFORD PLASTERERS' DISPUTE.**—There seems to be little chance of an amicable settlement being arrived at in the plasterers' dispute at Bradford, which has lasted since the beginning of the year. Fifty men left the city on the 9th inst., having obtained employment elsewhere, and the number remaining of those who were thrown out of work in the dispute has been reduced more than half.—*See Mercury.*

#### LEGAL.

##### BREAKING UP STREETS.

The Charing Cross and Strand Electricity Supply Corporation, of St. Martin's-lane, were summoned. Bow-street Police-court on the 5th inst., for commencing certain works in the public streets without previously sending a notice describing the said works to the Westminster City Council.

Mr. de Fonblanque, representing the City Council, Section 14 of the defendant company's order under which the City Council gave notice to the Local Authority and submit plans, but was provision made for emergencies. On November to the company opened up the roadway the junction of St. Martin's-lane and Garrick-street, and although at first the work done was the nature of repairs, it developed into the construction of a new distributing-box, having more than twice the superficial area of the old one. In consequence of this was that for nearly a fortnight there was only room for one line of traffic in Garrick-street. No intimation that the work was to be done had been given to the council, but on November 11 what was called an emergency notice was sent. This was not the first time the company had disregarded the restrictions placed on its powers, and the council considered that the matter was one of great importance, both in the point of view of the convenience of the public and having regard to the necessity for protecting the sewers.

On the defence it was proved that the work was undertaken in consequence of complaints of low water, and it was contended that it came within the exception of "repairs, renewals, or amendments of existing works," and further, that it was a matter of emergency.

Mr. Marshall decided to convict, and imposed a fine of 40s., with 21. 2s. costs, but on the application of Mr. R. O. B. Lane, jun., who appeared for the Company, he agreed to state a case.

#### SUSSEX DRAINAGE DISPUTE.

On the hearing of the case of the Mayor, &c., of the Brighton Intersecting and Outfall Sewers Board concluded before the Court of Appeal, the appeal of the plaintiffs from a judgment of Justice Kekewich in the Chancery Division, and judgment for the defendants and dismissing the action with costs. The case was reported in issue of the *Builder* for July 19, 1902, and the question raised by this case was whether the

plaintiffs were entitled to discharge into the defendants' intercepting sewers all the sewage of the Borough of Hove, including the sewage of that part of the borough which was within the parish of Aldington. Before 1870 there were in the parish of Hove two separate local bodies, the Brunswick Square and Terrace Commissioners and the West Hove Commissioners, and the drainage of Brighton was governed by the Corporation of Brighton. Up to that time the whole of the drainage of the district had gone directly into the sea, and to remedy the objectionable state of things thereby created along the sea front, the Brighton Intersecting Sewers Board was constituted, under an Act of 1870 to construct an intercepting sewer along the sea front of Hove and Brighton to carry away the sewage beyond Rottingdean and discharge it into the sea at a place called Portobello. In 1873 the parish of Hove was constituted one Urban District, and the reason the present action was brought was that since that time there had been added to the parish of Hove the parish of Aldington. The plaintiffs claimed that Aldington, as part of the district of Hove, was absolutely entitled as of right to drain into the intercepting sewers belonging to the defendant Board, or, in the alternative, that the plaintiffs had the right to insist, under Section 36 of the Act of 1870, upon the admission of such drainage on payment of compensation to the defendant Board. Mr. Justice Kekewich decided both points against the plaintiffs' contention. Hence their present appeal.

Mr. Macmorran, K.C., and Mr. R. J. Parker appeared for the appellants, and Mr. Cripps, K.C., Mr. Boxall, K.C., and Mr. Manby, for the respondents.

At the conclusion of the arguments of counsel the Master of the Rolls in giving judgment said the question which arose on this appeal was whether the district which was now the Hove District was, as such, entitled to pass its sewage into the intercepting sewers which had been carried along the sea-front at Brighton and the adjacent districts. That right was contested by the defendant Board, which said that the intercepting sewers were intended for certain wholly different districts, whereas the right contended for on behalf of the Hove district was never contemplated. His lordship, having dealt with the Sections of the Acts of Parliament applying to the case, and the orders of the County Council of East and West Sussex by which the parish of Aldington was included in the district of the Hove Corporation (which was a member of the Sewers Board under the Sewers Act of 1870), said that in his opinion the case fell within Section 91 of that Act, and plaintiffs were the proper parties to put in motion the machinery of that Act. For these reasons he thought that the judgment of Mr. Justice Kekewich could not be supported, and that the appeal must be allowed.

Lord Justice Romer concurred. He thought the defendants' plea that their sewers were incapable of admitting the sewage of Aldington at present constructed was no answer to the plaintiffs' claim. He thought the plaintiffs were entitled to a declaration of their right, and also to apply for an injunction, though, if necessary, time would be given to the defendants to carry out such works as might be required to give effect to the plaintiffs' right.

Lord Justice Cozens-Hardy also concurred, and the Court made a declaration in the terms mentioned by Lord Justice Romer, giving the plaintiffs liberty to apply generally as to an injunction or otherwise.

The appeal was accordingly allowed with costs.

#### A CASE AFFECTING PROPERTY OWNERS.

At Southwark Police-court the owners of Ponsoby-buildings (The Metropolitan Industrial Dwellings Co., Ltd. of Connaught-mansions Victoria-street, S.W.) were summoned before Mr. Cecil Chapman by the Southwark Borough Council. Altogether, there were thirty-three summonses, each relating to a different tenement, the offence alleged being the construction or reconstruction of lavatories (connected with others) without an anti-siphonage pipe, contrary to the London County Council's by-laws. Mr. F. Dodd was for the defendant Council, and Mr. Danckwerts, K.C., for the defendant. Mr. Dodd said the facts were extremely simple. Ponsoby-buildings consisted of three, two, and one room tenements, and in each block there were lavatories connected with one soil pipe. Some of the water-closets had been reconstructed without the anti-siphonage pipe, which, according to By-law 7 of the London County Council's by-laws was necessary. Dr. George Milson, Medical Officer of Health to Southwark, gave formal evidence of the work being done and the anti-siphonage pipes being omitted. Cross-examined, he said it was quite true the Borough Council summoned the defendants last year with respect to some drainage matter, and the case was dismissed, with costs allowed to the company. Mr. Long, Chief Sanitary Inspector, said the case referred to was heard by Mr. Paul Taylor, who, after evidence had been given on behalf of the defendants to the effect that no nuisance existed, dismissed the summonses. Later, however, the drains were uncovered and were found to be in such a bad condition that the company reconstructed the whole of them. Conse-

quently, the action of the Borough Council in issuing that summons was justified. It was in the course of the reconstruction of the drains that the defendants had offended against this by-law. Mr. Danckwerts, K.C., said the points relied on for the defence were that this was not reconstruction of water-closets, but simply the replacing of some of the apparatus; that the London County Council had no power under Section 202 of the Metropolitan Management Act, 1855, to make by-laws relating to water-closets, such section referring to pipes, drains, and apparatus in connexion with sewers; and, further, that the By-law 17 was unreasonable, because in this case the system of drainage was such that siphonage was absolutely impossible. Mr. J. Tryon, member of a firm of solicitors and Chairman of the Metropolitan Industrial Dwellings Co., Ltd., said the company was incorporated in 1880; it had a capital of 200,000l., and possessed property valued at a quarter of a million. Besides the buildings in Southwark they had similar property at Hammersmith, Chelsea, Stepney, Lambeth, and Westminster. Except in Southwark, no question had been raised with regard to their property. Ponsoby-buildings were erected in 1887, and the drainage carried out in accordance with a plan by Mr. Ernest Turner, who was a well-known authority on sanitary matters. Wherever any question was raised the company always had the opinion of Dr. Corfield or Dr. Wynter Blyth. If anti-siphonage pipes were compulsory for these buildings the cost of fixing them would be 5,000l. There was a summons at this Court in 1887 against the company, when Dr. Corfield gave evidence that, having regard to the size of the soil pipes, siphonage was absolutely impossible. No order was made by Mr. Slade, the presiding magistrate. In recently reconstructing the drains some of the pans and traps were broken, and these were replaced with new ones. It would be better to spend the money in housing people than to throw it away on anti-siphonage pipes which were unnecessary. Mr. Arthur Moore, secretary of the Improved Industrial Dwellings Co., who housed 5,507 families, said the system of drainage in their buildings was similar to that adopted by the defendant company. He had carried out experiments, and found that siphonage was impossible. If anti-siphonage pipes were compulsory, his company would be put to a cost of 25,000l. Evidence was also given by Dr. W. Blyth and Mr. Hy. Howard Humphreys that siphonage was impossible at Ponsoby Buildings. Mr. Danckwerts said the by-law in question was the produce of diseased officialism and the most ridiculous he had ever come across. Mr. Dodd stated that the Borough Council were compelled to issue these summonses because there was deliberate non-compliance with the by-law. Mr. Cecil Chapman said he would consider the case and give his judgment next week.

#### LEEDS BUILDING DISPUTE.

In the Court of Appeal, composed of Lords, Justices Vaughan-Williams, Stirling, and Mathews, on the 7th inst., Mr. George Lawrence said he had an application to make of an urgent character in the case of Sharp v. Sharp. He said his client, Mr. Sharp, was the owner of considerable property in Leeds, and among the houses he owned was the Harrisons Arms Hotel. The defendant had pulled down an old house on the other side of the road which had originally consisted of two stories, rising 18 ft. from the pavement, and was now erecting on the site a new building, which the plaintiff had reason to believe was intended to be 31 ft. high. If the proposed plans of the new building in course of erection by the defendant were carried out, the result would be a serious loss of light to the smoking-room in the Harrisons Arms Hotel and a large room over it known as the lodge-room, where masonic meetings and similar gatherings were held, the loss in one case amounting to 25½ deg. of light, and in the other to 14 deg. Under these circumstances, the plaintiff decided that he must bring an action in order, at any price, to get an injunction restraining the defendant from erecting the building on the site to the proposed height. When the plaintiff's solicitors' clerk went down to the defendant's business offices he was told by his clerk, and also by a clerk, that the defendant had gone away for a trip on the continent, and had left no address. An application was then made by the plaintiff to Mr. Justice Buckley at chambers, who declined to interfere. Meanwhile the defendant's building was going up fast, and already had got up to 24 ft. above the roadway. The defendant appeared to be his own builder, and in the urgent circumstances of the case the learned counsel pressed their lordships to allow him to serve the writ on the defendant by leaving a copy of the writ at his offices and also at his residence in lieu of personal service, and also to grant an interim injunction restraining further building till the trial.

Lord Justice Stirling suggested that Mr. Justice Buckley should be asked to deal with the matter.

After some discussion their lordships directed that the writ should be served in the manner asked and granted an interim injunction till the 11th inst., on which day it was arranged that the learned counsel should make an application to Mr. Justice Buckley.



Accordingly Mr. Lawrance mentioned the matter to Mr. Justice Buckley in the Chancery Division on the 11th inst. and said it had been arranged that the interim injunction granted by the Court of Appeal should be extended over the 20th inst.

His lordship granted the application.

## PATENTS OF THE WEEK.

### APPLICATIONS FOR PATENTS.

3,506 of 1902.—J. C. MOOR: *Windows*.

This consists essentially in removing the lower part of the parting and inside beadings, and providing substitute parts therefor, which substitute parts are attached to a plate slidable in and out over the face of the pulley, stile, or fixed frame.

5,819 of 1902.—J. HOLT and C. HOLT: *Electric and Other Power Hoists and Cranes*.

This consists in the combination with a pulley, which is operated by the stopping and starting end rope, or the like, of a partially-toothed wheel turning with said pulley, a second toothed wheel gearing with and locked by the first wheel, and arranged to be turned by the same only after the first wheel has been turned through a certain angle in either directions, a rack gearing with the second wheel and with a toothed pinion on the switch shaft by which the electric supply of the motor of the hoist or crane is controlled, said parts being so arranged that when the said pulley is in the position in which the cage or load is stationary, the pulley has to be turned from its position through a considerable angle at either side before operating the contact arm of the switch to cause the same to drive the electric motor in the one or the other direction.

7,790 of 1902.—J. SHIELDS: *Sofas, Couches, and Such-like Articles*.

This consists in the combination of a duplicate seat or cushion frame (having a back rest immovably fixed upon it) united to the lower frame of the sofa at the front with hinges, also pegs, and sockets for them, and one or more lockfast lids for closing and securing cavities contained in the permanent frames.

8,289 of 1902.—O. HOCKING: *An Edging or Veneering Cramp*.

An iron or other metal frame which drops over the edges of the wood, the inner face of one side being roughened, the other face having a roughened hinge and drop piece which falls against the wood and presses same to the roughened side of frame forming the grip, the pressure being put upon the veneer or other edging by a thumb-screw.

11,444 of 1902.—P. J. RAMM and F. BEHRENDT: *Water Tap or Valve and Operating Device therefor*.

A water delivery tap or valve for domestic service, comprising a main body or vessel connected with the service-pipe and covered at the top with a capping-piece containing an upwardly closing valve adapted to be pressed by a pivoted lever for delivering water through a lateral outlet.

11,644 of 1902.—J. KEITH and G. KEITH: *Lighting Device for Incandescent Gas Burners*.

A lighting device for incandescent gas burners, consisting in the combination with a burner supply-pipe of a bye-pass, the tap having orifices adapted to open the supply-pipe to the burner, and on further turning, to the bye-pass also, a cross lever operating said tap, a pulley at the other end of said lever, a spring acting on said lever to turn the tap to "full on" position, a wire spring at one end of said lever, a pilot lighting tube connected with the bye-pass and having a helical row of jet orifices, a screw for regulating the size of these orifices, 2 wire springs in electric circuit fixed near the pilot tube spring at the end of the lever and, by means of a spark, to ignite the jet in the lowest orifice of the pilot tube when the tap is turned against spring pressure to be opened to the bye-pass as well as the burner.

23,611 of 1902.—W. ECCLES: *Sliding Windows*.

An appliance, which can be fixed to any existing sashes, which consists of iron tubes fixed in place of present staff and parting beads, revolving on pins at top and bottom, forming a hinge upon which the sashes open into the room. A slight groove is formed in the frame into which the tubes fit, to exclude all draught when the sashes are closed. A slot is cut in the tubes. On the sashes are fixed plates with studs, which fit into the said slots in the tubes, allowing of the sashes sliding up and down in the usual manner when closed. When open, the studs secure the sashes from falling. On opposite sides an iron safeguard is fixed in the face of the frame for securing the weights to allow of the cord being detached when it is desired to open the sashes for the purpose of cleaning, painting, and the like.

28,276 of 1902.—D. W. DINNEN and C. L. COOK: *Three-way Valves for Faucets*.

This consists of a valve-casing having two pipes communicating therewith at one side thereof, a discharge spout at the other side, and a valve placed in said casing and provided with a central longitudinal chamber, one side of the valve being

provided with a port or passage adapted to communicate with either or both of said pipes, and the other side being provided with a port or passage adapted to communicate with the discharge spout.

28,348 of 1902.—S. DEARDS: *Roof Glazing*.

A system of dry glazing, consisting essentially of a main bar or core, the end or ends of which are slotted to fit over or on to the purpings which support the bar, and over which bar is fitted or placed a covering or glass, supporting said covering bar, having a channel along each side to carry moisture, and a lead cap which holds the glass in position, said lead cap being fixed by pressing it at intervals into holes formed in the covering bar and the main bar.

3,051 of 1902.—F. H. BRUCE: *Treatment of Wood for the Purpose of Rendering the same Fireproof*.

A process of treating wood for the purpose of rendering it unflammable or fire-resisting, and whereby the wood is also consolidated and strengthened, which process consists in subjecting the wood to a high degree of hydraulic pressure in a saline solution, such as of common salt, silicate of soda, or alum.

3,401 of 1902.—H. DANZER: *Bitumen and Asphalt Cauldrons*.

A bitumen or asphalt cauldron consisting of a central flue through which the hot gases from the furnace are caused to pass, rotary kneading or mixing devices concentric with the said flue and contained between the flue and the shell of the cauldron, and means for effecting the rotation of the kneading or mixing devices.

3,555 of 1902.—B. BUDD: *Production of Concrete, Artificial or Manufactured Stone, Plaster, and Similar Substances used for Building, for Paving, and for Other Purposes*.

The production of concrete, plaster, and such like, by the use of magnesia, silicate of soda, and red oxide of iron.

3,630 of 1902.—C. ALEXANDER: *Safety Apparatus, Working Automatically in Case of Fire*.

This consists in the combination with a tank for the storage of inflammable liquid, and a discharge pipe leading from the bottom thereof, or a diaphragm arranged across, and normally closing, said discharge pipe. A puncture device supported above said diaphragm by a fusible joint, and means connected with said puncture device for automatically closing the discharge pipe after the liquid has been discharged from the tank.

3,666 of 1902.—P. BROWN, JR.: *Winch Tackle and Bucket for Clearing Sewers*.

An apparatus consists of a substantially conical or bell-shaped, and bar-protected bucket. The mouth of the bucket is provided with two half lids mounted on a hinge across the centre, and opened and closed by the tackle when lowering the bucket for use or hauling up when filled.

9,747 of 1902.—M. J. ADAMS: *Liquid Distributing Apparatus and Fittings Connected Therewith*.

This consists in the use of a liquid container and a distributor apparatus wholly or partially buoyant therein, the two being combined for the purpose of delivering liquid to a filter. It also consists in the use of floating apparatus which shall revolve to distribute liquid in combination with the liquid container in which it floats. It further consists in the use of a continuous circulating liquid container in combination with apparatus buoyant thereon for the purpose of a liquid distributor.

20,150 of 1902.—E. SCHWANENBERG: *Process for the Manufacture of Artificial Stone, Particularly Lithographic Stone*.

A process for the manufacture of artificial stone, particularly lithographic stone, consisting in pressing a mixture of pulverised burnt lime and carbonate of lime slaked to hydrate of lime with or without mineral-filling material, and treating the mouldings or stones with carbonic acid and air alternately.

24,024 of 1902.—S. W. LUKWIELER: *Pumps for Raising and Distributing Water*.

The mechanism for driving reciprocating pumps and the like, consisting of cams, each cam having two driving surfaces, and the cam frames, each cam frame having an upper and a lower anti-friction roller, with the upper of which rollers one of the driving surfaces of the cam is in continuous contact, and with the lower of which anti-friction roller the other driving surface of the cam makes and maintains contact during the descending or return stroke of the pump only.

24,819 of 1902.—W. E. HEYS (F. B. GILBRETH): *Apparatus for Supplying Cement to Concrete Mixers*.

This consists of a settling chamber in combination with a flap door and air outlets.

25,110 of 1902.—M. J. ADAMS: *Flushing Apparatus for Closets and Other Purposes*.

This consists in the use of a flushing cistern which shall receive the repeated discharges from a smaller supply cistern.

28,265 of 1902.—J. G. F. LUND: *Walls*.

A wall of artificial stone, or the like, characterised by the arrangement that each stone possesses a tongue on the one side, and is provided on the other side parallel to the tongue with the corresponding groove, and stones are so built in horizontal rows

between the side supports that in each row a continuously consecutive horizontal tongue is formed, which engages in the continuous groove of the row of stones above it, and the adjacent surfaces of the stones are doubly sloped so that each layer acts as an arch against vertical pressure, and, at the same time, alternately as an arch against horizontal pressure from both sides alternately; that, moreover, the adjacent surfaces of the stones in two courses lying one upon another are alternated against one another, so that the alternate bonding is obtained in the vertical direction, whereby the wall operates as an elastic arch against horizontal pressure, and the tongues of each row of stones engaged, with the grooves of the following course, without intermediate material and in firm connection therewith.

28,703 of 1902.—H. S. BUCKLAND: *Chemical Fire Extinguisher*.

This consists in the combination of a tank adapted to contain alkali, and provided with an opening in the upper end thereof, a cap removably fitted over the said opening and having a depending cage, a horizontally disposed locking clasp comprising a hinged section, an acid bottle with an upwardly projecting closed neck adapted to extend through the cap and provided with a lower bridge having opposite members spanning diametrically opposite portions of the neck to crush the latter and the body of the bottle below.

408 of 1903.—G. M. DAVIDSON: *Water Purifiers*.

This consists in the combination of a chemical feed tank, stirring mechanism movably mounted thereon, pump mechanism secured thereto, a water-supply pipe arranged to receive the chemical supply as it passes from the pumps on the chemical feed tank, and a tilting vessel arranged to receive the chemical mixed chemical and water supply to operate the same by and during its movements.

38,650 of 1902.—A. W. ONSLOW: *Burners for High Pressure Gas Lighting*.

A burner for high pressure gas lighting, comprising a burner having at its lower end a gas inlet nozzle and an adjustable air inlet, and a head or cap which is detachably fitted in a gastight manner, the said head being provided with a gauze cap and with a distributor or mixer.

7,550 of 1902.—C. MARSON: *Material for Building Construction*.

This consists of material of a fibrous character—woven or otherwise, such as canvas, asbestos, and the like—and cement, the latter preferably composed of ground calcined magnesite and chloride of magnesite formed into slabs or sheets.

## MEETINGS.

### FRIDAY, MARCH 13.

*Institution of Civil Engineers (Students' Meeting)*—Mr. A. R. Langton on "Reconstruction of Midland Railway Bridge, No. 27, over the River Trent." 8 p.m.

### SATURDAY, MARCH 14.

*Royal Institution*.—Rt. Hon. Lord Rayleigh on "Light, its Origin and Nature." 11. 3 p.m.  
*Edinburgh Architectural Association*.—Visit to Colinton Mains Hospital.  
*Junior Institution of Engineers*.—Annual concert at the Westminster Palace Hotel, Victoria-street, Westminster. 7 to 11.30 p.m.

### MONDAY, MARCH 16.

*Royal Institution of British Architects*.—Mr. Charles Hadfield on "Westminster Cathedral," with lantern illustrations. 8 p.m.  
*Liverpool Architectural Society*.—Mr. Laurence Hobson on "Ancient Churches of Wirral." Limelight view. 6 p.m.

*Society of Arts (Canter Lectures)*.—Prof. J. A. Fleming, M.A., D.Sc., F.R.S., on "Hertzian Wave Telegraphy in Theory and Practice."—I. 8 p.m.  
*Devon and Exeter Architectural Society*.—Paper by Mr. Harbottle Reed, entitled "Some Architectural Notings in Switzerland," with sketches and photographs. 7 p.m.

### TUESDAY, MARCH 17.

*Royal Institution*.—Sir Robert Ball, M.A., F.R.S., on "Great Problems in Astronomy." 11. 3 p.m.  
*Society of Arts (Applied Art Section)*.—Miss Hannah Falcke on "Artistic Fans." 4.30 p.m.  
*Glasgow Architectural Association*.—Sir J. Stirling Maxwell, Bart., on "Contemporary Architecture from a Layman's Point of View." 8 p.m.  
*Institution of Civil Engineers*.—(A) Papers to be further discussed:—1. "Recent Irrigation in the Punjab," by Mr. Sidney Preston. 2. "The Irrigation Weir Across the Bhadar River, Kathiawar," by Mr. John J. B. Benson. (B) time permitting paper on "The Protection Works of the Kaiser-i-Hind Bridge over the River Sutlej, near Persepolis," by Mr. Amey Morse. 8 p.m.

### WEDNESDAY, MARCH 18.

*Architectural Association Camera and Cycling Club*.—Mr. C. Churchill, F.R.P.S., on "Ireland," illustrated with lantern slides. 7.30 p.m.  
*Institute of Building*.—Special Council meeting. 3.30 p.m. Annual general meeting. 4 p.m.  
*Builders' Foremen and Clerks of Works' Institution*.—Ordinary meeting of the members. 8 p.m.  
*Edinburgh Architectural Association*.—Mr. W. Davidson on "Church Decoration." Limelight view. 8 p.m.

\* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.



**Institution of Civil Engineers.**—Students Visit to the Generating Station of the Central Electric Supply Co. Ltd., Lodge-place, Grove-road, N.W. Assembly at the works. 2.30 p.m.

## THURSDAY, MARCH 12.

**Carpenters' Hall, London-wall (Free Lectures on Matters Connected with Building).**—Mr. Maurice Fitzmaurice, C.M.C., Engineer to the L.C.C., on "Nile Dam, Assouan and Egyptian Irrigation." 8 p.m.  
**London Master Builders' Association.**—Finance Committee. 3 p.m. Council meeting. 4 p.m.  
**Architectural Association of Ireland.**—Demonstration at 4 p.m. at Messrs. G. F. Keatinge & Sons' Works, 42, Grafton-street, Dublin; and at 5 p.m. at works of Messrs. Campell & Co.

## FRIDAY, MARCH 20.

**Architectural Association.**—Mr. W. H. White on "Ancient and Modern Town Houses." 7.30 p.m.  
**Institution of Mechanical Engineers.**—Mr. J. Rowan on "A Premium System Applied to Engineering Workshops." 8 p.m.  
**Birmingham Architectural Association.**—Mr. Harold Baker on "A Sketch of the History of English Architecture."

## SATURDAY MARCH 21.

**Royal Institution.**—Right Hon. Lord Rayleigh on "Light: its Origin and Nature." IV. 3 p.m.  
**Architectural Association.**—Fourth Spring Visit.

## SOME RECENT SALES OF PROPERTY:

## ESTATE EXCHANGE REPORT.

February 24.—By STEPHENSON & ALEXANDER (at Cardiff).	
Cardiff, Glamorgan.—15, 17, and 19, Castle-st. (S.), ut. 50 yrs, g.t. 41. 25, y.r. 80l. ....	£1,310
February 26.—By WYATT & SON	
Fincham, Sussex.—1 to 5, Hermit-ter., f., y.r. 39l. ....	610
Cross-lane, freehold house, f., y.r. 20l. ....	400
Cross-lane, three freehold cottages and shops, y.r. 13l. ....	320
Cross-lane, freehold house and shop, y.r. 22 p. ....	220
Cross-lane, freehold meadow, 2 a. 2 r. 22 p. ....	410
Nepcote-lane, freehold house and two cottages, y.r. 32l. 10s. ....	580
Fincham Hill, three freehold cottages, y.r. 39l. ....	275
Fincham Hill, Mill House, f., y.r. 21 p. ....	225
Fincham Hill, enclosure of pasture, 3 a. or 21 p. f. ....	105
February 27.—By HICKMAN & SON (at Wellingpool).	
Llanfair, Montgomery.—Bryn Glas Hall Estate, 92 a. f. ....	1,300
February 28.—By STEPHENSON & ALEXANDER (at Cardiff).	
Rumney, Mon.—Enclosure of pasture, 7 a. 3 r. 4 p. f., y.r. 20l. ....	680
March 2.—By BALCH & BALCH.	
Crouch Hill.—2 and 3, The Grove, ut. 91 yrs, g.t. 14l. 14s. y.r. 74l. ....	740
By FURBER, France & FURBER.	
Cee.—23, Burd Ash Hill, ut. 64 yrs, g.t. 13d. y.r. 55l. ....	350
Willenden Green.—38, Huddleston-rd., f., y.r. 33l. ....	470
By HAMMERLEY, KENWORTHY & CO.	
Wandsworth.—12, Alford-rd., ut. 64 yrs, g.t. 41. 48, w.r. 31l. 4s. ....	245
By HOLCOMBE, BETTS, & WEST.	
St. John's Wood.—52, Finchley-rd., ut. 162 yrs, g.t. nil, e.r. 100l. ....	800
By NOKES & NOKES.	
Shepherd's Bush.—The Starling, f., y.r. 45l. ....	645
By PROTHROKE & MORRIS (at London Bridge).	
Walmer, Kent.—Main road, &c., 57 plots of freehold building land, f. ....	307
March 3.—By S. B. CLARK & SON.	
Fulham.—1 to 4, Sydney-ter., (S.), f., y.r. 530l. ....	11,200
Marlybone.—31, Weymouth-st., 20, Weymouth-st., ut. 114 yrs, g.t. 40l. p. ....	1,200
By BROOKE, THOMES & CO.	
Hackney.—19, Lower Clapton-rd., f., y.r. 77l. ....	1,550
Stockwell.—23, Lansdowne-gdns., ut. 394 yrs, g.t. 74l. y.r. 45l. ....	305
By ALFRED RICHARDS.	
Tottenham.—199, 201, and 203, Philip-lane (S., with two stabling), f., y.r. 134l. ....	2,030
201 and 203, Philip-lane (S., with two stabling), with land in rear, f., y.r. 91l. ....	1,650
200 and 211, Philip-lane (S., and Post-office), f., y.r. 74l. ....	1,510
45 to 65, 75 to 93 (odd), Summerhill-rd., f., w.r. 533l. ....	4,850
82, 14, and 16, Dorset-rd., f., w.r. 54l. 12s. ....	515
401 and 403, West Green-rd. (S.), f., y.r. 64l. ....	705
By RUTLEY, SON, & VINCE.	
Canden Town.—11, Crowland-rd., (S.), ut. 49 yrs, g.t. 7l. 10s. y.r. 50l. ....	1,300
Chalk Farm.—1, Berkeley-rd., ut. 414 yrs, g.t. 6l. y.r. 50l. ....	540
By GEORGE LOVETT & SONS (at Coventry).	
Coventry, Warwick.—16 and 17, Broadgate (S.), area 250 yds, f., y.r. 210l. ....	5,330
7 to 10, Much Park-st. (S.), with tenements in rear, area 717 yds, f., y.r. 124l. ....	2,215
By NICHOLAS, DENVER, & CO. (at Ashford).	
High Halden, Kent.—Beryl Lodge Farm, 45 a. or 18 p. f., p. ....	685
By M. MAXWELL & SON (at Exeter).	
Exeter.—8 and 9, Elm Grove-rd., area 560 ft., f. 88, Yewell-villas, f., y.r. 70l. ....	1,160
47, High-st. (S.), f., y.r. 115l. ....	2,505
100, Johnston, f., y.r. 114l. ....	105
100, Cowick-st., f., y.r. 124l. ....	135
176, 77, 78, Cowick-st., f., y.r. 36l. ....	460
121, 120, and 127, Cowick-st., together with ten acres and a fruit gdn. in rear, f., w.r. 103l. 15s. 4d. ....	1,185
Silverton, Devon.—A leasehold rent-charge of 54 12s. ....	115

By S. H. BAKER (at Masons' Hall Tavern).  
Stratford.—Broadway, the King of Prussia p.h., a freehold rental of 50l., reversion in 41 yrs. ....

March 4.—By BURTON, SMITH, & CO.

Streatham.—37, Ellison-road, ut. 76 yrs, g.t. 10l., e.r. 55l. ....

By CURTIS & SHARP.

Plaistow.—14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

Pelly-rd., f.g.r. 6l., reversion in 41 yrs. ....

By FOSTER & CRANFIELD.

Battersea.—301, 303, and 305, Queen's-rd., ut. 604 yrs, g.t. 24l. y.r. 100l. ....

By HAMPTON & SONS.

Regent-st.—Nos. 219 and 221; also 1, Maddox-st., l.g.r.'s 266l. 4s. 9d., ut. 173 yrs, g.t. 65l. 4s. 9d. ....

St. John's Wood.—Henry-st., l.g.r.'s 45l., ut. 142 yrs, g.t. nil. ....

Clerkenwell.—Lloyd-st., l.g.r.'s 21l. 6s., ut. 184 yrs, g.t. 4l. ....

Cumberland-ter., l.g.r.'s 21d., ut. 164 yrs, g.t. 4l. ....

Fincham Park.—28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699,



## CONTRACTS AND PUBLIC APPOINTMENTS.

(For some Contracts, &amp;c., still open, but not included in this List, see previous issues.)

## CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c., supplied by	Tenders to be delivered
Rebuilding Bolton Hall, Lechworth, Yorks.	Rhymney U.D.C.	C. Holston Fowler, The College, Durham	Mar. 10
Pavement with Kurb, &c., High-street	do.	W. L. Marks, Surveyor, 61, High-street, Rhymney	Mar. 11
Road from Rhymney Station to Aberystwyth	do.	do.	do.
Surveyor's Materials	St. Helens (Lanes) Corporation	G. J. C. Broom, Civil Engineer, Town Hall, St. Helens	do.
Sewers, &c., Rhymney Valley	Garnthly (Wales) U.D.C.	A. C. Harpur, Engineer, 14, Appleby	do.
Foundations, Market-place	Rale, Re U.D.C.	W. L. Rothwell, Engineer, Council Offices, Radcliffe	do.
Slag Road Metal	Workop R.D.C.	T. Hopkinson, Surveyor, 40, Bridge-street, Workop	do.
Sewers, near Preston	Fulwell (Lanes) U.D.C.	E. H. Naylor, Surveyor, Fulwood, Preston	do.
Surveyor's Materials	Hampton (Middlesex) U.D.C.	T. H. Chambers, Surveyor, Council Offices, Hampton	do.
Road Materials, near Sheffield	Wartley R.D.C.	F. Crawshaw, Surveyor, Loxley	do.
Private Street Works (Ten Roads), Woolston, Hants.	do.	T. A. Collingwood, Surveyor, Portsmouth-road, Woolston	do.
Public Street Works, Avenue and Manor Roads	North Wiltshire R.D.C.	G. & G. H. Crowther, Civil Engineer, 38, New-street, Huddersfield	Mar. 14
Road Works, Calverley, near Leeds	Mr. T. Elwans	A. W. Brooker, Surveyor, Wimbington, near March	do.
Grants (to 10s.), 1-10 of Fly	do.	B. J. Francis, Architect, Abingdon	do.
Eleven Houses, Pennant-street, Ebbw Vale	Midsomer Norton U.D.C.	Engineer & Surveyor to the Council, Market Hall, Midsomer Norton	do.
Villa, Stabling, &c., Pennant-street, Ebbw Vale	Mollard Railway Co.	Engineer's Offices, Derby Station	Mar. 19
*Two Cottages, &c.	St. Mary Tellington Guardians	R. Berry, Architect, Commercial-street, Halifax	do.
Cleaning and Painting Engine Sheds, &c.	Rothwell (near Leeds) U.D.C.	Jas. Enright, 17, Victoria-street, S.W.	do.
House, Clover Hill, Halifax	Hull Corporation	J. T. Pears, Surveyor, Council Offices, Rothwell	Mar. 29
*Water Slinger, &c., at Infirmary, Fishers' Hill, N.	Horsham Street R.D.C.	A. E. White, Civil Engineer, Town Hall, Hull	do.
Whinstone, Grants, &c. (to 10s.)	Sibsey (Lanes) R.D.C.	W. Vaux Graham, Civil Engineer, 8, Queen Anne's-gate, Westminster	Mar. 21
Macadam Stoad (9,000 tons)	Durham Town Council	J. M. Simpson, Boston	do.
Drainage Works, Billingshurst	Barnley Corporation	J. S. Pegge, City Surveyor, Durham	do.
Grants and Slag	do.	G. H. Peckes, Civil Engineer, Town Hall, Barnley	do.
Grants and Slag	do.	L. Banks-Price, Architect, 23, High-street, Lampeter	do.
Surveyor's Materials	Mr. J. M. Phillips	G. Morgan & Son, Architects, 21, King-street, Carmarthen	Mar. 22
Assembly Rooms, Llanpethel	Wrexham Town Council	Borough Surveyor, Town Hall, Wrexham	Mar. 23
Farm Buildings, Trevilith, Mayfield, Wals.	Penkington Union	T. E. Knightley, Architect, 106, Cannon-street, E.C.	Mar. 24
Wrought-iron Shed, W. L. W. Road	Bowditch (Staffs.) U.D.C.	W. B. Chancellor, Surveyor, Public Buildings, Brownhills	do.
*Electric Bell Lift at Infirmary	Valley-lea District Council	Engineer to the Council, Public Offices, Dyne-road, Kiburn, N.W.	Mar. 25
Bricks, Kurb, &c.	Metropolitan Asylums Board	Office of the Board, Embankment, E.C.	do.
Roadmaking & Paving, Lady Smith, Crediton, &c. Roads	do.	do.	do.
*Erecting Sanitary Annexes, &c. Caterham Asylum	do.	do.	do.
*Erecting Laundry Maids' Quarters, Caterham Asylum	do.	do.	do.
*Jarrah Wood Block Paving, Eastern River Hospital	do.	do.	do.
*Twenty-two Houses, Fenny-Isle, Penzance	do.	do.	do.
*Alterations to Kitchen, New Service Room, &c. Asylum	do.	do.	do.
Sewerage Works	do.	do.	do.
*Sewage Pumping Station, &c.	do.	do.	do.
Well Sinking	do.	do.	do.
*Rebuilding Upper Stages of Tower of Town Hall	do.	do.	do.
*Main Sewerage Works, Wyke Road	do.	do.	do.
*Boundary Wall and Governor House, &c.	do.	do.	do.
*Construction of Macadamized Roads, Sewers, &c.	do.	do.	do.
*New Sorting Office, Wavertree, Liverpool	do.	do.	do.
*Iron Escape Staircases, &c. at Workhouse	do.	do.	do.
*Structural Alterations and Decorative Repairs	do.	do.	do.
*Nurses' Home, Fire Escape Staircases	do.	do.	do.
*Hford Bridge Reconstruction	do.	do.	do.
*Barking Bridge Reconstruction	do.	do.	do.
*Excavating and Levelling Site, &c. Netherham Asylum	do.	do.	do.
Road Metal, &c.	do.	do.	do.
Boiler Shop, &c., Jack-lane, Leeds	do.	do.	do.
Church, Yarm-lane, Stockton	do.	do.	do.
Additions to Heathfield School	do.	do.	do.
Car Depot, Queen's Gate	do.	do.	do.
Three Houses, Brompton, near Northallerton	do.	do.	do.
Two Houses, Neath	do.	do.	do.

## PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*Building Foreman of Works	Crown Agents for the Colonies	300L.	Mar. 23
*Assistant to Organiser & Instructor in Manual Training	School Board for London	300L.	do.

Those marked with an asterisk (\*) are advertised in this Number.

Contracts, iv. vi. viii. &amp; x.

Public Appointments, xvi.

## PRICES CURRENT (Continued).

STONE.	
YORK STONE—Robin Hood Quality.	
Scrapped random blocks 2 10 per ft. cube, deld. rly. depot.	
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 3 per foot super.
6 in. Rubbed two sides ditto, ditto	2 6
3 in. Sawn two sides slabs (random sizes), 0 11½	
2 in. to 2½ in. Sawn one side slabs (random sizes)	0 7½
1½ in. to 2 in. ditto, ditto	0 6
Scrapped random blocks 6 in. sawn two sides, landings to sizes (under 40 ft. sup.)	2 8 per ft. super.
6 in. Rubbed two sides ditto	—
3 in. sawn two sides slabs (random sizes)	2 2
2 in. self-faced random flags	0 3
Hopton Wood (Hard Bed) in blocks 6 in. sawn both sides landings	2 7 per ft. super.
do. do. do. 3 in. do.	2 2½

## PRICES CURRENT (Continued).

SLATES.	
in. in.	£ s. d.
20 x 10 best blue Bangor	13 2 6 per 1000 of 1200 at rly. dep.
20 x 12 " " "	13 17 6
20 x 10 best seconds	12 15 0
20 x 12 " " "	13 0
20 x 12 " " "	7 0
20 x 10 best blue Portman	13 5 0
do. do. do.	13 5 0
16 x 8 best blue Portman	6 0 0
20 x 10 best Eureka un-fading green	15 0 0
20 x 12 " " "	10 10 0
18 x 10 " " "	11 10 0
16 x 8 " " "	7 6
20 x 10 permanent green	10 10 0
18 x 10 " " "	9 0 0
16 x 8 " " "	6 5 0
TILES.	
Best plain red roofing tiles	40 0 per 1,000, at rly. depot.
Best Broseley tiles	50 0 per 1,000
Do. Ornamental Tiles	52 6
Hip and valley tiles	40 0 per doz.
Best Red, Brown or brinded Do. (Edwards)	57 6 per 1,000
Do. ornamental Do.	60 0
Hip tiles	40 0 per doz.
Valley tiles	3 0

## PRICES CURRENT (Continued).

TILES.	
Best Red or Mottled Staffordshire Do. (Peaks)	51 9 per 1,000 at rly. depot.
Do. Ornamental Do.	54 6
Hip tiles	4 1 per doz.
Valley tiles	3 8
Best "Rosemary" brand plain tiles	48 0 per 1,000
Do. Ornamental Do.	50 0
Hip tiles	4 0 per doz.
Valley tiles	3 8
WOOD.	
Deals: best 3 in. by 11 in. and 4 in. by 6 in. and 11 in.	15 10 0
Deals: best 3 by 2 in. by 6 in.	14 10 0
Battens: best 2½ in. by 7 in. and 8 in. and 3 in. by 7 in. and 8 in.	11 10 0
Battens: best 2½ by 6 and 3 by 6	10 0
Deals: seconds	10 0
Battens: seconds	10 0
2 in. by 4 in. and 2 in. by 6 in.	8 10 0
2 in. by 4 in. and 2 in. by 5 in.	8 10 0
Foreign Sawm Boards—2 in. and 1½ in. by 7 in.	10 0
3 in.	10 0



## PRICES CURRENT (Continued).

## WOOD.

	At per load of 50 ft.	At per standard.
White Sea—First yellow deals,	23 0 0	24 0 0
3 in. by 11 in.	21 0 0	22 10 0
3 in. by 9 in.	17 0 0	18 10 0
Battens, 2 1/2 in. and 3 in. by 7 in.	18 10 0	20 0 0
Second yellow deals, 3 in. by 11 in.	17 10 0	19 0 0
Battens, 2 1/2 in. and 3 in. by 7 in.	13 10 0	14 10 0
Third yellow deals, 3 in. by 11 in.	15 10 0	16 10 0
and 9 in.	11 10 0	12 10 0
Petersburg—first yellow deals, 3 in.	21 0 0	22 10 0
by 11 in.	18 10 0	20 10 0
Battens, 2 1/2 in. by 9 in.	13 10 0	15 0 0
Second yellow deals, 3 in. by 11 in.	16 0 0	17 0 0
Do. 3 in. by 9 in.	14 10 0	16 0 0
Battens, 2 1/2 in. and 3 in. by 7 in.	11 10 0	12 10 0
Third yellow deals, 3 in. by 11 in.	13 10 0	14 0 0
Do. 3 in. by 9 in.	13 0 0	14 0 0
Battens, 2 1/2 in. and 3 in. by 7 in.	10 0 0	11 0 0
White Sea and Petersburg—		
First white deals, 3 in. by 11 in.	14 10 0	15 10 0
3 in. by 9 in.	13 10 0	14 10 0
Battens, 2 1/2 in. and 3 in. by 7 in.	13 10 0	14 10 0
Second white deals 3 in. by 11 in.	13 10 0	14 10 0
3 in. by 9 in.	12 10 0	13 10 0
Battens, 2 1/2 in. and 3 in. by 7 in.	9 10 0	10 10 0
Under 2 in. thick extra	0 10 0	1 0 0
Yellow Pine—First, regular sizes	33 0 0	upwards.
Oddments	22 0 0	24 0 0
Second, regular sizes	20 0 0	22 0 0
Yellow Pine Oddments	20 0 0	22 0 0
Laurel Pine—Planks, per ft. cube.	0 3 6	0 4 6
Dauri and Stettin Oak Logs—		
Large, per ft. cube	0 2 6	0 3 6
Small	0 2 3	0 3 6
Wainscot Oak Logs, per ft. cube	0 5 0	0 5 6
Wainscot Oak, per ft. sup. as	0 0 7	0 0 8
inch	0 0 6 1/2	0 0 7
Do. Mahogany—		
Honduras, Tabasco, per ft. sup.	0 0 9	0 0 11
as inch	0 1 6	0 2 0
Selected, Figury, per ft. sup. as	0 1 6	0 2 0
inch	0 1 6	0 2 0
Figury Walnut, American, per ft. sup.	0 0 10	0 1 0
as inch	0 0 10	0 1 0
Oak, per load	16 10 0	20 0 0
American Whitewood Planks—		
Regard Floorings	0 4 0	0 5 0
Per square.		
3 in. by 7 in. yellow, planed and	0 13 6	0 17 6
shot.		
4 in. by 7 in. yellow, planed and	0 14 0	0 18 6
matched.		
4 1/2 in. by 7 in. yellow, planed and	0 16 0	0 1 6
matched.		
5 in. by 7 in. white, planed and	0 11 6	0 13 6
matched.		
5 1/2 in. by 7 in. white, planed and	0 12 0	0 14 6
matched.		
6 in. by 7 in. white, planed and	0 14 6	0 16 6
matched.		
6 1/2 in. by 7 in. yellow, planed and	0 11 0	0 13 6
beaded or V-jointed boards	0 14 0	0 18 0
as 7 in. by 7 in. do. do.	0 14 0	0 18 0
as 8 in. by 7 in. white do. do.	0 13 0	0 15 6
as 9 in. by 7 in. do. do. do.	0 11 6	0 13 6
as 6 in. by 6 in. do. do. do.	0 11 6	0 13 6
as 6 in. by 6 in. do. do. do.	0 11 6	0 13 6

## JOISTS, GIRDERS, &amp;c.

	In London, or delivered.	Railway Vans, per ton.
Galvanized Steel Joists, ordinary sections	8 5 0	8 5 0
Compound Girders	8 2 6	8 5 0
Angles, Tees and Channels, ordinary sections	7 17 6	8 17 6
Flat Plates	8 5 0	8 15 0
Cast Iron Columns and Stanchions, including ordinary patterns	7 2 6	8 5 6

## METALS.

	Per ton, in London	At per standard.
Common Bars	7 15 0	8 5 0
Staffordshire Crown Bars, good merchant quality	8 5 0	8 15 0
Staffordshire "Marked Bars"	10 10 0	11 0 0
Mild Steel Bars	9 0 0	9 10 0
Hoop Iron, basis price	9 5 0	9 10 0
"galvanized	16 0 0	17 0 0
Cast Iron, Black—		
Ordinary sizes to 20 g.	10 0 0	11 0 0
" " 20 to 24 g.	11 0 0	12 0 0
" " 24 to 26 g.	12 10 0	13 0 0
Cast Iron, Galvanized, flat, ordinary quality—		
Ordinary sizes, 6 ft. by 4 ft.	12 15 0	13 0 0
" " 22 g. and 24 g.	13 0 0	14 0 0
" " 26 g.	14 5 0	15 0 0
Cast Iron, Galvanized, flat, best quality—		
Ordinary sizes to 20 g.	16 0 0	17 0 0
" " 22 g. and 24 g.	17 0 0	18 0 0
" " 26 g.	18 0 0	19 0 0
Galvanized Corrugated Sheets—		
Ordinary sizes, 6 ft. to 8 ft. 20 g.	12 15 0	13 0 0
" " 22 g. and 24 g.	13 5 0	14 0 0
" " 26 g.	14 5 0	15 0 0
Soft Steel Sheets, 6 ft. by 4 ft. to 3 ft. by 20 g.	12 0 0	13 0 0
" " thicker	13 0 0	14 0 0
" " 22 g. and 24 g.	13 0 0	14 0 0
" " 26 g.	14 5 0	15 0 0
Soft Steel Sheets, 6 ft. by 4 ft. to 3 ft. by 20 g.	9 5 0	9 15 0
(Under 3 in. usual trade extras.)		

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	Per ton, in London.	At per standard.
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Pipe in coils	15 5 0	16 5 0
Soil pipe	17 15 0	18 5 0
Compo Pipe	17 15 0	18 5 0
ZINC—Sheet		
Vicille Montagne	25 10 0	26 10 0
Silesian	25 5 0	26 5 0
COPPER—		
Strong Sheet	per lb.	0 10 1/2
Thin	"	0 11 1/2
Copper nails	"	0 11 1/2
BRASS—		
Strong Sheet	"	0 10 1/2
Thin	"	0 11 1/2
TIN—English Ingots	"	0 11 1/2
SOLDER—Plumbers'	"	0 0 6 1/2
Timmen's	"	0 0 8 1/2
Blowpipe	"	0 0 9 1/2

## ENGLISH SHEET GLASS IN CRATES.

	2 1/2 ft. per ft. delivered.	At per standard.
15 oz. thirds	14 1/2	15 1/2
" fourths	14 1/2	15 1/2
21 oz. thirds	14 1/2	15 1/2
" fourths	14 1/2	15 1/2
26 oz. thirds	14 1/2	15 1/2
" fourths	14 1/2	15 1/2
32 oz. thirds	14 1/2	15 1/2
" fourths	14 1/2	15 1/2
Fluted sheet, 15 oz.	14 1/2	15 1/2
" 21 oz.	14 1/2	15 1/2
1 Hartley's Rolled Plate	14 1/2	15 1/2
" 21 oz.	14 1/2	15 1/2
" 26 oz.	14 1/2	15 1/2
" 32 oz.	14 1/2	15 1/2

## OILS, &amp;c.

	£ s. d.
Raw Linseed Oil in pipes or barrels	per gallon 0 8 4
" " in drums	" 0 8 4
Boiled " in pipes or barrels	" 0 8 4
" " in drums	" 0 8 4
Turpentine in drums	" 0 8 4
Genuine Ground English White Lead	per ton 20 10 0
Red Lead, Dry	" 20 0 0
Best Linseed Oil Putty	per cwt. 8 0 0
Stockholm Tar	per barrel 12 0 0

## VARNISHES, &amp;c.

	Per gallon.
Fine Pale Oak Varnish	£ s. d.
Pale Copal Oak	0 8 0
Superfine Pale Elastic Oak	0 12 6
Eggshell Flaxing Varnish	0 18 0
Superfine Hard-drying Oak for Seals of Churches	0 14 0
Fine Elastic Carriage	0 12 6
Superfine Pale Elastic Carriage	0 12 6
Fine Maple	0 10 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 10 0
White Copal Enamel	1 4 0
Extra Pale Paper	1 10 0
Best Japan Gold Size	0 10 0
Best Black Japan	0 10 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 6
Berlin Black	0 16 0
Knocking	0 10 0
French and Brush Polish	0 10 0

## TO CORRESPONDENTS.

NOTE.—The responsibility of signed articles, letters and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender, whether for publication or not.

No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and giving addresses.

Any communication to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

## TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us not later than 10 a.m. on Thursdays. N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is underfoot, unless in some exceptional cases and for special reasons.]

\* Denotes accepted. † Denotes provisionally accepted.

ABERGELE (Wales).—For the erection of a nurses' home at Ashton-under-Lyne, for the Guardians of the Poor, Ashton-under-Lyne Union. Messrs. Eaton, Sons, & Cantrell, architects, Ashton-under-Lyne. £5,530

Building—J. Riddard, Ashton-under-Lyne. £5,530

Plumbing and Glazing—G. H. Coop, Ashton-under-Lyne. 85s

COLNE.—For extensions to sewage farms, &c., for the Corporation. Mr. T. H. Hartley, Borough Surveyor, Town Hall, Colne, Lancs.—

Ward & Tetley, 149, Swan-arCADE, Bradford?—£3,753 13 10

DARTFORD.—For internal iron fencing and gates at Joyce Green Hospital, Dartford, Kent, for the Metropolitan Asylums Board. Messrs. A. & C. Harston, architects, 15, Leadenhall-street, E.C. 3.—

Motley & Green	£3,526 16 0	Hill & Smith	1,860 10 0
Hayward & Sons, Ltd.	2,370 0 0	Dudley	1,840 5 0
Wenham & White	2,352 0 0	Bain & Co.	1,798 10 0
Roswell & Co.	2,199 10 0	Miller & Sons	1,798 0 0
Bayliss, Jones, & Bayliss, Ltd.	2,156 11 3	E. J. Ray	1,607 10 10
Priest & Sons	2,100 0 0	J. Ellwell	1,682 7 6
Rowland Bros.	2,047 0 0	A. E. Wood	1,600 0 0
Morton & Co., Ltd.	1,950 0 0	Arabin-rd, Brockley	1,535 10 0

DEVONPORT.—For the erection of a mortuary chapel at cemetery, North Prospect, for the Town Council. Mr. J. F. Burns, Borough Surveyor, Ker-street, Devonport.—

F. J. Stanbury, Devonport?—£2,051

DIDSBURY (near Manchester).—For the erection of a private residence, for Mr. Leonard Letter. Messrs. Maxwell & Tuke, architects, 25, Brazenose-street, Manchester. Quantities by the architects.—

Evan Roberts & Co.	£2,554	Neill & Sons	£2,000
G. England	2,227	William Shaw	2,083
William Thorpe	2,195	Henry Matthews	2,016
George Macfarlane	2,172	Burgess & Galt	1,980
Wilson & Telford	2,100		

EPSOM.—For the erection of a boiler-house, &c., at the infirmary, for the Guardians. Mr. H. D. Seales Wood, architect, 117, Wool Exchange, Coleman-street, E.C. 3.—

F. Pearce	£201	Cropley Bros.	£663
G. Bulford	780	Jones & Sons	664
Niel & Co.	738	Cadman & Hazell	650
T. Vaughan	689	Foster Bros.	634
R. S. Humphris	676	C. Price	610
L. H. & R. Roberts	676	Roll & Taylor	594

GREAT BROUGHTON (Cumberland).—For a new infant school at Great Broughton, for the Great Broughton School Board. Messrs. W. G. Scott & Co., architects, Victoria-buildings, Workington. Quantities by architects.—

Full Tenders.	
Rigley & Son	£1,219 0
H. Tintion, Flimby	1,062 16

Masonry Work.

L. Ferguson	£651	Rigley & Son	£543 0
J. Shackley	573 12	Geo. Mann	449 10
B. Hyde	559 0		

Masonry, Slatings, and Plastering.

Wren & Co.	£742 18
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Joinery Work.

J. Fletcher	£381 12 1/2	Graves & Son	£317 10 6
G. H. Chambers	350 0	John Steel	304 10 0
P. Robinson	367 8 0		

Slatings Work.

T. Mandale	£134 5 8	E. Burrow	£119 10 10
Lythgoe & Son	119 0 0		

Plumbers' Work.

J. Birkett	£100 0 0	D. M. Walker	£66 0 0
Rook & Co.	79 13 0	Hodgson & Co.	64 15 0
W. Stewart	73 0 0	G. H. Dunobbin	61 10 0
W. Strathern	71 3 0	J. A. Pape	59 10 0
Fisher & Co.	68 2 0	Hanks & Son	55 11 0

Plastering.

Lawson & Co.	£120 12 3	J. Perrin	£107 7 0
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Painting and Glazing.

J. McKay	£45 15 1/2	Cowen & Co.	£32 1 1
J. Gordon	34 14 6	Robinson & Co.	29 7 0
G. Davies	34 11 4	T. D. Keenleyside	23 0 0

HOUNSLOW.—For erecting a masonic temple, Hounslow, for the Middlesex Masonic Temple Co., Ltd. Mr. C. Botterill, architect, 583, Fulham-road, Waltham Green, S.W. 2.—

W. Nash	£1,602 0	Edwards & Med-	£1,390 0
M. D. Willis	1,549 15	way	
Messrs. & Sons	1,538 0	McArthur & Co.	1,372 0
T. Hiscock	1,488 0	J. W. Brooking	1,368 0
		Richmond	

[Architect's estimate, £1,394.]

LITTLEHAMPTON.—For public conveniences, Littlehampton, for the Town Council. Mr. H. Howard, Surveyor, Town Offices, Littlehampton. Quantities by Mr. C. F. A. Poland, 6, John-street, Bedford-row, W.C. 1.—

A. Longhurst	£1,127	W. Wallis	£1,277
G. Jennings, Ltd.	1,150	Linfold & Sons	
A. Burrell	1,149	Littlehampton	1,197
Snewell Bros.	1,123		

[See also next page.]



LONDON.—For drainage and other works, First-avenue, Wilberforce-road, Cowley-place, and The Parroquets, for the Hendon Urban District Council. Mr. S. Slater Grimley, Engineer, Council Offices, Hendon, N.W.:

	First Avenue.	Cowley Place.	Wilberforce Road.	The Parroquets.	Total.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Griffith & Co., Ltd.	540 13 10	195 0 8	569 14 6	578 1 0	2,202 10 2
Williamson & Co.	759 7 9	278 1 0	602 18 3	644 19 6	2,202 10 2
Novell & Co.	700 11 1	195 4 4	102 9 3	487 10 0	2,085 0 8
Joseph Weston	688 0 4	194 13 8	541 13 9	566 2 6	1,992 10 3
Thomas Adams	720 2 0	276 4 0	578 17 0	419 0 10	1,997 13 10
Balfour, Ltd.	599 17 10	187 6 8	540 10 6	521 1 6	1,954 16 6

\* Recommended for Acceptance.

LONDON.—For the erection of three new blocks of buildings in extension of the work-house, and guardians' offices at King's-road and Sydney-street, Chelsea, for the Guardians of the Poor of Chelsea. Messrs. Lansell & Harrison, architects, 65 and 66, Hainault-street, London, E.C. Quantities by Messrs. Northcroft, Son, & Nicholson, 0, Regent-street, S.W.:

W. Willett, ..... £44,000  
 Foster & Dickes ..... 39,936  
 Leslie & Co., Ltd. .... 10,000  
 Gray, Hill, & Co. .... 35,417  
 Johnson & Co. .... 37,920  
 Godson & Sons ..... 17,000  
 H. L. Holloway ..... 37,000  
 Pattison & Sons ..... 36,923  
 Kirk & Randall ..... 36,755  
 Kallert & Sons, Ltd. .... 36,687  
 F. G. Minter ..... 36,601  
 Smith & Sons ..... 36,594  
 J. & M. Patrick ..... 35,591  
 C. F. Kearley ..... 36,550  
 Holloway Bros. .... 36,400

J. Greenwood, Ltd. £36,264  
 G. Parker ..... 39,007  
 Kingerlee & Son ..... 36,087  
 Shute & Son ..... 36,020  
 Lawrence & Sons ..... 35,761  
 B. E. Nightingale ..... 35,748  
 Edwards & Medway ..... 35,400  
 W. Wallis ..... 34,910  
 A. E. Symes ..... 34,459  
 King & Sons ..... 33,725  
 Patman & Fotheringham ..... 33,725  
 C. Wall, Upcombe road, Chelsea\* ..... 32,825

LONDON.—For providing 92 tables, 180 seats, and 2 bookcases required for the furnishing of the Mill-lane lodging-house, for the London County Council:

	Tables Each.	Seats Each.	Book Cases.	Total Amount Each of Tender.
Hammer & Co., Ltd.*	2 3 0	1 5 0	1 0	449 0
Bennett Furnishing Co.	1 19 0	1 6 0	13 10	144 17
Wake & Dean, Ltd.	2 10 0	1 12 0	22 13	25 1
General Builders, Ltd.	2 9 1	1 19 0	24 11	633 12
Hampton & Sons, Ltd.	—	—	23 13	—

† Alternative estimate of 424 2s.

LONDON.—For the erection of a private residence at Oakcroft-road (the Knoll Estate), Blackheath, for Mr. Arthur E. Robinson. Mr. Leonard V. Hunt, architect, 34, Queen-street, London, E.C.:

Kennard Bros., Lewisham, S.E.\* ..... £1,950

NEWTON ABBOT (Devon).—For additions to work-house, for the Guardians. Mr. S. Segar, architect, Union-street, Newton Abbot. Quantities by the architect:

W. Brenton ..... £3,247 0 0  
 L. Bearne ..... 3,025 0 0  
 H. Drew ..... 2,997 0 0  
 Parker Bros. .... 2,959 0 0  
 Yeo & Sons ..... 2,954 8 5

F. A. A. Stacey £2,950 0 0  
 G. Hicks ..... 2,805 13 0  
 M. Brideman ..... 2,800 0 0  
 F. Zealley ..... 2,795 0 0

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 Geo. Chadwick, Preston ..... £173 1 4

SOUTHAMPTON.—For the completion of four boreholes, Otterbourne, near Shawford, for the Corporation. Mr. W. Matthews, C.E., 18 and 19, French-street, Southampton:

Hill & Co. .... £1,100 0 0  
 Henderson & Co. 1,080 0 0  
 Mather & Platt ..... 590 0 0  
 British-American Well Works ..... 512 10 0  
 R. D. Batchelor ..... 511 10 0  
 New Calyx Drill Co. .... 500 0 0  
 Aqueduct Works, &c. 500 0 0  
 Timmins & Sons ..... 470 0 0

W. Stone ..... £450 0 0  
 Dunn & Booth ..... 598 0 0  
 Potter & Co. .... 594 0 0  
 J. Thorn ..... 575 10 0  
 Hole & Roberts ..... 270 0 0  
 Isler & Co. .... 250 0 0  
 Le Grand & Sutcliffe ..... 182 0 0  
 Duke & Ockenden 174 10 1

WOKING.—For the erection of a new billiard-room at Mar House, for Mr. E. W. Price Harris. Mr. Samuel Ridgeway, C.E., Woking, architect:—  
 Harris & Son ..... £277 0 0  
 Drowley & Co. .... 275 0 0  
 Woking\* ..... £251 11 5

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# The Builder.

VOL. LXXXIV.—No. 3127.

MARCH 21, 1903.

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### Palladio.



DOZEN years ago there was a book-shop on the north side of the Euston-road, on whose outside shelf there appeared one day a little Italian volume, commended to British buyers by a book-eller's paper label inscribed, "Houses: How Build." The happy purchaser of this misnamed book found that he had secured for his sixpence an undamaged copy of "Il Forestiere strutto di Vicenza," an unpretentious treatise which, in the guise of a local guide-book, is practically a monograph on Palladio, and contains no less than thirty-six creditable gravings, chiefly representing the works that great architect. In truth, it contains more, for the aspect of its Italian pages, the sound of its Italian words, and the very look of its Italian mottled binding are enough to bring back to any man who has set foot in Vicenza the memory of the warm day when he first sipped his coffee under the shadow of the great Palazzo della Ragione.

And what a day that was! You went, it may be assumed, to admire, for no man goes to Vicenza save as admiring, or at least reverencing, Palladio, but you were certainly prepared for disillusionment. You knew, for example, that what looked such brave sonry in Leoni's plates would prove to be many cases mouldy plaster, and you were ready to admit, if pressed, that the Basilica itself was not likely to arouse your enthusiasm. "An academic achievement," you said, "a thing comely and proper on paper, a severity which one admires in public evidence of one's own good taste) just as the folk admire Palestrina—that is, prosaically and, perhaps, intellectually, but not in the heart." But what was the result? Disillusionment, indeed, but oh, how utterly reversed was its impact! Instead of finding the reality a thing colder, smaller, and less interesting than the hackneyed masterpiece he had known so long in books and draw-

ings, there rose before your astonished eye a great, gracious, lovable, almost breathing creation—a thing that spoke to you like the nave of Durham, or like a poem of Wordsworth.

Now was it not so?

We took Palestrina as a chance parallel. The comparison is not wholly amiss, for the error of the man who sees in Palestrina only form is precisely on a line with the mistake of those who see only rule in Palladio. A right-minded musician will be as much amazed by the profound devotion of a Palestrina mass as will the right-minded architect by a certain quality in a true Palladian building, which at present we make no attempt to define. That quality exists to an unsurpassed degree in the Basilica or Palazzo della Ragione, a building whose elements of design are so simple and reiterated with such naïveté that one cannot cease to wonder as one gazes, "What is the ingredient in that architecture, what is the faculty in my mind, that gives the one such a hold over the other?"

It will scarcely be necessary to remind the readers of this journal of Palladio's chronological position in the history of architecture, nor of the direction of his genius. He lived from 1518 (?) to 1580, and in point of time, as well as in point of genius, is generally classed by writers on the Italian Architectural Renaissance among those who contributed to the decline of that phase of art. There can scarcely be a more unjust suggestion. It is, indeed, incontestable that Palladio had no share in the birth of the Classic movement. His date precluded that; his immovable date, which fixed his epoch of energy among those who were already on the downward turn of the wheel. But that the special nature of his art and of his study had any influence in the direction of decay can, we suppose, be very easily disproved.

All the world knows that the special instinct of Palladio's architecture was an adherence as close as might be to such Greek and Roman types as were accessible, and to the exact proportions of those types where applicable. How he developed that instinct and transfused it not only into his buildings, but into the work of his suc-

cessors, immediate or remote, is also known. To such buildings as he built he unswervingly applied the component elements of Classical (chiefly of Roman) architecture; and that his sources might be the richer, and his influence the wider, he not only spent much time in the study and measurement of ancient examples, but embodied the fruit of these studies, as well as the records of his own resultant designs, in a book which has attained over three centuries of fame, and may, for ought we know, be immortal. It is natural, perhaps, to turn with feelings of more immediate enthusiasm to the products of the freer and earlier periods of the Renaissance than to those of which Palladio is the exponent. Certainly, such a choice comes easily to those who are shallow students of architecture. The fascinating and tentative effects of Alberti; the mechanical strength of Brunelleschi; Bramante's generous and free nobility, all present beauties of execution in which even a tyrant can see something (not always the right thing) to admire. But in facing Palladio we are facing performance of another class, susceptible of a different appreciation.

To test the true value of Palladio, a man should look at the charges which are levelled against him. What is it that critics of Italian architecture have to say in his dispraise? That he brought in a formality which is foreign to art; that he endeavoured to reduce to a matter of rule and figure the proportions which should be the subject rather of judgment than of mere method; that he rejected all idea of colour effect, and suffered his own genius to be "stified in an inferior kind of cement."\* These charges, to be frank, are just: so just, indeed, that we have only to look upon the other side of them to find in their very terms the secret of Palladio's value—we had almost said of his fame, but the latter belongs in part to the accidents of literary renown, the good fortune of his publication having been, perhaps, not more than it deserved, but certainly more than necessarily comes to a work of equal value.

To return to the charges. They signify

\* W. J. Anderson, "Architecture of the Renaissance in Italy," p. 244.



upon analysis no more and no less than this, that Palladio realised three theses which one may put into brief language as follows:—

1. The norm is of value in architecture.
2. The effects of form are not dependent on material.
3. The effects of form are not dependent on colour.

We have called these three axioms "theses" rather than truths, because we are not certain of their complete validity as canons of architecture. They are certainly capable of dispute—possibly even of disproof—but, for all that, they represent a perfectly reputable architectural position, and indicate a point of æsthetic vision for which a great deal may be said.

The question of the value of the norm raises at once a consideration in architectural philosophy which is ever cogent to architects, seldom even appreciable by outsiders. We mean the great question of the *virtue* of precedent, or (to put it into the terms of ethics), of what is among moralists known as "sanction."

Now there never was but one man who thought that the Greek and Roman Orders were elemental, original, divine. That one man was John Wood (the elder), of Bath, who was at pains to write a book to prove that the Jews received the Doric, Ionic, and Corinthian Orders direct from Heaven, and that the Greeks and Romans, by an act of unparalleled and well-organised fraud, deceived the world as to their origin. The opposite pole of opinion is that which we all know is to be found in a rather overheated page of Street's "Brick and Marble." \* Truth lies between the extremes; but though the senseless worshippers of Classic purity may be as far from artistic sanity as those who stigmatise them as "forgetful of reality" and "faithful to no religious rule," the surprising outcome of an impartial review of the conditions of architecture is that, rightly or wrongly, there lies in the Classic Orders a certain claim upon the respect of artists which is out of all reasonable relation to their conventional nature and their apparently arbitrary origin. Let us ask, without bias, "What reason can be given which should bind men of modern needs and modern minds to reproduce faithfully, or even approximately, the forms which found favour among the cultivated heathen of Southern Europe in the centuries preceding the Christian era?" To such a question common sense answers emphatically, "None," and the Gothic enthusiast answers "None;" but both, as it happens, are wrong. The world, thank Heaven, is not peopled by Gothic enthusiasts, nor by embodiments of untamed common sense; nor, for that matter, are the balance of mankind Palladians. But there is room among humanity for a body of thinkers who are ready to realise that precedent and tradition are of immense and intrinsic value in more than one aspect of art. Any but the most frivolous of musicians will acknowledge the analogy which his art affords; and as for the poet, he will admit that the immutable necessity of fourteen lines to make a sonnet, and the delicate by-laws of prosody, are instances of the hold which precedent, pure and simple, has upon the very essence of art. And, of course, having once seen and recognised the existence of this fact in art, the force of tradition, it is easy to realise in

a second step that this obligation of the artist to the past is not by any means an arbitrary submission to a purely conventional rule of the game, but rather a concession to a human faculty which is no more a thing to be dishonoured than a thing to be combated. In fact, as we have begun to deal in axioms over this matter of Palladio, we may as well invent another to the effect that in all art there is as a necessary factor a certain reference to previous art. This axiom will take abundant confirmation from observance of the human fact that those who are wholly untrained in any art have no genuine appreciation of that art, and perhaps its only successful refutation will be in the contention that, if it be true, the first artist among mankind can have been no artist, for he had no precedent to deal with. To which we reply that we cheerfully accept the paradox.

Far be it from us to suggest that Palladio reasoned as we have reasoned here. The men who work as he worked get their message by more direct means. But we have justified his purpose in reverencing the Classic precedent and in endeavouring to provide access to that precedent in its purest form.

There is, indeed, another aspect of this appeal to the Classic fount, which we have hardly space to amplify here. It is the claim of proportion, which in architecture is great, we had almost said supreme. Let us put the case most briefly. An architect of perfect judgment can be trusted to make no mistakes of proportion, but since the architect of perfect judgment has almost certainly obtained that power of judgment from the study of examples in which the proportions were just, and since, moreover, the man of perfect judgment is so rare as to be practically non-existent, it would be unreasonable of mankind to disregard those past exemplars of good taste which are in themselves not merely the repositories of good proportion, but almost the sole means by which man's appreciation of such proportion is won.

Then we observed that Palladio had to meet his enemies on the charges of using inferior materials and of disregarding colour decoration. The baseness of his materials is, perhaps, rather our misfortune than his fault. In so far as Palladio implied by his work that the expression of construction in architecture was of no importance, we apologise on his behalf, and make no attempt at his defence. What we do say in his favour under this head is merely this: that in his disregard of materials he may have shown ignorance of building construction, but he also showed his extreme reverence for the beauty of certain forms, apart from any question of the value of the materials in which they were executed. This, in itself, was praiseworthy. His disregard of colour is another though a kindred matter, and is, as it happens, of prime importance to his position in the history of art.

It does not often occur to people to realise that our modern England is capable of appreciating pure form to a degree which was unknown to earlier humanity. It is a fact too little observed, that the history of architecture has been to a large extent the history of the gradual abandonment of effects of colour *plus* form in favour of form-effect unmingled with colour. We have no desire to labour this point, and no wish to overlook

the fact that the power developed among later Europeans of appreciating architectural form without colour may have arisen solely from the accident that the Greek and Roman remains upon which our revived taste is formed were for the most part divested of the rich colour harmonies which were a part of their pristine embellishment. But the fact remains to be reckoned with in the history of architectural taste, and the part which Palladio took in the development of this worship of uncoloured form is far from negligible. That our nation admires Somerset House is partly due to Palladio, though not all Britons know his name.

We regret to acknowledge that the new book on Palladio by Mr. Fletcher\* seems to us too small; not too small in material bulk, but too slender in its grasp of the large subject which it approaches. We are by no means sure to what audience Mr. Fletcher and his publisher mean to appeal. Architects and the elder students of architecture are, we suppose, hardly demanding a book of secondary information on a subject which is accessible to them in original sources. To the general public Palladio has no appeal, and the junior scholar of architecture will not usually seek the facts he wants in such a form as this, though, no doubt, it is by him more than by any other class of reader that the book will be handled. Here, perhaps, has been one of Mr. Fletcher's difficulties: to whom was he to address himself? We are inclined to believe, from the absence of any expression of other intentions in the "Forewords," that Mr. Fletcher's aim has been the highest aim possible—namely, that of providing a monograph which shall be a standard work on this great master. If this is so, we commend his temerity, but would suggest the removal of certain blemishes in a second edition, and would especially counsel the excision from the bibliographical list of all works which are not recognised and primary authorities on the subject. Such a list should indicate sources, not channels, of information, and the inclusion therein of Baedeker's "Guide," and "A History of Architecture on the Comparative Method," can be of no use to the genuine student who wants to verify facts, however interesting such manuals may be to the writer.†

It will be well to put forth at once some criticisms on points of detail which, small in themselves, interfere with the effect of what should essentially be a book of dignity. The author, in dealing with Palladio's writings on Public Buildings, treats the words "Agora" and "Palaestra" as plural forms (see pp. 20, 25, and 26). "Piazzi" as the plural of "piazza" is a similar error. The name of Daniele Barbaro, patriarch of Aquileia, was not "Signor Daniel Barbaro." It is affected to call Padua "Padoua" and "Padova." There is a failure of syntax at the opening of Chap. II., and Minerva Medica (p. 102) need not have her names divorced by a comma. It is an ungracious job to dig out bits of bad writing from any man's book, and to do Mr. Fletcher justice, we are glad to own that we have not found in his work any other passages quite so bad as that in which he observes that "In the entablature of his

\* "Andrea Palladio: His Life and Works." By Banister F. Fletcher, A.R.I.B.A. London: George Bell & Sons. 1903.

† It would be well to include among the authorities Schmidt's excellent volume of heliogravures, published at Vienna with the title "Vicenza."

\* "Brick and Marble," p. 109.



orders, we find these to be generally unbroken."

But then the chapter in which this occurs is the chapter headed "Palladio as an Architect," a chapter which, one thinks, should be the pith and marrow of the book. The theme is a great one, whether treated in a hostile or a friendly spirit. But in Mr. Fletcher's hands it is all over in eight and a half pages, and so far from finding these pages full of tight-packed valuation, our eyes light on such observations as that "in the use of the orders he was full of resource, and no particular method seems to have been peculiarly his own," or that "simplicity seems to have been in general sought after," or again that "it is after all in the general proportion of his buildings, and their various parts that our master pleases most." We do not mean to be hard on Mr. Fletcher. Some of these little sayings are true enough, but they are small and perfunctory. One does not ask for enthusiasm in a critical work—indeed, it is better absent—but one expects the writer to be sufficiently interested in his subject to interest the reader, and perhaps, but not necessarily, to exhibit some original line of thought.

There are some good and true things in the book for all that. Mr. Fletcher brings in with apposite force the very remarkable utterance of old Wotton, that "we want *art* rather than *stuff* to satisfy our greatest fancy," and criticises with just reasoning the impossible suggestion that the windows of the Municipio at Brescia might be Palladian. His last chapter (on Palladio and his school) rises at times to the critical level which the subject demands, and if the author were to cut out from it the unnecessary quotations from Pope, and expand those portions which deal directly with the subject in hand, he would go far to improve his book. The importance to English architecture of the intellectual relation of Inigo Jones to Palladio is well, but too briefly, brought out.

The illustrations, mostly photographic, are well chosen and well executed. It is always a question, in representing the Basilica, whether to include the adjoining Campanile. We think Mr. Fletcher has done well, in the interests of Palladio, to omit it, for its proportions are, to say the least, exceptional.

We cannot blame the author for comprising among his illustrations the effective Arco di Trionfo at the foot of Monte Berico, though this is known, as he admits, to be post-Palladian in date of execution. It would be well for any writer in describing the buildings of Palladio to give all the names by which those buildings are, or have been, popularly known. The Casa del Diavolo, for example, known in Vicenza as the Antica Posta, is familiar to some writers as the Casa Porto (or Porto al Castello). Similarly the house called by Palladio the Casa Giuglio Capra (Mr. Fletcher spells it "Guigoglio") is known to others by the name of Franceschini. Cross references in an index, if there were one, would easily set the difficulties of identification at rest.

It is, by the way, rather inconsistent to describe the Basilica as Palladio's masterpiece and the Teatro Olimpico as his finest effort.

But we have been writing of Palladio without mentioning the Villa Capra, an unpardonable breach of custom. Let us speak of it now for a farewell, or rather, since

some things are unspeakable, let us think of it with closed eyes, and call up to memory, not the engraved plan, section, and elevation that we all know so well, not even the Alinari photograph that we inevitably bring home with us, but the thing itself, forlorn, if you will, crumbling and discoloured, but how full of charm! "One must allow," says the guide-book (not Baedeker), "that the Rotonda (so they call it) is one of the best of buildings, whether one considers its form, so well adapted to the rising ground, or the marvellous disposition and ordination of its parts, or their refined proportions, which combine"—but no; we must lapse into Palladio's tongue:—"Onde viene a comporsi un tutto di eccellente bellezza e di rara perfezione."

And do not the very words bring focus to the memory, calling up the long scytheless grass, the hum of the bees, the breath of the lilacs, the ceaseless nightingales, which are no accidents, but very elements of the scene? Palladio surely took them into account; why not we? The architecture was made for the setting, and both have survived together.

A triumph of Italian art, in a triumph of Italian nature.

#### NOTES.

THE answer of the Home Secretary to the question put to him in the House with regard to the traction engines and trains of trucks which are being used in the London streets is hardly satisfactory. He expressed himself as powerless to act in the matter, and said it was a question for the County Council, or if the existing legislation were insufficient, one to be brought before the Royal Commission on Locomotion, which is shortly to sit. The position of affairs seems somewhat curious. Under the Locomotives Act, 1898, the Municipal Authorities have power to permit locomotives with waggons to use the highways, and also have power to pass by-laws prohibiting or restricting such traffic. Such by-laws have to receive the approval of the Local Government Board, but the Act seems to give no power to the Local Government Board to rescind any by-law once so passed. If we are correct in this assumption, it is an instance of a flaw in legislation; for in the Locomotives on Highways Act of 1896, which deals only with light locomotives, viz., those under three tons, the Local Government Board has express powers conferred upon it to make regulations which are to have effect, notwithstanding any by-laws made under any other Act; and it seems clear that such a power should have been reserved to the Board in the case of the heavier locomotives. It is important, however, that the public should remember that they have their own remedy, since it has twice been decided by the Court of Appeal that compliance with the Acts and by-laws is no protection to the owner of the locomotive on a highway, but that he remains liable to an action by any one suffering injury if the locomotive can be shown to be a nuisance, quite apart from the question of any negligence in its management.

London Rates.

THE warning we gave utterance to last week in our "Note" on Local Indebtedness seems to have been in no way

premature. We drew attention to the fact that the Local Authorities had recourse to their borrowing powers because the ratepayers would speedily be aroused to a sense of their position were a due proportion of the increased expenditure placed directly on the rates; but that, nevertheless, as the interest on the loans was directly charged on the rates, it behoved the ratepayers to be none the less on their guard. The Finance Committee of the London County Council have announced an increase of 1½d. in the rates, bringing them up to 16½d., this increase being stated to be largely due to the growth in the annual charges for debt.

LAST week we referred to the The Penrhyn Libel Case.

debate on the long existing strike at the Penrhyn quarries. This week we have to note a libel action brought by Lord Penrhyn against a Mr. Parry for matter published in a paper called the *Clarion*. Of course, the moment the dispute got into court the general merits of the strike were constantly referred to. As a matter of fact, however, the actual litigation turned on a small point, namely, whether the statements made by Mr. Parry were true or could be justified. Mr. Parry stated that Lord Penrhyn had given his workmen who returned to the quarries for a time during the strike 1½ apiece as a bribe. It was clear from the evidence that the money was given as a present by the quarry owner, but this lordly way of presenting a sovereign apiece to five hundred workmen was certainly liable to misconstruction. The other libel was equally unfounded, and the result of the trial was a verdict in favour of Lord Penrhyn for 500*l.* damages. The litigation emphasises more than ever the necessity for the Board of Trade to appoint a conciliator between the parties to this strike, for this appears to be the only hope of putting an end to a dispute which is ruinous to the workmen and the districts in which the quarries lie, and also inconvenient to many who are in the building trade.

MR. FULLER, the architect, Architects' Plans and Foundations.

of Dublin, has written to the *Irish Builder* a letter on the subject of the additions to the Killarney Asylum, together with his reply to the Local Authority, in regard to a statement in the opinion of counsel, who seems to have been asked if the Local Authority was liable for extras when imaginary foundations are shown on the plans. The case would have been more instructive if counsel's opinion had also been published. Counsel seems to have suggested that it was improper for the architect to show imaginary foundations on the plans, and leave a building-owner afterwards to pay an extra for work he never contemplated. Mr. Fuller shows, plainly enough, as, indeed, is common knowledge, that imaginary foundations are constantly shown in plans. Being imaginary, it is obvious that the work cannot be estimated for, and must be paid for by result. Strictly therefore, the foundations are not extras at all, and presumably the building-owner pays no more than if the foundations in the plans had not been imaginary. But it is possible that a building-owner may not understand that the foundations are imaginary, and may believe that the amount of the contract is intended to cover work below as well as



above the surface. We do not know more of the facts of the Killarney case than are stated in Mr. Fuller's letters, but we suspect that if the whole matter were well sifted it might be found that the dispute arose from a misunderstanding as to the foundation-work being provided for in the contract. It is obvious that an architect should explain to a building-owner that the foundations will have to be paid for according to their cost, and that a sum over and above that for the cost of the above-ground work will have to be provided. Architects, and, indeed, other professional and business men—dealing every day with points of their particular occupation—are apt to forget that the client is not equally conversant with them, and both parties in the result think that the other has not behaved well. It is the old story of the quantity surveyor whose charges are constantly objected to because to the building-owner he is an unknown name.

#### Gas Supply to Successive Tenants.

A POINT of some importance to traders and householders in London with reference to the supply of gas to their premises was decided by the Court of Appeal in the case of *The Gas Light and Coke Co. v. The Cannon Brewery*, the question being as to the rights of the gas company when the premises have changed hands and the former tenant has left arrears of gas rent unpaid. Section 18 of the Gas Light and Coke Co.'s Act, 1872, provides that when such arrears are left unpaid the gas company shall not "require payment" of such arrears from the next tenant, unless the incoming tenant agreed with the defaulting consumer to pay such arrears, or unless he shall continue the trade or business of the outgoing tenant, and shall have paid to the outgoing tenant, or to the owner, lessee, or mortgagee in possession of the premises, a consideration for so doing, and in the absence of collusion the gas company shall supply gas to the incoming tenant; and Section 39 of the Gas Act, 1860, is in nearly similar terms, except there is no provision as to the purchase of goodwill in that section. It was contended that the words "require payment" gave the gas company no right of action for the arrears, but that their only course was to refuse a supply of gas until the arrears were paid. The Court have now decided that the gas company, in the absence of collusion between the parties, have no right to cut off the gas from the incoming tenant on account of default on the part of his predecessor under Section 16 of the Gasworks Clauses Act, 1847, that right being only given to the company as against the person actually supplied with the gas, but that where the provisions of the sections have been satisfied as to agreement, &c., the gas company have the right to sue the incoming tenant for the arrears. This decision overrules the case of *The Gas Light and Coke Co. v. Meade*, decided many years ago, but is valuable as rendering the position of the incoming tenant as regards the right to gas supply absolutely clear. In this connexion we may note the fact that a receiver appointed to manage the affairs of a joint-stock company in the interest of the debenture-holders has been held not to be an incoming tenant carrying on the business of the outgoing tenant within the meaning of Section 18 of the Act of 1872.

#### THE case of Balchin v. The Shop Clubs. Trustees of the Provident Fund of the Army and Navy Auxiliary Co-operative Supply, although it decided no new point, but was merely an interlocutory motion on which no order was made, has served one useful purpose, since it has drawn attention to the Shop Clubs Act which came into force only in January of this year. This Act has rendered it illegal for an employer to make the joining of a shop club or thrift fund a condition of the employment of any workman unless such club has been registered under the Friendly Societies Act, 1896, and is subject to the provisions of the Shop Clubs Act. The benefit societies of the railway companies are, however, excepted from the Act. This is one of the measures where it would be useful to have retained the preamble to the Act, for whereas the mischief it was passed to cure is not apparent on the face of it and may be forgotten, its provisions may seem only calculated to deter *bona-fide* attempts on the part of many employers to encourage thrift in their employees.

#### Slow American Work.

REFERRING to the Nile Reservoir works, our contemporary, the *Scientific American*, says that their rapid construction will appeal very strongly to the inhabitants of New York, who are now waiting patiently for the completion of three important public works, the Croton and Jerome Park reservoirs and the new East River Bridge between Brooklyn and New York. The contract for the Croton dam was signed in August, 1892, six years before that relating to the Aswan dam, in Egypt, but it is believed that the work will not be finished before October, 1904. The contract for the Jerome Park reservoir was signed in August, 1895, and the works were to have been finished by August last; but at the present time it is tolerably certain that the dam will not be finished before the early part of 1904. Our contemporary remarks that the same exasperating delay is being experienced in the Department of Bridges as in that of Water Supply. The construction of the new East River Bridge, now generally known as the Williamsburg Bridge, was commenced in 1896, nearly seven years ago. The delay that has occurred is attributed to the failure of the cable contractors "not merely to live up to their contract time, but to show even the semblance of a desire to do so." These comments are a little at variance with the criticisms sometimes directed against British contractors.

#### Efficiency of Centrifugal Pumps.

IN a paper recently read before the Institution of Mechanical Engineers, Dr. Stanton described some experiments undertaken for the purpose of obtaining further information on the losses of efficiency in centrifugal pumps, and as to the most suitable means for reducing such losses. The question is of considerable interest to hydraulic engineers, because it is not easy to account for the fact that, although a centrifugal pump is akin to the turbine, its efficiency is very much lower. Probably this difference may be explained by the consideration that, whereas the potential energy of the water in the turbine is converted into kinetic energy with very little loss, in the pump there is considerable waste in converting the kinetic energy of the

water leaving the wheel into the potential or pressure form, even when the greatest care is taken to avoid shocks and sudden enlargements. Apart from Mr. Appold's experiments, the chief work of the kind in this country has been performed by the Hon. R. C. Parsons, and our knowledge of the efficiency of high-speed pumps is chiefly derived from the published results of an investigation undertaken by M. Gerard Laverne. The points still remaining for elucidation are: (1) The relative efficiency of curved and radial vanes at high speeds; (2) the efficiency of the vortex chamber; (3) the efficiency of guide passages; (4) the possibility of high lifts by centrifugal pumps with a single wheel. The author describes in detail the nature of the apparatus used in his experiments, and from his records the following general conclusions may be drawn: In high-speed wheels, the effect of moderately recurving the vanes at the outlet is beneficial; in a wheel which discharges into guide passages the efficiency is higher than in a pump discharging into a free vortex; the number of guide passages should not be less than four, and the areas at inlet should be so proportioned that the velocity of flow into the passages may be equal to the velocity of discharge from the wheel. These results seem to point to the conclusion that for dealing with moderate volumes of water at high lifts, increased efficiency, as well as economy in material and space occupied, would be attained by the adoption of a high-speed pump driven direct from the motor and designed on the principles mentioned. For supplying large quantities of water the present slow-speed pump driven from a steam-engine has undoubted advantages, but there are very many cases where centrifugal pumps of small and moderate size may be used in place of reciprocating pumps, and this paper is useful as suggesting the lines upon which further improvements may be made.

#### Electric Resonance.

THE lengthy paper by Mr. Field on "Electric Resonance" which was read in abstract to the Institution of Electrical Engineers last week treats of a subject of considerable importance to electrical engineers. We hope that the discussion on it which will take place next week will bring out some interesting experiences. The paper had been read previously to the Glasgow local section and the discussion on it has been published. To any one who is conversant with the literature of the subject there is little that is new in the paper. The method of accentuating the harmonics in the pressure waves is some ten years old, and Blondel, Armagnat, &c., have used the oscillograph in the same way as Mr. Field. M. Armagnat especially has not only shown the eleventh and thirteenth harmonics and how they interfere with one another, but has actually found the mathematical equation to the pressure wave. The suggestions made at the Glasgow meeting that it would be possible to find the equations by graphical analysis show that the practical impossibility of this method of procedure is not yet fully appreciated. More recently Professor Hespitalier has studied resonance by means of his "ondograph," and has obtained some remarkable results. The main phenomenon of resonance—namely, the abnormal rise of



pressure under certain given conditions—can easily be shown experimentally. Sir Oliver Lodge's experiments, in which Leyden jars are made to overflow, will be remembered, and resonance methods are employed in the every-day work of wireless telegraphy. Singing arcs and whistling telephones are also examples of the electric phenomenon.

THE twenty-first annual exhibition of the Society of Painter Etchers, now open at the Society of Painters in Water Colours Gallery, is a remarkably good one, and we are glad to observe that there seems to be a steady increase in the proportion of genuine and pure line-etchings, and a decrease in the number of those cooked effects of the plate which hardly represent the art of etching properly so called. A genuine mezzotint is another matter; that is a separate and recognised branch of the art, and the exhibition shows some fine examples of it, notably several works by Mr. J. Knight, and Mr. Barrett's "Moorland" (97). Among the line etchings the catalogue starts with some good examples by a lady, Miss Mary A. Sloane; Mr. C. J. Watson and Mr. Frank Short are contributors in the same class of work; Mr. Short's "A South Coast Road" (22) is a good instance of the manner in which distance can be shown and even colour suggested in a pure line etching. Mr. Wyllie is another true artist in etching; in one of his four works, "The Stranded Derelict" (29), we see how much effect can be produced by the untouched space (representing water), the emphatic points only being brought out: a class of subject and effect peculiarly belonging to etching. We see the same method of handling well illustrated in Mr. Paton's "On the River at Dort" (128). Mr. Evershed's works show very delicate handling of line, but are rather wanting in concentration of effect—finished everywhere up to about the same point. Mr. Spence's "The Mastmaker's Shop" (52), with the dark interior closely shaded and the light seen without, is a good piece of effect. Mr. Haig's architectural interiors differ essentially from all these; they are really architectural drawings, admirable from the architect's point of view, finished in every part like engravings; but they represent the science rather than the art of etching, and some much slighter architectural studies are more artistic in feeling. Among the more imaginative works Mr. Legros' "L'Ouragan" (81) is the more powerful, and is less grotesque and weird than his "Triomphe de la Mort," which we cannot much admire. Mr. Alfred East exhibits some landscape etchings in a rather curious and crude "blottesque" style, but not without power. Mr. Holroyd's "Borrowdale Yewes" and "A Yew Tree on Glaramara," (155) are bold in effect but not sufficiently broad and stately in style for the grand poem of Wordsworth's which suggested them, and part of which is quoted; "Great End, Scawfell" (156), less ambitious in subject, is more successful in a pictorial sense. His "Siena Cathedral" (160) is a powerfully treated architectural subject. Some good book-plates are exhibited by Mr. Sherborn and Mr. Eve—book-plates of the right type, symbolical and decorative, not realistic. Mr. Helleu, as usual, is represented by a number of his clever and charac-

teristic dry-point portraits of French ladies, or ladies who look French.

THE eighty-ninth exhibition of the Institute of Painters in Water-Colours, at their Gallery in Piccadilly, covers a great amount of wall-space, but it must be admitted with regret that there is more of quantity than quality. We have always been of opinion that the extent of the Galleries of the Institute has been a factor adverse to the quality of their exhibitions; the space is there and has to be filled, and it cannot be filled by works of which the majority are of a high artistic character. A general average standard of execution is of course maintained, but the works of real interest are even fewer in proportion than usual this year. Large drawings do not make high art. The President (Mr. Gregory) shows a good portrait (475) and a study for his picture "Après" (476), but his contributions are hardly of the usual importance; nor is Mr. G. Wetherbee's slight work, "Study for a Shepherdess" (303), quite what we usually expect from him. Various small works by Mr. J. R. Reid and Mr. John White are all good; Mr. Weedon shows some fine broadly executed landscapes in the old English water-colour school of which Cox may be said to have been the founder. Mr. David Green's seapiece, "Clearing out after Heavy Weather" (87), is a fine work. Mr. Hassall, in "The Morning of Agincourt" (403), makes a careful and creditable attempt to realise a scene celebrated in history. Mr. Huson's "An Old-fashioned Subject" (105) is a good landscape answering to its title; among others may be mentioned Mr. Kinsley's "Dunkery Beacon" (150), and "Porlock Weir" (362); Mr. Horatio Walker's "An Autumnal" (396); Mr. J. S. Hill's "On the Common" (498); and Mr. James Clark's "A Mood" (585), a decorative picture of rather unusual character, and very successful both in colour and design.

#### THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE usual fortnightly meeting of the Royal Institute of British Architects was held at No. 9, Conduit-street, on Monday evening, when the chair was occupied by Mr. Aston Webb, A.R.A., President.

##### The Gold Medallist.

The Secretary (Mr. Locke) read a letter which had been received from Sir Dighton Probyn, Keeper of the Privy Purse, in answer to a communication to the effect that the Institute had elected Mr. C. McKim (New York) as the recipient of the Gold Medal. His Majesty expressed his full approval of the selection of the Institute.

##### Death of Professor Roger Smith.

The Chairman said he regretted it was his melancholy duty, as it was at the last meeting, to announce the death of another very distinguished member of their body—Professor T. Roger Smith, who was laid to rest that day. They all knew him very well, and they all loved him very much. Professor Roger Smith was elected a member of the Institute, first as an Associate in 1856 and as a Fellow in 1863, and it was not too much to say that no member of the Institute from that time took a more active and more useful part in the work they had carried on. The deceased gentleman was a real student of architecture; he was a very learned man, and he was a very modest man, and a very lovable man. His practice took many forms, and many branches of their art engaged his attention, and whatever he did was done with single-minded-

ness; and he had that happy and sympathetic quality of being able to meet his professional brethren in all sorts of ways, and he (the Chairman) believed he was using no language of exaggeration in saying that he made no enemies in doing so. He had held nearly all the positions in that Institute; was a District Surveyor of West Wandsworth, President of the British Institute of Certified Carpenters, and examiner in carpentry and joinery, and in sanitary building construction to the Carpenters' Company; and he was a member, and had served for a time as Chairman, of the Statutory Board of Examiners. He was also Chairman of the Committee that had had in hand the question of the law of ancient lights, on which he was a great authority. He was architect for the North London Hospital for Consumption, for the Ben Jonson Board School at Stepney, the sanatorium at Reedham, and the new laboratories of University College. He was author of several works on architecture, and a very large number of young men passed through his hands as the Professor of Architecture at University College—and those who had had the opportunity would, he knew, testify to the value of his teaching and the kindness of his heart. A full notice would appear in due course in the *Journal*, and it was only for him now to express the regret of the Council and the members of the Institute at the great loss they had sustained. Professor Roger Smith had died full of years and full of honour, and they were thankful for that, and they were thankful for the memory of him and of his kindness, and the sympathetic way in which he treated them all. They would, he was sure, wish that the Council should forward to his widow and family a sincere vote of condolence in the loss they had sustained, and an expression of the high appreciation of the works he had done for the Institute during his life.

Mr. Alexander Graham, hon. sec., said he was quite sure every member of the Institute present and every member absent would endorse the respectful words which had just been uttered by the Chairman in relation to their deceased and dear friend, Roger Smith. There were a great many better acquainted with his work and career than himself, but he might say that in the transactions he had with him in professional matters, he found a man full of enthusiasm for any work he had to undertake and that he had a sincere desire to do that which was right and just towards his fellow men. He did hope that in the letter which would be sent to the relatives some expression should be used with reference to Roger Smith as a man as well as a professional brother. The goodwill he always showed to any man with whom he had dealings, the kindness of heart that prompted him in all his transactions, would be to all of them a very pleasant memory, and he was quite sure it would be very pleasing to his relatives to receive from them as a body their respectful reverences of a kind, good-hearted, worthy man.

##### Westminster Cathedral.

The Chairman said that before he called upon Mr. C. Hadfield to read a paper on Westminster Cathedral, he should say that they had hoped to have had the Duke of Norfolk and Cardinal Vaughan with them. The Duke of Norfolk was, however, in Rome; and Cardinal Vaughan had written regretting that the state of his health would not allow of him accepting the invitation but expressing the hope that he would have the opportunity of reading the paper and discussion afterwards.

Mr. Hadfield then read the paper, which was illustrated by a number of lantern slides.

In some preliminary remarks Mr. Hadfield stated that the idea of erecting a cathedral for the Roman see of Westminster originated with Cardinal Wiseman a few months before his death in February, 1865. The project was taken earnestly in hand by his successor, Cardinal Manning, and in 1884 the present cathedral site, consisting of about four acres, upon a portion of which had previously stood the Tothill Fields Prison, was acquired for a sum of 55,000l. Cardinal Manning died in January, 1892, leaving the task of raising the edifice to his successor, Cardinal Vaughan.

The idea of erecting a great Basilican church, an attempt to reproduce old St. Peter's, was abandoned as impracticable; and with it the competitive system of getting a design. In July, 1894, Mr. J. F. Bentley, who had expressly declined to take part in any competi-



tion for the building, was asked to undertake the designing of the cathedral, and consented. Prior to beginning the work he spent some time in Rome, and visited St. Mark's, Venice, and the group of churches on the Adriatic coast which had been influenced by the St. Sophia tradition. He admitted that the buildings at Ravenna first enabled him to decide on the forms and treatment of what had been in his mind. On returning to London in March, 1895, he rapidly prepared the plan, with an internal area of some 54,848 sq. ft., of a great Byzantine cathedral which, with the general lines of the design, had been long maturing in his mind. Later, a model was prepared, one forty-eighth the actual size, executed in Kauri pine. The foundation-stone—a block of Cornish granite, 5 ft. by 3 ft., and 2 ft. 8 in. thick—was laid on June 29, 1895. The Byzantine, instead of the Gothic style, had been decided on after much deliberation. The question of cost weighed heavily against a Gothic design. With modern appliances, a Byzantine cathedral of brick would be erected within three or four years with the means at command, leaving the marble and mosaic decorations to be added as time went on and the necessary funds were available. Bentley himself fully concurred in the decision. "I am not attempting a new style," he said, "that is impossible; but intend, as far as I am able, to develop the first phase of Christian architecture." His plan of the cathedral, Bentley explained, was not that of the Eastern Church of the Justinian period, but an example of what might have been unfolded had not the decadence of the Roman Empire terminated the growth of congregational requirements in the East. The plans of St. Sergius and St. Bacchus, Constantinople, or of St. Vitale, at Ravenna, both of about the same age, it was evident were arranged from a liturgical rather than a congregational standard, while the church of St. Mark, Venice, erected nearly four centuries later, indicates a marked advance in the latter direction, showing clearly the course the development was taking.

The church is not orientated, the axis of the choir being turned to the south-south-east. This was demanded by the exigencies of site and surroundings, and by considerations of cost, lighting, &c. It was, moreover, in accordance with Roman precedent where churches had to follow the lines of existing streets and ways. An important factor in deciding the levels and lie of the foundations, crypt, &c., was the existence of a platform of concrete 9 ft. thick, the foundations of the old prison, which underlies a portion of the site in a diagonal line drawn from the north jamb of the great entrance portal to the south pier of the sanctuary arch.

Externally the cathedral has an extreme length of 360 ft. and a width of 156 ft.; the height of the nave being 117 ft.; height of the façade (not including the turrets), 99 ft.; height of the campanile, 284 ft. Internally the dimensions are:—From the main entrance to the sanctuary, 232 ft.; depth of the sanctuary, 65 ft.; and of the raised choir beyond, 45 ft., making a total internal length of 342 ft.; width of nave, 60 ft.; width across the nave and aisles, 98 ft.; width across the nave, aisles, and side chapels, 148 ft.; height of the main arches of the nave, 90 ft.; and to the crown of the domes, 112 ft.

The architect's leading constructive idea has resulted in a great building of brickwork, set in cement mortar, covered by homogeneous concrete domes, vaults, and flats, &c., without recourse to the use of steel or iron work, and with a sparing use of oak timber in the roofs of the apsidal choir and the transepts, and of teak in the upper stage of the campanile, with a provision for the gradual completion of the interior by lining it with marble up to a height of 40 ft., and above that with decoration of mosaic work.

Mr. Hadfield gave details of the materials used, and particulars of the exhaustive series of tests to which samples of bricks and concrete were subjected by the architect prior to their selection in bulk for the work. The cement selected was "the best Goliath brand," and ground so fine that the residue on a sieve of 5,800 meshes to the square inch would not exceed 10 per cent. The brickwork of the footings was double the width of the walls above, the concrete below extending from 1 ft. to 2 ft. outside. Faversham stocks were used for the lining of the interior behind the future marble and mosaic work; thin Bracknell red-

facings (under 2 in. thick) for the exterior, Fletton wire-cut bricks for the large piers and the walls, Poole wire-cut bricks for the smaller piers, and hard vitrified blue Staffordshire bricks for the outside facing of the underground vaults and sacristy, and for the damp courses, set in nearly neat cement. No machine bricks have been used. English bond was adopted generally, the outer facing excepted. For internal facing, stock bricks were used, being best adapted for adherence when coated with the bedding for decorative work. Portland stone from the Brown bed was selected for the external dressings; and a high plinth of fine-axed Penrhyn granite, in courses, set with a bold open joint, was placed at the ground level to resist the injury from traffic. Granite has been used for doorways and elsewhere with the same intent.

As regards the domical construction, the architect's idea had been at first to save much centering by using cast segments of a sphere and building them up into domes; but he afterwards abandoned this method for that of a homogeneous mass of concrete thrown on to a centering. The sanctuary dome alone is pierced, and there are twelve windows encircling it, with an ingenious system of counter-ports flanking each opening.

The marble monolithic columns are an important portion of the general scheme of colour decoration in the cathedral. Great care, skilful research, and a large outlay have been incurred in procuring them. They have been presented by many benefactors. In S. Peter's crypt round the apex below the retro-choir they are of red Norwegian granite, with varied capitals of Hopton wood marble and Derbyshire marble bases.

The columns on either hand of the nave, twenty-nine in number, are of verde antico from the classical quarries lately reopened at Larissa in Thessaly; Greek cipollino from the Island of Euboea; Swiss cipollino from Saillon in the Rhône Valley; Languedoc Italian breccia from Seravazza; grey granite from Norway; and the red granite which is not unlike ancient porphyry. These shafts, 13 ft. long, each stand on a moulded base of Norwegian granite. The columns dividing the aisles of the Blessed Sacrament and Lady-Chapels from the sanctuary are of jasper and red Norwegian marble of lovely colour and figure. There are fourteen columns of pavenazzo in the sanctuary galleries.

The columns have delicately sculptured statuary capitals of Carrara marble, each varying in design, and were fixed in position after the main arches carrying the domes were completed and the superincumbent weight had taken its proper bearings. The baldachino above the High Altar, on the design of which Bentley bestowed much care, will be constructed of statuary inlaid with mosaic; and it will be supported by eight superb monoliths of onyx, 15 ft. in length, procured from Africa after long search and inquiry.

Cast lead is used throughout, and the roofing and ridges are wrought with melted rolls, while the finials have the individuality inseparable from Bentley's work. The windows are glazed with roundels and white translucent glass, with strong pattern leading. The steps of the circular newel staircases which give access to the crypt, galleries, and roofs are made of hard artificial stone, composed of Portland cement and crushed granite. The outer covering slabs of the domes are of the same material. The flats and gutters about the domes and roofs are laid with asphalt. In the large windows Doulton terra-cotta tracery, or lattices, of a varied and piquant design have been made use of.

The heating is by hot air on Haden's system, to be supplemented by low-pressure steam-pipes in the galleries. Two spacious heating chambers are provided in the basements of the Blessed Sacrament Chapel and of the baptistry.

In treating of the design of the interior and exterior, the author called special attention to the arrangement of the nave arcading—a favourite feature with Bentley, consisting of the continuous treatment of the arcading along the full length of the nave to the sanctuary arch, without ignoring the crux arrangement of the transepts, which are thereby invested with increase of interest and mystery. This contributes to the perspective degree. The architect has also scored a success in the lighting. The tympanum of each of the main arches is pierced by a semicircular lunette of 25 ft.

diameter, fitted with delicate tracery, and below, between well-defined pilasters, a pair of windows is devised. The lighting is further happily emphasised by the twelve windows round the sanctuary dome. The perspective of the interior has obviously been focussed on the High Altar and its covering, the baldachino, the supreme spot of sacrificial interest. Each bay of the nave holds in its lateral face the mystical number of seven arches, four on the ground level carrying the galleries, each 12 ft. span, two secondary arches of 25 ft. span, and the great archivolts "embracing and unifying the whole system."

The principal or western entrance from the exterior flanked by the campanile, a composition extending 65 ft., and embracing in the great arch three doorways—the outer for the laity, and the middle for the cardinal, archbishop, and clergy—leads into porches attached to a spacious narthex the entire width of the church, terminating at one end with an entrance from the side street, and with the baptistry at the others.

The narthex gives access to the nave, 60 ft. wide, divided into three bays of 67 ft. each, covered with domes rising out of pendentives. The aisles, 15 ft. wide, are separated from the nave by marble columns supporting a continuous groined arcade. From the easternmost bays of the nave, transepts of unique and interesting design project with additional entrances. Two larger chapels open right and left out of the transepts, with side aisles giving access to the sanctuary and to the sacristies.

Over the sanctuary will be suspended a gilded and decorated wooden crucifix, 30 ft. high, with paintings of Christ, the four evangelists, and the "Mater Dolorosa"—this will be the dominant note of the whole interior. The baldachino, flanked by eight monolithic columns resting on pedestals taking a semicircular form, bears a marble canopy. The High Altar is a solid block of Cornish granite, fine-axed over, 12 ft. by 4 ft. On the left side is the marble archiepiscopal throne on its own dais, modelled after the ancient one in the Lateran basilica. The pulpit has been executed in Rome, and is of marble, decorated with mosaics.

As regards decoration, two only of the side chapels are in a forward state of progress. In the Chapel of St. Gregory and Augustine the altar and marble work are completed and the mosaic work is proceeding, while in the opposite chapel, that of All Souls, on the north side of the nave, the altar, with its reredos and pictures in *opus sectile*, is completed, and the finishing touches are being put to the mosaics of the vault and arches, which are from the cartoons of Mr. W. C. Symons.

Having described various works in hand or contemplated, the author drew attention to the working part of the Cathedral—the sacristies, strongroom, stores, registry, &c. Working drawings of a marble flooring of great beauty and originality had been completed by the architect, a portion of which only is to be carried out.

The most striking feature of the building is the west front, with its deeply-recessed entrance-arch of 40 ft. span enclosing the tympanum, which is to be filled with a mosaic picture. The entrance arch is 4 ft. wider in its span than that of St. Mark's at Venice, and is planned in receding orders, supported on columns whose entablature is carried across the entrance and beneath the three doorways, the doors for which are executed in teak, to be covered eventually with bronze plates. The upper portions of the front terminate again with domed turrets, and are flanked to the north by the campanile set back from the upper portion of the front. The latter has a delicate entasis. The upper portion is gathered from the square to an octagon crowned by a teak-framed cupola covered with lead, and terminates in the bronze archiepiscopal cross some 10 ft. in height.

Mr. Hadfield concluded with a reference to the death of the architect. He had seen him the previous day at his office in the Adelphi standing bravely at his drawing-table, and found him full of enthusiasm about the cathedral's progress. He showed him then the drawings of the great crucifix and the marble pavements. They were to spend the next day together at his home at Clapham Common, but in the evening Bentley had a paralytic seizure, and passed away in the early hours of the following morning.



Professor Beresford Pite said they had looked forward to that evening for some months with a great deal of interest—an interest which he was sure no one felt had been disappointed. They had had placed before them the work of a very interesting and beautiful life, and those of them who were accustomed to make an endeavour to read the man in the building and to dissect the thought from the form had discerned that there had arisen in our midst in London the work of a very singular man, of a powerful artistic character, and undoubtedly the work of a great man because in the midst of an almost entirely Philistine age. Under the auspices which had been described, and which seemed to him to be particularly happy as between the client and the architect, Bentley had carried out a work in which one could say there was not the slightest trace of the Philistinism of the age in which it was built. How far the philosophy which succeeded in abstracting itself from the spirit of the age which gave it birth was justifiable in the architect was another matter, but they had in their midst a work of art, a work of genius and character and power, which he thought they in London had good cause to be proud of, and for which they were, without doubt, thankful to those who had brought about its completion. He thought its usefulness was to be emphasised when they passed their minds back to the designs which were put before the public for this Cathedral of Westminster, and he had hoped that Mr. Hadfield would have thrown some light on the scheme for building a copy of the votive church at Vienna in London. Bentley's work as a Gothic architect they knew from Mr. Eastlake's "History of the Gothic Revival," and although he had only built small places in London or in places accessible to Londoners, they showed a remarkably refined mind and something of the strength of design they associated with Burges's work. Later on came that extraordinary church at Watford, and that in Cadogan-square, which revealed the fact that Bentley's mind was able to grasp the delicacy and refinement of the later Gothic work as well as the stronger and more forcible character of the earlier work. But from the church at Watford to this new cathedral was a very long cry indeed. They found the early stage of the Gothic revival and the latter reflected in Bentley's mind in his work, but the placing in his hands of this large commission evidently upset, for reasons we cannot discern, the whole of his preconception of an architectural ideal. Bentley, he imagined, worked in the Gothic movement with that ardent devotion and almost spiritual appreciation of the mission of Gothic art in England which actuated Pugin and other enthusiastic leaders; but they found all that disappear suddenly and the artist flung himself into Ravenna of all places—in the fever-laden marshes of the Adriatic—for the inspiration of a London cathedral to follow the Gothic revival. It seemed extraordinary indeed. He did not suppose that Bentley, for one moment, expected to set a fashion; but such a departure seemed extraordinary. He laid aside the traditions which had led him hitherto, and he looked within for the direction to express this extraordinary commission which had fallen to his hands. He had no doubt that, when they or their successors came to look back to the architectural history of the period through which they had passed, they would be filled with, perhaps, the same wonder as to why Bentley should have gone back; why he should have done as he had, for to him, at all events, it was one of the most interesting problems connected with that church. That he had gone back, and had gone back conscientiously, to the foundation of Christian ecclesiastical architecture in the East, they could believe so far as they could see, but he seemed to have laid aside the type of plan; he seemed to have avoided the central group which was invariably connected with the early Christian form of domed church, and to have centred all his attention upon designing a dignified nave. The scheme was original, so far as he (the speaker) could recollect; it was entirely without precedent, and so far entirely characteristic of the age in which it was built, because they could not work with tradition. But in spite of Mr. Bentley's wish to produce a building based on early Christian lines they had a Gothic nave of a church like that of the Cordeliers in Toulouse translated into a simple domed nave; based upon the same principle of lighting and buttressing, but cut loose from

Gothic feeling in detail, and from any traces of Classic or Renaissance tradition. They could not conceive what dreams he had of beauty for that vault, and he suspected St. Mark's, Venice, on a great scale, emulated in mosaic, and in strong reliance on himself in the drawing of the mosaic. But that was gone, a thing of the past, not to be, and they had to be content with it as it was, magnificent in bare brickwork. The fine proportion and lighting were immensely impressive in effect, but it is one effect. There is no change; no transit; no central group. They appreciated being able to take pleasure in the cathedral without being troubled with the building up of every story in the design with more detail and piling up of order upon order until the required height was obtained. Proportion and massing of light being entirely relied upon, and on that the success of the interior depends. Unfortunately the plan cramped his exterior design, which did not express the real dignity of the interior. He half suspected that Bentley felt that himself, for there was more restlessness, more effort, and more determination to be fresh into the design with the exterior than with the interior. He seems to have been content to hide the domes, and to rely on the great mass of the nave with the lofty campanile, and to have exercised on that his affection and love. They had to take it as it was. They could not picture to themselves how it could have been otherwise, and that was, perhaps, the greatest test of its success. They might have their criticisms and their qualifications, but none of them could place themselves on Bentley's standing and say "This should have been otherwise; I wish it were such." This cathedral would be the subject of much criticism, and their friends would be consulting them about it. Clients, and relations, and friends around would be asking architects what they thought about this great cathedral, and they had to form one opinion or another, but the one thing which stood prominently, he was sure, in the minds of all intelligent architects and artistic persons was that here is a great work of a great man. Here is a fine architectural effect, and the embodiment of a great scheme for which they must be proud, and for which they must always be thankful. In conclusion, he moved a hearty vote of thanks to the reader of the paper.

Mr. Alfred East, A.R.A., said that probably he had been asked to second the vote of thanks, which he most cordially did, because he represented the man in the street—architecturally, he meant—and from that point of view he could not say too much in praise of the grand building of which they were all so proud. He felt in that building that a great artist had exposed or built upon a recognised form a study of the requirements of modern life without loss of dignity. He felt, too, that the preponderating expression of his artistic genius was simplicity and dignity. He thanked Mr. Hadfield for his tribute to the man because it introduced some interesting stories of the conception and the preliminaries which preceded the erection of the building. He also thanked Mr. Hadfield for the light he had thrown upon Mr. Bentley and his character, and of the circumstances which led to the final development of the scheme. As an artist, he probably shared with his fellow-craftsmen a keen interest in architecture. They recognised it as one of the great arts of the world which had impressed them as they visited any country, for they knew it represented the religion and manners and customs and history of the people. He felt that for this great cathedral, which it had been the privilege of a poet and an artist to design, they owed a debt of gratitude to Mr. Bentley for avoiding the possibility of a failure. It was a great thing in these Philistine days to see such a noble erection in their midst. In that sense he cordially seconded the vote of thanks to Mr. Hadfield for his interesting paper, and he did hope that the ultimate design of the architect might be carried out. Before he sat down he would like to say one thing that impressed him, and it was this. He hoped the decoration would be done by Englishmen. Let them stand or fall by their work. If they failed in the decoration of the interior, well, they must submit to the criticism of the world; but he believed they had amongst them men who could carry out the design of the architect, and he would like that opportunity, which came so rarely in their country, to be taken advantage of, and to see the work made a thoroughly English work.

Mr. Walter Millard remarked that Professor Pite had told them they had all to make up their minds about this church of Bentley's, and he had been trying to make up his mind. He began by saying to himself the worst thing he could think about it. He did not know that that was the right way to begin, but he did begin by thinking of the un-English fashion of it at first sight. For it was un-English to most of them. But that did not exhaust the question. To his mind, it was designed by a man who was essentially a student of architecture—a student of architecture who looked on the history of architecture as a whole, and who looked on the monuments of architecture for what they told him about themselves in the first place, and also for what they could suggest to him to do as an architect. Surely Bentley was not a student who merely looked on existing architecture to know what it was, and there to stop short; but he studied architecture further for what it told him to practise and do, and he thought the cathedral was an illustration of a man who pursued the study of architecture in that broad way. When they came to the building itself, he did not wish to be critical, but he could not help wishing somehow that Bentley's great power, of which the interior had given such proof, of producing fine effects, by simple means apparently, had been also exercised when he came to treat the exterior, especially when they considered the site and surroundings. The contrast between the treatment of the interior and the exterior had always impressed him as something he could not quite reconcile or understand, unless Bentley hoped that the surroundings themselves would change some day. Let them all hope they might. It was a site as little inspiring as they could well think of, and its chief merit was, he supposed, its cheapness. That being so, he still wondered why Bentley gave so much to the exterior, although, of course, they all knew he meant the interior to eventually surpass the exterior in richness and variety and everything else. After all, he supposed the point for us to consider was—What is the lesson it teaches us, this great building finished at the beginning of the twentieth century? Was it not, to an architect, self-reliance—self-reliance in his studies and in his work, and unwearied effort to get his work as right as he could? Did not Bentley wear himself out in his effort to do this?

The Chairman said they had had a most interesting evening, and were greatly indebted to Mr. Hadfield, who knew Bentley so well, for bringing that great building of his before them in so interesting a way. There was no doubt that the building was exciting a great amount of interest. That was not, perhaps, extraordinary, for a great cathedral could not be built even in the city of London without attracting notice, but it had undoubtedly attracted the interest of architects of all shades and opinions, and he believed it would have more influence upon the younger men who were now preparing as architects than any other building which had been erected in recent years. He imagined that one reason for that was that Bentley had to solve a problem which most of them from time to time had to solve—the old, old story of building a church for an ancient religion, but so to build it that, to some extent at any rate, it represented the modern needs and requirements of the present day. Then as Mr. Millard had rightly said, another point of great interest was, of course, that the man had built himself into his building, and as Mr. Hadfield had told him, he believed that the building really was the end of his life, and that he bestowed on it all the knowledge, thought and vitality in him. They could not go round it (whether they liked it or not), either the inside or the outside, without seeing in every corner and in every arch, and in every bit of moulding and carving, the man himself in it. Another great point of interest he thought in it was that the plan had been the basis of his design, and they saw his plan working out its natural result in the sections and elevations of the building. He had let his construction influence his design, and he had let his design be influenced by his construction, and that appeared to him (the Chairman) to be the essential of true architecture. He thought they would all agree with what Mr. Alfred East said in expressing the hope that as Bentley had left such a magnificent field for decoration, so rare in England, the work should be done by Englishmen, and it would be very



interesting if Mr. Hadfield could kindly tell them whether he knew of any scheme that Bentley had left for that decoration. They knew, of course, that he was a master of that art as well as of the constructive arts, and that, if alive, he certainly would have designed, to a great extent, the motives of the whole of the decorations. He had heard it suggested that there was some such scheme in existence. They must all hope so, and, at any rate, that the mosaic decorations now going on formed part of some great scheme Bentley himself devised. They all knew that he left a magnificent design, which Mr. Hadfield had referred to, for the marble pavement for the whole of the church, and although they were told that only a part at present was to be executed, they all hoped in due time the whole design would be carried out.

The motion was then agreed to. Mr. Hadfield, in reply, said his had been a difficult task. He could not presume to know Bentley's mind, as he was a man singularly secretive. If Bentley wished a thing he did it, but as a rule he was never a man to talk about his intentions. With regard to what Professor Pite had said as to his wonder of how Bentley came to do this thing, he could only say this, this Byzantine was no new thing to Bentley, and he knew that he was most enthusiastic about it, particularly as to the work in Burgundy, the German Renaissance, and the North Italian. Bentley knew it years and years ago, and he was one of those men who never took a thing up to be a fad. If he took it up he went right through with it. The history of this great cathedral was that Cardinal Vaughan asked him to do a certain thing, and Bentley had told them why he did it, and he went to Italy simply to concentrate all the ripe knowledge and studies of years. He could go back to the sixties and seventies when colour and Ruskin's ideas were talked about in that room, and Bentley was most enthusiastic in those days. Well, he never dropped it, and his point used to be that if a man went into a thing of that sort he had to learn the grammar of his art. His great idea was for a revival of the traditions of Pugin, and he was loyal to that, although he very often poked fun at people over it. Well, the history of the thing was that he was called upon to do a certain thing, and he took this Byzantine style, and he built a great ecclesiastical church, and he had left his life in the church. With regard to the question of the exterior, perhaps Bentley in that had played a little to the man in the street.

The Chairman announced that the next meeting would be held on March 30, when Mr. H. Porter would read a paper on "Fire Prevention," and the Science Committee would present their Report on the Fire Regulations.

#### THE SANITARY INSTITUTE:

##### SEWAGE DISPOSAL.

ON the 17th inst. a meeting of the Sanitary Institute was held at Parkes' Museum, Margaret-street, W., when Dr. George Reid, M.D., D.P.H., Medical Officer of Health, Staffordshire County Council, opened a discussion on the subject of "Sewage Disposal and the Qualities Essential in a Sewage Effluent." The chair was occupied by Colonel T. Walter Harding, one of the members of the Royal Commission on Sewage Disposal now sitting. Dr. Reid said that from time to time attempts had been made to arrive at what might generally be accepted by experts, if not defined by law, as a uniform standard of purity for sewage effluents, but, so far, these efforts had been fruitless. Personally, he was not disappointed that the attempt did prove unsuccessful. Notwithstanding difference of opinion, however, regarding the wisdom of establishing a uniform standard of purity, hitherto experts had not differed as to the minimum essentials in a good effluent, and he thought it might be said that the progress which had been made of recent years in the direction of simplifying the means by which the end in view might be attained had been little short of phenomenal. The object they had striven to arrive at hitherto had been the production of a non-putrefactive effluent containing practically no matters in suspension, one which was non-destructive to fish life and had, in itself, sufficient available oxygen to mineralise, through the action of the nitrifying organisms present in it and in the stream into which it was

discharged, any dissolved organic matter still remaining unconverted. This was the minimum; but in certain cases—for example, in Staffordshire, where in the populous places the volume of sewage to be disposed of exceeded the volume of the streams—they endeavoured to carry the nitrifying process further in order to have a reserve of available oxygen for the conversion, as far as possible, of polluting matter which of necessity reached the streams beyond that which was contained in the sewage actually submitted to treatment. But in the light of recent events, were we still as confident that we knew what was, or rather what might be required of us, and could we any longer congratulate ourselves on having arrived at something like a solution of our difficulties? Were there not indications that, after all, we had not fully realised our responsibilities, and that in future we might be called upon to accomplish a great deal more than had hitherto even been dreamed of by the most exacting enthusiasts on the subject? Some five years ago, in view of the enthusiasm with which the introduction of modern biological methods was being advocated, a Royal Commission was appointed to inquire into the whole subject, and after three years' work an interim Report was presented, for which those who, like himself, had for years been struggling to bring about much-needed reform in the methods of disposal in operation, were thankful; for at least the fact was authoritatively recognised that land treatment was not an essential element in sewage disposal, and that authorities need no longer be called upon, as many had been previously called upon, to perform impossibilities. In the autumn of last year the Commission published a second Report, and he was disappointed in finding that it contained no reference to the questions of practical interest which they were hoping the Commission would elucidate. He ventured to suggest that at least five-sixths of the matter had a far more direct bearing upon other public health problems than the one which led to the Commission's appointment. If they had reason to suppose that the Commission intended that the Report should be accepted simply as a record of scientific work for the information of health officers generally well and good, but from the general trend of the questions put to witnesses by the Commissioners, and from the fact that in the Report itself the results of the working of experimental filters for the removal of bacteria from final sewage effluents were actually set forth, he was afraid that the Commission might ultimately recommend that, in certain cases, if not in every case, the process of purification should include the freeing of the effluents from organisms before their final discharge from the disposal works. At any rate, whether this anticipation of the Report had already resulted in its being gravely suggested by well-known public health specialists that, in addition to the purification process proper, if he might so term it, sewage should undergo a final process of water filtration before being discharged into a stream. Indeed, one well-known bacteriologist and lecturer on public health had gone so far as to say that if no other means would suffice sewage effluents must be boiled.

In order to show that his apprehensions were not groundless, Dr. Reid then referred to certain paragraphs in the Report of the Royal Commission. Dr. Houston, who conducted a large number of experiments for the Commission as to the bacteriological qualities of effluents from various methods of sewage treatment, said:—

"The effluents from septic tanks, intermittent contact beds, continuous filtration beds, &c., contain an enormous number of bacteria. . . . In not a few cases the bacteria are practically as numerous as the effluent as in the raw sewage." Further, Dr. Houston states that "the inoculation of animals with the effluents from bacterial beds seems to show that they are nearly as pathogenic as crude sewage." As regards land treatment, Dr. Houston said, "the treatment of sewage on land, although, perhaps, more satisfactory from the bacteriological point of view than its treatment in bacterial beds, would not seem to by any means entirely remove the danger arising from the discharge of effluents into potable rivers."

As regarded effluents from chemical processes of treatment, the Report stated that it might be found to be the case that the addition of chemicals might be carried to a point sufficient to destroy pathogenic organisms without rendering the sewage insusceptible to subsequent

purification by bacterial means, but that before this point could be settled much experimental work must be carried out. As to the question of standards, Dr. Houston said that "a bacteriological standard in the case of drinking-water streams is certainly called for, and, indeed, is far more important than a chemical one," but that a chemical standard should always be imposed. In the case of non-drinking water-streams, Dr. Houston said "except where oysters and other shell-fish, which are eaten raw, are concerned, the bacteriological character of an effluent is of secondary importance." He qualified this opinion in a footnote, however, in the case of sewage which might contain anthrax spores. In discussing the ways and means of rendering a potentially dangerous effluent actually or relatively harmless, Dr. Houston referred to fine filtration and the addition of chemicals as two alternatives. As regards the former, he said that "presumably it would cost as much to satisfactorily filter the sewage effluent of a town as it would cost to filter the water-supply of the same town." Probably we might infer from this that Dr. Houston contemplated the filtration of the dry weather flow only. The Report also contained an account of numerous experiments by Professor Boyce and others as to the effect of fine filtration in removing bacteria from effluents. A further large section of the Report set forth the observations of Professor Boyce and others on the self-purification of the river Severn below Shrewsbury from a bacteriological point of view. The inference to be drawn from the paragraph as to this was that less injury would result from the discharge into a stream of the crude sewage of 29,000 people than from the discharge of the treated, therefore, non-putrefactive sewage of a population of 420,000 odd. All he could say was that if he were given the choice it would not be the crude sewage of 29,000 people which he should select in the case of a stream over which he had control as an alternative to the treated sewage of a population, no matter how large. Beyond mere casual mention, the alleged injury to the public from the discharge of a non-bacteria free effluent into a stream was not discussed in the Report. They were all agreed, he imagined, that there was real risk in taking a public water-supply from a stream into which a sewage effluent had been discharged. This being the case, it followed that steps must be taken to safeguard the public against such risk, and the question was by whom were such steps to be taken? Let them suppose that this duty was imposed upon the sewage disposal authority. In such an event it was perfectly obvious that to provide a water purifying plant for the dry weather flow of sewage only would be quite useless, for, during storm periods, an enormously increased volume of sewage would be discharged into the stream, every gallon of which would have to be similarly dealt with. At present, according to the Local Government Board's requirements, a sewage disposal plant must be capable of fully treating a volume of sewage equal to three times the dry weather flow, and, less fully, a further equal volume, bringing the total volume treated up to six times the dry weather flow. This might be all very well so far as sewage purification, as we regard it, was concerned, but from a bacteriological point of view a discharge from sewer storm overflows greatly in excess of the sewage would have to be provided for if the sewage disposal authority was to be held responsible for a bacteriologically pure effluent. For the sake of argument, however, he would limit the volume to six times the dry-weather flow in order to arrive at the probable minimum cost of a sewage-disposal plant on such lines. He believed that a reasonable amount to allow for a sewage-disposal plant was about 15s. per head of the population, and he was told that water-filters cost from 2s. 6d. to 3s. per head. The latter figures, however, were based upon a consumption of 25 gallons per head, whereas at least six times that volume would have to be the basis in the case of the sewage effluent water-filter plant, so that the actual cost per head of such a plant, basing the estimate on the smaller figure named, would amount to 15s. per head. In other words, the addition of the extra plant would exactly double the capital cost of sewage-disposal works, and, of course, add considerably to the working expenses. But in the vast majority of cases even this large additional expenditure would not cover the cost, for, as a rule, by the time sewage had been treated, the



fall then available would not allow of the adoption of a further filtration process, so that pumping would have to be resorted to, with its attendant large capital outlay and greatly increased maintenance expenditure.

The alternative to filtration, according to the experts of the Commission, was chemical sterilisation; but at present they were not in a position to suggest any specific method. We might take it, however, that no matter what chemical method be suggested, the cost would be very great; besides, it was questionable whether certain risks which would attend such a proceeding could be effectively guarded against. But in the event of this onerous duty being imposed on the sewage disposal authority, would the water authority then be relieved of the responsibility of filtering the stream water? And if the answer, as undoubtedly would be the case, should be in the negative, he would further ask, then why go to such enormous expense seeing that the necessity for subsequent filtration of the water is not thereby done away with? Perhaps the answer to this last question was to be found in the other risks mentioned by the bacteriological experts, namely, the casual use of river water for drinking purposes and for utensil washing. His answer then would be that it was the duty of every Sanitary Authority to see that every household was provided with a satisfactory water-supply, and if certain misguided people should think fit to run the risk of using dangerous river water for domestic purposes they must take the consequences. The same held good in the case of bathing, as authorities had the power to provide public baths, and if a clean river was available places might be specially set apart for public bathing.

Dr. Reid then referred to the question of animals suffering from drinking polluted river water; and food supplies such as oysters and watercress. He hoped it would not be supposed that he wished to discredit any attempt to free our drinking-water streams, as far as possible, from dangerous sewage organisms; all he maintained was that in the light of our present knowledge, by no conceivable process could this be accomplished at sewage outfall works. It did not follow, however, that another way out of the difficulty might not be found, and the remedy in his opinion, both on scientific and practical grounds, should be applied at an earlier stage, and should be directed against the introduction into the sewage of disease organisms.

The Chairman said he was afraid Dr. Reid had raised a bogey as to the second publication of the Royal Commission. That publication was a more formal Report covering the publication of some very interesting reports by experts made to the Commission; they were not reports by the Commission, but reports made to the Commission, and they did not bind the Commission, though the attention would be given to them that their importance deserved. He believed that the reports had made it clear that in considering the quality of an effluent we were bound to look beyond chemical standards. There was no doubt that with all bacteriological processes there remained in the effluent a large number of germs which might or might not be harmless. The whole subject was as yet in an uncertain condition, and he would ask them to have some patience in awaiting the final Report of the Commission.

Professor Henry Robinson, in moving a vote of thanks to the lecturer, said he agreed that there was a feeling of disappointment that the information which had been obtained by the Commission did not bear directly upon what engineers and Medical Officers of Health had been looking for so long. He hoped that the further investigations of the Commission might be directed more to the solution of some problems which engineers and Medical Officers of Health had to advise upon. The interim Report, however, the last Report, contained one or two paragraphs which would slightly help.

Professor Bostock Hill said that he took it that the object of Dr. Reid's remarks was to protest against an idea which was apparently gaining ground, not so much in the minds of the members of the Royal Commission, as in the minds of the experts who have been advising that Commission, and so far Dr. Reid had not raised a bogey. It was difficult to get Local Authorities at the present time properly to undertake their duties, and if it was to be suggested that works of enormous expenditure and improved value were to be

undertaken, in addition to ordinary up-to-date measures, he was afraid the problem of the cleansing of rivers would be set back.

Mr. H. A. Roebbling said that Dr. Reid referred to the first Report of the Royal Commission, and said that there it was officially recognised that land formed no essential element of sewage treatment. He (the speaker) had not been able to discover the source of such a statement. Dealing with the land, which the Commissioners placed first in the list of methods for treating sewage, the Commissioners said they doubted if any land was entirely useless, and they went on to say that clay and heavy peat land were generally unsuitable. At Leicester, however, they had been able successfully to cope with the sewage on the thickest clay land for something like nine years, with a population increasing from 114 to 145 persons to the acre. It was a heavy boulder clay. Dr. Houston, in the second Report to the Royal Commission, made this statement about land:—"It appears possible, with land of proper quality, and by efficient management, to produce remarkably good bacteriological results." In some cases the results were so good that if it were not for the knowledge of its source, the effluent might be classed as a potable water of more than average purity. On the Continent, too, it was believed that land had the power of removing pathogenic germs, and at one sewage farm it was a common thing to drink the effluent. As to the findings of the Royal Commission concerning artificial methods, their conclusion was that it was possible, by artificial methods alone, to produce effluents which would, according to chemical standards, be considered as good; and they also said that there were cases in which the Local Government Board would be justified in modifying, under proper safeguards, the existing rule in regard to the application to land. We had to deal, not with the abandonment of land treatment, but with its modification under proper safeguards and that, too, only in special cases. He did not think the Commissioners held out any hope that they would reverse that conclusion, and what had to be done now was to consider the question of the safeguards. The second Report of the Commission was a very valuable one, and the views expressed in it ought to be studied. He agreed in theory with Dr. Reid as to the exclusion of pathogenic germs from our effluents, but, in practice, by the method advocated by Dr. Reid it would be long before it would be possible to admit the effluent safely into our rivers. Had Dr. Reid paid more attention to land, and had he not read into the Report of the Royal Commission opinions which he (the speaker) could not find there, he would have been more favourable to those conclusions. Land methods had been greatly abused in this country, not because they were at fault, but because the management of the land was at fault. Land had the power of removing pathogenic germs, and of rendering the effluent harmless.

Mr. Scott Moncrieff said he sympathised with the views expressed by Dr. Reid. It had been forgotten that public opinion was being misled, not only by the Royal Commission, but more especially by the reports of the experts to that Commission. If Dr. Reid had raised a bogey it was due to the totally unguided labours of expensive experts. Take the question of drinking water—in London, say. If we were to attempt to raise the standard of purity to a deep-well standard in the case of ordinary streams it was perfectly impracticable; it was not practicable in the case of the Thames, even if there were no sewage pollution at all. At the present season—the season for manuring the land—with the Thames more or less in flood, there was no doubt that the river was full of organisms coming off the land. Every one was waiting anxiously for a further Report of the Royal Commission, so long delayed, giving some distinct indication of their views as to the way in which a first-rate effluent on a modern standard might be obtained, and without discussing the question of whether it might contain a certain number of pathogenic organisms which, in the nature of things, must exist in the streams, whether they were polluted by sewage or not.

Mr. Fowler, of Manchester, said that Mr. Roebbling appeared to forget that in Lancashire and elsewhere there was not so much land to be had as in Leicestershire. He did not think that some of the attacks made on the Royal Commission were justified. The Commission were watching carefully a number of

works where sewage was being purified, and considerable time was necessary for the purpose.

Mr. Archibald and Mr. Lowcock having spoken, and the vote of thanks having been agreed to heartily.

Dr. Reid, in reply, said he thought he was justified in his remarks about the second Report of the Royal Commission, and he did not think he had raised a bogey. As to land, the Royal Commission certainly said that it was not essential for the purification of sewage that it should be applied to land, and that there were methods for the disposal of sewage without application to the land; and the Local Government Board, he was glad to say, were acting on that. It was true that the Commission said that land of a certain quality would produce a better effluent than artificial filters; that was so, but such land was not to be found all over England. It was the business of those who took water from an impure stream for drinking purposes to make it pure.

The Chairman said he agreed with Dr. Reid that five-sixths of the matters gone into by Dr. Houston and Professor Boyce were outside the scope of the work of the Commission, but they could not be blamed for going fully into the matter. The work of the Commission was very laborious, and if those who were anxious to get the final conclusions knew how vast the work is they would be a little more patient. The Commission had finished their study of land processes and were waiting for data in connexion with the so-called artificial processes. They had a large number of works under observation, and he hoped that when they reported they would make a very useful contribution to the study of the question. As to the position of Local Authorities in regard to trade effluents, the Commission had signed a Report which might be of great interest on that question.

A vote of thanks to the Chairman brought the proceedings to a close.

#### CARPENTERS' HALL LECTURES: MODERN FURNITURE.

THE third of the Carpenters' Company's spring lectures on matters connected with building was given at Carpenters' Hall, London Wall, on the 5th inst., by Mr. J. A. Gotch, whose subject was, "Modern Furniture, Movable and Fixed." Sir C. Purdon Clarke, Director of the Victoria and Albert Museum, presided over a large audience and briefly introduced the lecturer, remarking that Mr. Gotch had done very much to place before students and others the wealth of Renaissance architecture.

Mr. Gotch said it might be doubted whether fifteen or twenty years ago an audience of any kind could have been brought together to listen to a lecture on the subject of furniture; and that that was no longer the case pointed to the great awakening of interest in matters relating to art. The effect of this awakening was twofold. Exhortations from more or less eminent critics, together with improved design, had stirred the perceptions of the public; the keener appreciation of the public had reacted on the designers, and encouraged them by making them feel that their efforts met with more intelligent criticism than in former days. But we were not free to-day any more than our ancestors were in the past or (we might safely say) our descendants will be in the future from that shallow species of intelligence which approves of certain things because they are fashionable, and not because of their inherent good qualities, which adopted particular forms because they were the badge or the shibboleth of a certain set or clique who were supposed to be imbued with an extra large amount of artistic perception. But it was clear on every hand that the appreciation of beauty and fitness was more widely spread than it was a quarter of a century ago. To take one instance: whereas some years ago the interesting designs published in the building papers would be the work of a few well-known men probably living in London, now hardly a week passed without some agreeable design appearing of which the author not only lived in the provinces, as they were called, but lived there in comparative obscurity, so much had vernacular design improved in architectural matters.

For a considerable period now there had been a rage for old furniture, and when one reflected on the amount of the handiwork of certain well-known makers which had passed



through the market during the last few years, the labours of Hercules sunk into insignificance beside those of Chippendale, and Brierley with his hundred hands would have been consumed with mortification could he have beheld Sheraton at work, so swiftly and with such profusion must the latter have produced his wares. But this rather morbid desire to be surrounded with furniture of antique appearance would seem to be about to succumb to an anxiety to possess modern furniture. Modern furniture dealers appeared to be doing a thriving business in England, and there had been an enormous demand on the Continent for furniture made from the recipes or prescriptions of the New Art. Whether the makers of the genuine antique goods had experienced a corresponding depression had not transpired at present.

There was no need to enter at much length into either the merits or the demerits of the New Art movement. It exhibited a real desire for novelty, and one of its fundamental principles in the English version was the admirable one of simplicity; but one was sometimes forced to the conclusion that in the endeavour to eschew familiar methods of decoration and to shun meretricious display, there had been achieved, with much ingenuity, a considerable absence of beauty and interest. It was as though no desirable mean could be found between the fantastic, artificial coiffure of the eighteenth century and a bald head, or between a Louis XVI. cabinet and a kitchen dresser. The negation of all the accustomed methods of producing effect was, at bottom, affectation, and affectation of a rather annoying type. Simplicity and directness were admirable, but behind them we want the feeling that they were the result of restraint, not of inexperience; that they were the deliberate choice of a grown man, not the involuntary effort of a child. To make simplicity most effective, it wanted a certain admixture of fancy. Some of the work of those who range themselves beneath the banner of the New Art suffered, one could not help feeling, from the defect of overdone simplicity; but behind all the affectation of this particular cult there was a real, genuine desire for improvement in design, and undoubted ability to produce it.

Of course, the New Art had affected modern furniture, notably on the Continent. He used the term "New Art" because it had been so widely adopted, but the phrase was a little unfortunate, for the whole of history pointed to a gradual evolution in all things. New styles in the domain of Art had grown out of what went before, and, as a rule, were hardly recognised until they were well established. An art that called itself "New" seemed to require something more to justify it than anything that had been seen up to the present.

But the movement had affected modern furniture, and, in order to judge of its influence, it was desirable to consider what principles should guide design in furniture; in other words, what qualities furniture should possess. The vast majority of people who use furniture were ordinary persons, and they liked to have things which were convenient and comfortable. Tables should not fall over too easily (unless they happened to be supporting certain modern vases at the time). Chairs should be comfortable especially if they were "easy chairs;" they should not inflict unexpected knocks and bruises, and they should be fairly light in weight, and yet strong in construction. Doors of cupboards and wardrobes should open and shut easily, so also should drawers; trays should slide out and in without raising the suspicion that the door of the wardrobe would have to be taken off its hinges. In asking for comfort, it was not to be supposed that every chair was to be an easy chair, but rather that it was to be suitable for its purpose. There used to be folding-chairs which were apt to throw the stranger, in a most disconcerting way, on to the floor unless he sat well back in them, and there are soft lounging chairs, very proper for the boudoir or the smoking-room, but quite out of place in a drawing-room, since no one but an athlete could rise from them save through a slow and laborious process, quite unsuitable to the sudden emergencies which sometimes arise in a drawing-room.

Most people would agree as to the propriety of establishing convenience and comfort as the basis of furniture design, but there would be a wide divergence of opinion as to the best methods of expressing those qualities, and here we get into the realm of taste, about

which it was useless to argue. Still, the pursuit of convenience and comfort in furniture seemed to lead to simplicity, cleanness of line, an absence of features likely to retain dust, a certain display of fancy, and constructional propriety—for sins against construction would sooner or later be exposed and punished, involving the annoyance and discomfort of those who used the furniture. The desire to avoid dust and dirt led to a prevalence of polished surfaces, and this again to the use of various kinds of wood susceptible of taking polish. It also pointed to the avoidance of complicated mouldings and a sparing use of carving. The ideal piece of furniture, therefore, would be simple in outline and treatment; its form graceful, its colour pleasant, and here and there would be a fanciful touch enough to show or suggest that the designer had some feeling for design. Much of the ancient furniture which gave so much pleasure satisfied these conditions, and, partly for that reason and partly because of its excellent workmanship, it had survived the changes of this transitory world and had lasted to our own time. But all ancient furniture was not truly æsthetic in design and construction; there were not a few pieces to be met with which were faulty in both particulars. It would be a mistake to accept all old examples as perfect, but the bulk of it had survived because of its fitness.

How far did modern furniture possess these qualities? At the outset the question occurred "By whom is modern furniture designed?" He excluded from the term "modern furniture" all that immense amount of what was called "factory stuff," which filled the windows of the ordinary furniture shop, and depressed the spirits of the enlightened beholder. As many people bought it, it was to be supposed that they did not dislike it, though it might be fairly supposed that they do not actually like it. They took it because it was there, and because they had not been trained to discriminate in matters of design. But where was the better class of furniture designed—the kind of furniture that was really worth discussing? Much of it came from the drawing offices of firms like Messrs. Waring and Heal & Son, and some of it from the pencils of amateurs, whose work, it might be said without disrespect, appeared rather amateurish beside that of men who were in close touch with the sale of furniture. It was one thing to design furniture, but another thing to sell it; the latter implied having an article which stood the test of experience and of constant wear and tear. On the other hand, it was essential that the designer of furniture should have the architectural spirit—that his design should be based upon construction and governed by constructional propriety, and that his ornament should be applied with discretion and should harmonise with his lines of construction.

In order to illustrate the subject of modern English furniture, he had approached several eminent firms of furniture makers, and he was indebted to Messrs. Gillow, Messrs. Waring and Heal & Son, for their courtesy in enabling him to illustrate this part of his subject. He found that the work of these houses was distinct in its character and typical of the "streams of tendency" in furniture design. His object was to ascertain upon what lines modern furniture was designed—furniture, that was, which found a large sale among the general public, and not furniture which was specially designed for a particular person or for a select circle. The result was that at one of the firms he found that nearly everything was a reproduction of old examples: beautiful things, but not new in design. The same result was obtained by a visit to a firm in Edinburgh, and the conclusion that he derived was that a vast amount of the best modern furniture was closely copied, if not actually reproduced, from old examples. At another firm, the prevailing idea was to found design on the old examples, but to adapt it to modern needs, making sufficient changes to meet new requirements, but adhering closely to old types and to old methods of obtaining effect. At the third firm the designers had emancipated themselves more thoroughly from the old forms, and, while subordinating their ideas to the practical requirements of the various pieces of furniture, they imparted a character to their work which proclaimed at once that it is modern—the most casual glance showed that it is not ancient. Which kind of work was the most satisfactory was a matter of individual taste,

but probably every one would agree that a careful development on the lines of the best old examples was more satisfactory than those bold attempts at originality which found so much favour forty years ago, at the time of the 1862 Exhibition. The illustrations of furniture to be seen in the official record of that Exhibition—illustrations which received the highest commendation—made one wonder whether a standard of good taste could ever be established, and caused one to revert with still firmer faith to the principles already laid down.

In the course of his address the lecturer showed and described a large number of lantern slides of furniture, including l'Art Nouveau furniture presented to South Kensington Museum by Mr. Donaldson. That gift had aroused much controversy and opposition, but Mr. Donaldson's reason for presenting the furniture was that as fashion had set in in favour of it, and as there was such an enormous sale for it on the Continent, English craftsmen ought to have an opportunity of studying it.

Speaking of the chairs, he said that all attempts to design them on new lines seemed to lead back to old types. The stuffed luxurious chair is modern, but stuffing did not lend itself to a great variety of form, nor to elegance.

What conclusions do we arrive at in regard to modern furniture? It might not unjustly be said that, apart from the cheap stuff which filled so many shops, there was a genuine tendency to advance, sometimes along the lines which had already been traced out by our predecessors, sometimes along fresher tracks. Some of the more adventurous spirits, who depart from the ancient ways, did not escape the pitfalls which experience, it was to be presumed, would eventually teach them to avoid. But in any case, we need not be ashamed of the part which English craftsmen are taking in the struggle. Although there was plenty of space for still further advance, we might congratulate ourselves on that wider diffusion of knowledge and appreciation in matters relating to art to which modern furniture was one of the many witnesses. As to foreign design, he should be sorry to see that style take possession of our English craftsmen.

A vote of thanks having been accorded to the lecturer and the chairman, the proceedings came to an end.

#### ARCHITECTURAL SOCIETIES.

MANCHESTER SOCIETY OF ARCHITECTS.—A sessional meeting was held on the 12th inst. The prizes were distributed by the President, Mr. Alfred Darbyshire, to the students who had been successful in the various competitions of the past year. The names of the winners of the last competitions were announced, as follows:—For the design for the cover of the new Sketch Book, Mr. J. Harold Gibbons; Mr. Holden's prize for a design for a free library, Mr. Harry Moss; the monthly class of design for a market-hall, Mr. Harold Hill and Mr. C. H. Potter bracketed equal.—A paper was then read by Mr. Isaac Taylor on the students' work of the past year. The drawings, some sixty in number, were hung round the room. Mr. Taylor congratulated the Society on the excellent work to be seen in the room, and urged students who did not at present enter into these competitions to give their attention to them in future. The Society gives about 40*l.* a year in prizes to be spent in books, so that, besides the useful training here was an excellent opportunity of establishing a first-class library. A further prize of 5*l.* was this year offered by Mr. J. W. Beaumont for sketches and measured drawings suitable for publication in the Sketch Book, which it was hoped to make a first-class publication. Turning to the sketches exhibited, Mr. Taylor, whilst realising the value of artistic sketching, thought that an architect's sketch-book should have far more outline diagrams, with sketches to large scale, of details and mouldings. There should be less of the photograph-like general views that students were so fond of making. The importance of measured work was also insisted on. The lecturer then gave a short criticism on each of the drawings. Mr. J. W. Beaumont, in proposing a vote of thanks, spoke of his great interest in the forthcoming issue of the "Sketch Book," and pointed out that it rested with the students to make it successful. Mr. H. B. Laycock thought that some of the condi-



tions for the competitions should be more explicit, instancing the cottage hospital, where it was not stated whether dayrooms, operating-room, or accident ward were to be provided. Mr. Salomons also spoke, and the lecturer briefly responded.

**LIVERPOOL ARCHITECTURAL SOCIETY.**—A lecture on "The Ancient Churches of Wirral" was delivered on the 16th inst. by Mr. L. Hobson under the auspices of the Liverpool Architectural Society, Mr. P. C. Thicknesse presiding. In these days of rapid locomotion, people were too apt, the lecturer said, to go long distances in search of the picturesque in architecture while it was accessible on much more easy terms. He assured those students who were going in for examinations that they would find within the Wirral district most of the answers set by examiners. In proof of this, he presented on the screen a number of very interesting views, among them being one of St. Andrew's Church, Lower Bebington, which he spoke of as the happy hunting-ground of architectural students.

**SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS.**—An ordinary monthly meeting of this Society was held on the 12th inst. in the Lecture Hall of the Literary and Philosophical Society, Leopold-street, Mr. T. Winder presiding, when Mr. R. E. Leader, B.A., gave a lecture on "Surveyors and Architects of the Past." He said that architects and surveyors of to-day had been far too busily engaged in the work of the present to concern themselves greatly with the worthies of bygone generations, and there might, therefore, be some advantage in collating and arranging in accessible form such information as was available. Without inquiring which was the elder of the allied arts represented by the Society, locally surveying was undoubtedly entitled to claim priority. The painstaking, and to the antiquarian invaluable, surveys of the Sheffield and Workop estates made by direction of the Earl of Arundel in 1637 were executed by John Harrison, a master of his craft. He had in vain sought an answer as to who John Harrison was. Equally shadowy were other old surveyors whose names were occasionally met with, e.g., Dennis Lee and Im. Halton, in the seventeenth century; it was only when the eighteenth century opened that firmer standing ground was reached. Robert Wilson (flourish 1704-1733) might be regarded as the father of Sheffield surveyors; he was employed by the Duke of Norfolk, the Town Trustees, and the River Don Navigation and other principals. Among his contemporaries were John Gelliey or Gefly (1711-1725), Thomas Smith (1710-22), and William Kitchen (1728-30). The first named in 1723 made a map of the boundary between Yorkshire and "Darbyshire." The other two were probably schoolmasters, the local surveying of the eighteenth century being the natural application of the mathematical knowledge of the schoolmasters of the period, as a long line of schoolmaster-surveyors showed, including Ralph Gosling, to whom abiding gratitude was due for his plan of Sheffield from 1736. Other surveyors working in Sheffield from 1730 onward, included John Smiliter, who, without being disrespectful, he might say, represented the market garden or kail yard style of cartography. William and Joseph Dickinson (1737 to 1767), he thought, were Smiliter's pupils, and Joseph, in 1750, published an interesting map (of the south part of Yorkshire, a copy of which could be seen in the Norfolk estate office, and executed a good many surveys in the district. It was about that time that Thomas Oughtibridge flourished, who issued a quaint picture of the town from Bridgehouses some time between 1720 and 1740. Ralph Gosling, another well-known early cartographer, was the son of a Dronfield yeoman, and was born in 1693, and the family of the present Master Cutler traced its connexion with the Goslings. He was a schoolmaster, as was John Eadon, a contemporary surveyor. Two brothers, S. and N. Bucks, issued in 1745 an "East Prospect of Sheffield"—a well-known picture of the town drawn from Park Hill. They also published Bucks "Antiquities," including over 400 castles and abbeys and nearly 100 cities or towns. Pre-dominating over, but contemporary with, those surveyors were the early Fairbanks, a notable Quaker family. The name met them everywhere, and as there were three, if not four, William Fairbanks in successive generations, it was difficult sometimes to avoid confusion. The earliest known plan signed W. Fairbank was 1733. The earlier workmanship was crude,

and in striking contrast with the leisurely care characteristic of the later Fairbank drawings. The patient and conscientious care bestowed on his work by Fairbank's son brought the reward of complete mastery, and he did a large amount of work, and was favoured with special interest by the Duke of Norfolk. The younger Fairbank had ten sons, to two of whom, William and Joseph, born between 1770-1780, special interest attached. William entered into partnership with his father, and the lecturer mentioned, as an instance of his work, the excellent large scale map of the parish of Sheffield in 1795 published by Fairbank & Son. From 1801 to 1827 the firm of W. & J. Fairbank, as it subsequently became, was actively employed. To that period belonged the large scale map of the town and environs of Sheffield published in 1808. Josiah became surveyor to the Town Trustees and the Church Burgesses, and was largely engaged in work for the Duke of Norfolk, Earl Fitzwilliam, and the Duke of Rutland. How wide the Fairbank connexion had grown was shown by the increase of fees which took place. The hours which their assistants had to keep would make the hair of some present day youths stand on end. Mr. Winder had told him that within his recollection, when Mr. Marcus Smith presided over the surveying department of the Duke's office, work began at nine o'clock in the morning, and often continued until bedtime. The Saturday half holiday was a thing unheard of. In 1838 Josiah Fairbank left his brother and started in partnership with his son in East Parade. Death and removal from the town somewhat thinned the family, and its professional eminence was maintained by Josiah Forster Fairbank, M.I.C.E., and by him the generations of the past were brought into touch with to-day. Other names in the latter half of the eighteenth century, and the earlier years of the nineteenth, were few and far between. There was William Jessop, who was retained in 1785 for his advice on the water-supply schemes. Others in succeeding years included Benjamin Outram, S. Theobald, Bingley, Thomas Schofield, Joshua Bishop, John Tomlinson, John Leake, J. Taylor, Paul Bright, and Marcus Smith. In 1784 was born Mr. John Fowler, of Wadley Hall, the honoured founder of the St. James's-row firm, and father of a race of distinguished engineers. Turning to architects, he said that practically there were no local architects until some sixty or seventy years ago. Taking a survey of their older public buildings, one was struck by the regularity with which, whenever anything more important than dwelling-houses within the scope of intelligent masons was required, architects were imported from other places. The explanation was found in the geographical position of Sheffield and the humble standing of the inhabitants. When St. Paul's church was built in 1719, Mr. Platts, who erected Worley Hall, was called in; when the parish church had to be repaired in 1777, Mr. Thomas Atkinson was fetched from York. To Mr. Charles Watson, of Wakefield, was entrusted the Waingate Town Hall (1805), and the Infirmary (1793) was entrusted to Mr. John Rowstone, of Birmingham. Woodhead and Hunt, of Doncaster, were the architects for St. George's church in 1821, and the Surrey-street Masonic Hall (1823), and the Grammar School in Charlotte-street in 1825. Carver-street Chapel (1804) was the work of a circuit minister who had been intended for an architect, and so on. Some of those outsiders did establish themselves in the city, but a race of native architects was rising, and as the surveyors had come from schoolmasters, so the architects came from builders. That was strikingly so in the case of the Drury and Flocktons. It was not until 1825 that Edward Drury & Sons were designated architects as well as builders. In 1833 William Flockton laid aside the cap and apron and established himself as an architect. The Mount and Wesley College (1836) showed his native talent. There was, too, Mr. Samuel Worth. The name of Mr. J. G. Weightman first appeared in the directory for 1833, and in 1837 Mr. M. E. Hadfield was at the Corn Exchange. The elevating influence they exercised on the architectural renaissance of the town was reinforced in 1845, when the late Mr. Thomas James Flockton brought to his father's office a fresh knowledge obtained from a larger sphere than the city. With the firms of Weightman & Hadfield and Wm. Flockton & Son opened a new era in the architectural development of the city, and their influence was unmistakably

stamped on its streets. The advance marked in their career would be shown by a comparison of St. John's Park with St. Marie's, Norfolk-row, or Holy Trinity, Wicker, with St. John's, Ranmoor. There were other names in the list of fifty years ago. John Frith, Charles Unwin, Rooke Harrison, Thos. Fred Cashin, Edwin Falding, George Wilson, Alfred Scargill, &c. But it would be invidious to mention names. On the motion of Mr. E. M. Gibbs, seconded by Mr. R. W. Fowler, and supported by Messrs. W. C. Fenton and T. Winder, a vote of thanks was accorded to Mr. Leader for his lecture.

#### NORTHERN ARCHITECTURAL ASSOCIATION.

The annual meeting of the Northern Architectural Association was held on the 11th inst. at 36, Northumberland-street, Newcastle, the President (Mr. Frank Caws, of Sunderland) being in the chair.—Mr. A. B. Plummer, the honorary secretary, read the annual report of the Council. It recorded the increasing success of the Association. Since the last annual report the roll of membership had been brought up to fifty-five members, seventy-five associates, and seventy-three students, a total of 203. The Association recorded with regret the deaths of Mr. Thomas Oliver, seventeen times honorary secretary and four times President, and Mr. W. S. Hicks, also a former President. An account of the year's work was given, as well as comments on the sketches and drawings of students. The library report showed that the number of books issued was 245, the largest on record. The financial statement showed that the year commenced with a balance of 88l. 19s. 9d., and ended with a balance of 74l. 18s. 4d., the income being 207l. 8s. 7d. The report of the Students' Sketching Club stated that there had been ten excursions since last meeting, and that the average attendance was seven. The chairman formally moved the adoption of the reports. He said they spoke well for the future of their Association, more especially regarding the work done by the students. There were some who thought they were inclined to make too much of the student element; but he was convinced that the future belonged to the young, and he thought the future would prove that the students of their day had made the best use of their time. The experience of the past year had been distinctly encouraging. The reports were adopted. The election of officers resulted as follows:—President, Mr. J. W. Taylor; Vice-President, Mr. J. T. Cackett; hon. Secretary, Mr. A. B. Plummer; hon. Treasurer, Mr. R. Burns Dick; hon. Librarian, Mr. H. C. Charlewood; Council, Messrs. H. G. Badenoch, J. Bruce, J. W. Donald, J. W. Dyson, M. H. Graham, H. Grieves, T. Reay, C. S. Errington, J. C. Maxwell, R. H. Merton, C. E. Oliver, and R. P. S. Twizell, the last five being Associates. The new President was invested with the chain of office, and returned thanks for his election. He would, he said, endeavour as far as possible to cement the different bodies forming the Association, the young with the old.

**LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.**—A general meeting of this Society took place on the 12th inst. Mr. Butler Wilson, F.R.I.B.A., presiding, when a paper on "The Planning of Recent American Libraries" was read by Mr. Sydney Greenslade. The lecturer alluded to the great impetus given to the library movement through the generosity of Mr. Carnegie. The American architect, with unequalled opportunities, had recently produced some almost perfect plans, though new developments were always taking place. In large libraries the special room, with its special collection, had become a law, also the small room for special study. The "open access," as opposed to the "indicator" system, was being rapidly adopted, and naturally wrought changes in the plan, so that the borrower might have ready means of selection. Librarians nowadays were more certain of their requirements, so that to-day there should exist few obstacles to the provision of suitable library buildings in this country. Numerous views, accompanied by descriptions, were given of recent examples in the States. A discussion followed, in which Mr. T. W. Hand, the city librarian, championed the cause of the "indicator" system as opposed to that of "open access," which resulted in the hasty perusal of the first and last few pages of works of fiction, and their replacement on the shelves. A vote of thanks was accorded the lecturer, on



the motion of Mr. W. H. Thorp, seconded by Mr. Robert P. Oglesby.

**EDINBURGH ARCHITECTURAL ASSOCIATION.**—A meeting of the Edinburgh Architectural Association was held in the rooms, 117, George-st., on the 11th inst., Mr. A. Hunter Crawford, President, in the chair. Mrs. Ramsay Traquair submitted a paper on the subject "Decoration," illustrated by lime-light views. First, with regard to the attitude of the decorator, she said the architect came first, paving the way and creating the decorative artist. It was the architect who must give the favourable soil and atmosphere in which the decorative worker sprung to life. Decoration should become a sort of natural growth, and was only good in its proper place: taken out of that place, it would be a beautiful fragment, but it was only a fragment. She spoke of line as a means towards expression, and pointed out that the Greeks always gave prominence to the angle when they wanted activity, and gave prominence to horizontal and vertical lines when they wanted quietness. The relations between line and colour and the uses of line and colour in decoration were touched upon, and it was pointed out that a flat tint corresponded with a straight line, a graduated tint with a curved line, and broken colour with an angle. She emphasised the importance of the inferior parts of decoration being designed as carefully as the principal bits, and of not being given to inferior hands, otherwise the principal parts were apt to look like pictures in more or less unconnected surroundings.

#### THE LONDON COUNTY COUNCIL.

The usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, Lord Monkswell, Chairman, presiding.

**Loans.**—On the recommendation of the Finance Committee, it was agreed to lend the Wandsworth Borough Council 3,660*l.* for public baths at High-street, Wandsworth; and St. George's Union Guardians 17,407*l.* for alterations and additions to the Fulham-road workhouse.

**Southampton-row Improvement.**—On the recommendation of the Improvements Committee, it was agreed that the estimate of 33,350*l.* be approved, and that the Improvements Committee be authorised to incur expenditure for the purpose of the additional widening of Southampton-row to 100 ft. between Theobald's-road and Fisher-street, necessitated by the proposal to construct in the thoroughfare an open approach to the tramway subway.

**Greenwich Tunnel.**—Colonel Rotton moved that the recommendation of the Bridges Committee to approve of the supplemental estimate of 24,500*l.* for the purchase of property and payment of compensation in connexion with the construction of Greenwich Tunnel be referred back. He pointed out that the cost of the tunnel had gone up from 70,500*l.* to 155,000*l.*

Mr. Beachcroft seconded the amendment.

Mr. Sears (Chairman of the Committee) pointed out that although the original estimate was 70,000*l.* before the work was started, a revised estimate of 155,000*l.* was brought forward and approved by the Council.

The amendment was negatived, and the recommendation agreed to.

**Grange Hill Forest.**—The Parks Committee reported having considered a letter from Mr. E. North Buxton, suggesting the acquisition by the Council and subsidiary to the main Hainault Forest scheme of about 78 acres of land known as Grange Hill Forest, adjoining Claybury Asylum, and asking the Council to contribute half the cost (about 4,500*l.*) subject to the remainder of the purchase-money being raised locally. The owner, however, sought to impose the condition that patients at Claybury Asylum should not be exercised on the land if acquired by the Council. The Committee recommended that in view of the condition sought to be imposed the Council take no action.

Mr. Beachcroft considered they had spent too much money on Hainault Forest, and he moved that the words as to the condition be left out of the recommendation, or otherwise it simply gave the owner a chance to come again to the Council with a fresh offer.

Mr. Sidney Low seconded the amendment.

Mr. S. Webb regretted that the Council did

not buy the land, for the time would come when it would be needed.

The amendment was defeated, and the recommendation was agreed to.

**District Surveyors.**—The Building Act Committee reported as follows:—

"On January 27, 1903, we reported that we purposed submitting to the Council as soon as possible recommendations in regard to the appointment of District Surveyors for the districts of North-West Kensington, South Kensington, and Sydenham. We have since gone very carefully into the question, and are now prepared to submit recommendations on the subject. [We have borne in mind the principle that has been laid down by the Council that, as opportunities offer, districts should be rearranged so as to make their boundaries as far as possible co-terminous with those of the Metropolitan Boroughs, and at the same time make them sufficiently valuable to attract suitable candidates. As regards the districts of North-West Kensington and South Kensington we are of opinion, after fully considering all the circumstances, that the most satisfactory arrangement would be to unite the districts, as to transfer certain small portions to other districts, so as to make the boundaries of the new district of Kensington co-terminous with those of the Royal Borough of Kensington. The gross value of the district so formed is estimated to be about 1,000*l.* per annum. With regard to the district of Sydenham we think this a large and valuable district, and, with advantage, be divided into two districts. The gross average value of the whole district for the three years ending December, 1901, was 1,572*l.*; the gross value in 1902 being 1,850*l.* 8*s.* 7*d.* If the district were divided into two districts, the line of division adopted being the Nunhead and Shortlands Railway to Stumps-hill and the line along the centre of Stumps-hill to the county boundary, the gross values of the districts so formed would be approximately 1,000*l.* and 600*l.* If the Council decide to adopt this course we propose issuing advertisements inviting applications for the posts of District Surveyors for both these districts. The Council will remember that the older District Surveyors are not subject to the conditions which it attaches to the appointment of District Surveyors, which conditions provide *inter alia* that a District Surveyor shall not carry on any private practice. One of the points to which we have had regard is the advisability of transferring one of the older District Surveyors to a more important district than his present one, making it a condition of his transfer that he should subscribe to the standing conditions of the Council relating to the appointment of District Surveyors. We accordingly inquired of eight of the older District Surveyors whether they would be prepared to accept a transfer upon this condition to a more valuable of the new districts, which it is suggested should be constituted by the division of the present district of Sydenham, but none of these gentlemen were willing to accept the transfer upon these terms. We were, however, informed by Mr. S. F. Clarkson, District Surveyor for North Chelsea, that he would be prepared to resign his present district and accept the proposed new district of Kensington, subject to the standing conditions of the Council, provided the age at which he would be compelled to retire (condition *f*) were made 70 instead of 65. Mr. Clarkson is 63½ years of age, but he is physically active and, in our opinion, quite capable of personally discharging the duties in the proposed new district. The Council has in a similar case waived altogether the condition which provides that a district surveyor shall, if required to do so, retire on attaining the age of sixty-five, and we think that in the circumstances of the present case it would be well to modify the condition as desired. If the Council adopts the recommendation which we shall submit in regard to the formation of the new district of Kensington, and the transfer of Mr. Clarkson thereto, we think that Mr. Clarkson's present district of North Chelsea should be added to the district of South Fulham, which is held by Mr. S. F. Monier-Williams. The latter, who was appointed to South Fulham in 1898, has applied to be transferred to a more valuable district, as he states that the value of the South Fulham district is diminishing, and that in two years' time it will probably not be worth more than about 200*l.* a year. We recommend—

(a) That a new district of Kensington, with its boundaries co-terminous with those of the Royal Borough of Kensington, be formed by uniting the districts of North-West Kensington and South Kensington, and transferring certain portions of these districts to other districts.

(b) That, subject to the Council adopting recommendation (a), and in order to give effect to it, the Queen's Park Ward of the Borough of Paddington and the late detached portion of St. George, Hanover-square, on the north side of Bayswater-road, be added during the Council's pleasure to the district of Paddington, but that Mr. Meeson, the District Surveyor for Paddington, be required to pay to the District Surveyors who began the supervision of the works transferred to him a proportionate amount of the fees chargeable on such works, calculated on the extent to which they have been supervised by them, and that the portions of the parishes of St. Margaret

and St. John the Evangelist, Westminster, north and south of Kensington Gore, and Knightsbridge, at present in the districts of North-west and South Kensington respectively, be added to the district of St. George, Hanover-square, North.

(c) That Mr. S. F. Clarkson be appointed District Surveyor for the new district of Kensington as from March 27, 1903, subject to the Council's standing conditions as to the appointment of District Surveyors, with the exception that 70 shall be substituted for 65 in condition (*f*) as the age at which he will be required to retire.

(d) That, subject to the Council adopting recommendation (c), the appointment of Mr. F. S. Clarkson as District Surveyor for North Chelsea be terminated as from March 31, 1903, and that this district be added to the district of South Fulham, and that the district so formed be designated North Chelsea and South Fulham.

(e) That the district of Sydenham be divided into two districts, and that the line of division be the Nunhead and Shortlands Railway to Stumps Hill, and thence by a line along the centre of Stumps Hill to the county boundary, and that the western district be designated Sydenham, and the eastern district Catford.

We have to report that Mr. G. Legg has resigned his appointment as District Surveyor for the district of West Hackney. We have made temporary arrangements for the supervision of the district, and will report later as to filling the vacancy. We recommend—that the resignation of Mr. G. Legg, District Surveyor for the district of West Hackney, be accepted as from March 10, 1903.

All the recommendations were agreed to, except (c), which was taken back.

**Housing, Bermondsey.**—The Housing of the Working Classes Committee recommended, and it was agreed, that, subject to the area of all rooms being not less than the Council's minima of 144 square feet for living-rooms and 96 square feet for bedrooms, to compliance with the by-laws as to the provision of suitable ash-pits, and to any consents necessary under the London Building Acts being subsequently obtained, the plans submitted by the Metropolitan Borough Council of Bermondsey of the dwellings proposed to be erected under the London (Fulford-street and Braddon-street, Rotherhithe) Improvement Scheme, 1897, be approved.

**Holborn to Strand Improvement.**—The Improvements Committee recommended, and it was agreed, that the working drawings, specification, and estimate of the cost (35,620*l.*) of the paving and other works in connexion with the formation of the western portion of Aldwych between Catherine-street and Drury-lane, and also of the portion of the tramway subway under the road, be approved, and be referred to the Works Committee, with a view to the work being carried out without the intervention of a contractor.

**Workmen's Trains.**—On the motion of Dr. Fletcher Little, seconded by Dr. Cooper, it was agreed:—

"That it be referred to the Housing of the Working Classes Committee to consider whether, in view of the greatly overcrowded state of large portions of the west, north-west, and north of London, chiefly caused by the inadequate number of workmen's trains provided by the Great Central, Midland, Great Northern, London and North-Western, and Great Western Railway Companies, the Council should be recommended to memorialise the Board of Trade to take the necessary steps for increasing the number of such trains forthwith."

**Electrical System on the Tramways.**—A long discussion took place on a motion moved by Mr. Beachcroft to the effect that the Highways Committee should report as to the cost of the construction per mile of the overhead and conduit systems of electric traction; as to the objections, if any, against a mixed system; and as to there being any solid reason why the Council should not adopt the overhead system inside the county in outside districts.

Mr. Benn offered to accept the motion, on the understanding that the Report should be brought up when the Council itself had had experience of the electrical working of its conduit system, but the mover would not agree to this.

On a division the motion was rejected by 39 votes to 16.

**Building in Squares.**—Mr. Beachcroft, in accordance with notice, moved that it be an instruction to the Parks Committee, in view of the recent decision come to on their recommendation to acquire, at full building value, two small squares in the borough of Stepney, to consider and report whether any measures are practicable in order to restrain owners from converting to building purposes small open spaces in the county of London



which have been dedicated for use as "squares" and used as such for a long period of years.  
Mr. Dodson seconded the motion, which was carried *nem. con.*  
The Council adjourned at seven o'clock.

### THE INSTITUTE OF BUILDERS.

The nineteenth annual general meeting of the Institute of Builders was held at the registered offices of the Institute, 31 and 32, Bedford-street, Strand, W.C., on the 18th inst.

The minutes having been read and confirmed, the report of the Council and the audited accounts and balance-sheets were read and adopted. The report stated that during the past year the Council had carefully considered the various Parliamentary Bills affecting the building trade, and had taken action with satisfactory results in several cases. Questions relating to labour disputes, not being within the range of the Institute's functions, had been disregarded. The Council regretted that, notwithstanding the need for Government restriction as to the extent to which municipal trading shall be carried, the Joint Select Committee of both Houses of Parliament of 1900 had not been re-appointed, and that the request of employers to appoint a Royal Commission to define the extent to which municipal trading should be sanctioned by Parliament had been ignored. Complaints having been made by members that the practice of demanding priced bills of quantities with tenders was extending, the Council co-operated with the London Master Builders' Association and sent the following letter to all the metropolitan representative and public bodies and to many public and private architects in the provinces. This communication had had a good effect, and as an instance of this the London County Council had decided that in future the bills of quantities of the successful competitor only shall be retained:—

"DEAR SIR,—Our attention has been called to the growing tendency to require priced bills of quantities to be sent in with builders' tenders. We think that architects and public bodies who have adopted this course do not fully appreciate the trouble and annoyance which it gives to the builders.

There is a great objection on the part of builders to having their prices, in detail, communicated to any one except to the architects and surveyors, with whom the work is being carried out. Such prices are regarded as private information acquired by business experience and capital expenditure.

The practice has always been to require the successful competitor only to deposit copies of his priced bills of quantities. These copies of the bills should then remain in the custody of the architect or surveyor until they are required for the purpose of settling accounts.

We venture to hope that you will use your influence to continue this practice, which has always worked satisfactorily in the past.—We are, dear Sir, Yours faithfully, WILLIAM F. KING, President, Institute of Builders; GEO. JAS. LOUGH, President, London Master Builders' Association."

The Council continued to keep in view the importance of an agreement with the Royal Institute of British Architects on the terms of a common form of conditions of contract. Though not in a position to make an official statement on this question the Council had the pleasure to report that the relations between the officers and Councils of the two Institutes are of the most cordial nature, and it should not be difficult for them to come to an amicable arrangement which would confer a benefit on all connected with the trade, both in London and in the provinces.—A committee had been appointed to consider the advisability of instituting an educational section. A great deal of useful information had been already collected, and members were requested to favour the Council with suggestions. The Council prepared a petition to Parliament against the London County Council Building Acts (Amendment) Bill. The Bill had been withdrawn, but it is probable another Bill, which would be carefully watched, will be presented to Parliament next Session.

The following elections were made:—As President, Mr. W. F. King; Vice-President, Mr. F. L. Dove; Treasurer, Colonel Stanley G. Bird, C.B.; and Hon. Auditor, Mr. E. J. Hill. The Executive Committee were elected as follows:—Messrs. Geo. Kett, J.P. (Cambridge), W. Nicholson (Leeds), A. F. Randall (London), W. Sapcote (Birmingham), B. Hannen, jun. (London).

The meeting then terminated.

### COMPETITIONS.

**DWELLINGS, LIMERICK.**—The first premiated design in this competition was by Mr. John H. Ryan, 1, Metal Exchange-buildings, Whittington-avenue, London, E.C.

### APPLICATIONS UNDER THE LONDON BUILDING ACT, 1894.

The London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses:—

#### Lines of Frontage and Projections.

**Hampstead.**—The retention of a glass-roofed covered way at the side of No. 26, The Parade, Cricklewood, to abut upon Skardu-road (Mr. J. D. Hunter for Mr. F. W. Rodwell).—Consent.

**Woolwich.**—One-story shops upon part of the forecourts of Nos. 57, 59, 61, and 63, High-street, Plumstead (Mr. H. Busbridge for Messrs. C. Carthew and S. T. Blackler).—Consent.

**Greenwich.**—Two houses with bay windows on the west side of St. John's Park-road, Blackheath, southward of the Royal Standard inn (Mr. A. Levett).—Consent.

**Hackney, Central.**—Buildings upon the site of Nos. 171, 173, and 175, Lower Clapton-road, Hackney (Mr. J. Hamilton for Mr. E. Sherman).—Consent.  
**Hammersmith.**—An iron and glass shelter at the Shepherd's Bush Empire Palace Theatre, Shepherd's Bush Green, Hammersmith (Mr. F. Matcham).—Consent.

**Hampstead.**—Bay windows to a block of residential flats on the northern side of Finchley-road, Hampstead, at the corner of Heath-drive (Mr. J. F. Bell).—Consent.

**Lewisham.**—A porch to a house on the east side of Bromley-road, Catford, on the next plot but one to the northward of the Catford Cricket Club ground entrance (Messrs. Kennard Bros. for Mr. E. H. Straw).—Consent.

**Lewisham.**—The retention of a water-closet at the rear of No. 4, Halesworth-road, Lewisham, abutting upon Shell-road (Messrs. Hodson & Whitehead for Messrs. Hodson Bros.).—Consent.

**Lewisham.**—Six houses, with bay windows, on the east side of Nightingale-grove, Hither-green, Lewisham, between Maybank-road and Brightside-road (Messrs. Norfolk and Prior for Mr. J. Laird).—Consent.

**Marylebone, East.**—Extension of the period within which the erection of buildings on the western side of Albert-road, Regent's Park, at the corner of High-street on the site of Portland-terrace, St. Marylebone, was required to be completed (Mr. F. M. Elgood for Mr. J. A. Mitchell).—Consent.

**Marylebone, East.**—The retention of a projecting sign at the first floor level of No. 64, Berners-street, St. Marylebone (Mr. C. H. Mead for Messrs. P. Heffer & Co.).—Consent.

**Paddington, South.**—Buildings, with one-story shops in front, on the east side of Westbourne-grove-terrace, Paddington, southward of No. 21 (Mr. J. W. Chapman for Mr. W. Owen).—Consent.

**Peckham.**—A one-story addition at the rear of No. 62, Queen's-road, Peckham, to abut upon Burchell-road (Mr. E. J. Stevens, for Mr. W. J. Wade).—Consent.

**Peckham.**—An addition in front of the Baptist Chapel, Rye-lane, Peckham (Mr. H. P. B. Downing, for the Trustees of the Chapel).—Consent.

**Rotherhithe.**—A porch in front of No. 39, New Church-street, Bermondsey (Mr. E. Crosbie, for the Rev. E. N. Coulthard).—Consent.

**Strand.**—A granite hood at the entrance to Thamel House, Nos. 231 and 232, Strand, Westminster (Messrs. N. S. Joseph, Son, & Smith for Mr. G. J. Woodman).—Consent.

**Brixton.**—A three-story building, with a one-story shop in front, at No. 275, Clapham-road, Lambeth (Mr. A. E. Symes for Messrs. J. Commis & Co.).—Refused.

**Fulham.**—Deviation from the plan approved for the erection of buildings on the north-west side of Conan-street and south-west side of Edith-villas, Fulham, so far as relates to the erection of porches to such buildings and to the position of the building on the north-west side of Conan-street (Mr. W. Cave).—Refused.

**Fulham.**—One-story shops upon part of the forecourts of Nos. 168 and 170, New King's-road, Fulham (Mr. H. Cornick).—Refused.

**Kensington, North.**—One-story shops in front of Nos. 114 and 116, Westbourne-grove, and the erection of three houses with shops on the west side of Richmond-road, Kensington (Mr. G. A. Sexton for Mr. A. Woollard).—Refused.

**Lewisham.**—Five houses with one-story shops in front on the east side of Torridon-road, Lewisham (Messrs. A. C. and R. A. Blake).—Refused.

**Lewisham.**—Five houses with shops and with stables and bakehouse in the rear on the east side of Torridon-road, Lewisham (Mr. A. C. Baker for Mr. F. Richards).—Refused.

**Paddington, South.**—Projecting oriel windows to a block of residential flats on a site on the north side of Moscow-road, Paddington, to abut also upon

Salem-road (Messrs. Metcalf & Greig for Mr. R. Cooper).—Refused.

**St. George, Hanover-square.**—A projecting window on the balcony in front of No. 82, Park-street, St. George, Hanover-square (Messrs. W. J. Mitchell & Son for Dr. Day).—Refused.

**Wandsworth.**—Permission to complete a house commenced to be erected on the north-west side of Mitcham-lane, Streatham, to abut upon Moyser-street (Mr. H. Watt).—Refused.

**Lewisham.**—A greenhouse on the south-west side of London-road, Lewisham, westward of the shops known as Imperial Buildings (Mr. J. R. Vining for Messrs. Furness Brothers).—Refused.

#### Width of Way.

**City.**—Retention of a two-story addition to No. 78, Upper Thames-street, City, abutting upon Brickhill-lane (Messrs. Woodcock, Ryland, & Parker for Messrs. J. R. & J. Fletcher).—Consent.

**Kensington, South.**—Retention of two studios at the rear of Nos. 17 and 18, Pembroke-square, Kensington, with the forecourt boundary at less than the prescribed distance from the centre of the roadway of Pembroke-mews (Messrs. T. W. Heath & Sons for Mr. R. J. Barrett).—Consent.

**Strand.**—A porch and water-closet at the western end of St. Thomas's Church, King-street, to abut upon Chapel-court, Regent-street (Mr. W. J. Parker for the Rev. P. T. Bainbridge).—Consent.

**Hackney, Central.**—A two-story workshop at the rear of Nos. 105 and 107, Dalston-lane, Hackney (Mr. E. Easton).—Refused.

**Hackney, Central.**—A warehouse on the site of Nos. 74 and 76, De Beauvoir-crescent, Kingsland (Mr. G. H. Lovegrove for Messrs. J. King & Co.).—Refused.

**Lewisham.**—Two cottages on the northern side of Willow-walk, Rushey-green, Catford, eastward of Willow-walk mission-hall (Messrs. Coad & Pamielt for Mr. G. Cowen).—Refused.

#### Space at Rear.

**Paddington, South.**—A modification of the provisions of Section 41 of the Act with regard to open spaces about buildings, so far as relates to the proposed erection of an addition at the rear of No. 4, Hyde Park-terrace, Bayswater-road, Paddington (Mr. L. Sharp for Mr. H. Lowenfeld).—Consent.

**Whitechapel.**—A modification of the provisions of Section 41 of the Act with regard to open spaces about buildings, so far as relates to the proposed erection of a building at No. 184, Old Montague-street, Whitechapel, with an irregular open space at the rear (Mr. H. O. Ellis for the Governors of the Whitechapel Charity).—Consent.

#### Width of Way, Space at Rear, and Projections.

**City.**—A building on the site of Nos. 4 and 5, Wine Office-court, Fleet-street, City, to abut also upon Hind-court (Mr. J. M. Knight for Messrs. Slater & Palmer).—Consent.

#### Width of Way and Construction.

**Finsbury, East.**—A playshed at the school on the south side of St. Luke's, Baltic-street, St. Luke's (Mr. T. J. Bailey for the School Board for London).—Consent.

#### Formation of Streets.

**Greenwich.**—That an order be issued to Messrs. D. Smith, Son, & Oakley, sanctioning the formation or laying-out of a new street, for carriage traffic, in continuation of Kidbrooke-grove, Blackheath (for the Earl of St. Germans).—Consent.

**Lewisham.**—That an order be issued to Mr. N. McDougall, sanctioning the formation or laying out of two new streets for carriage traffic in continuation of Sandrock-road and Overcliff-road, Lewisham, respectively, and of a street for foot traffic only to connect such two new streets.—Consent.

**Lewisham.**—That an order be issued to Mr. J. Murray refusing to sanction the formation or laying out of a new street to lead from Fordyce-road to Mount Pleasant-road, Lewisham (for Mr. D. G. Horlock).—Refused.

#### Working-class Dwellings.

**Rotherhithe.**—Two blocks of intended dwelling-houses to be inhabited by persons of the working class, and proposed to be erected, not abutting upon a street, on a site between Fulford-street and Seven Step-alley, Rotherhithe-street, Rotherhithe (Messrs. Brockleby, Marchmont, & East for the Bermondsey Borough Council).—Consent.

\* \* \* The recommendations marked † are contrary to the views of the Local Authorities.

### BOOKS RECEIVED.

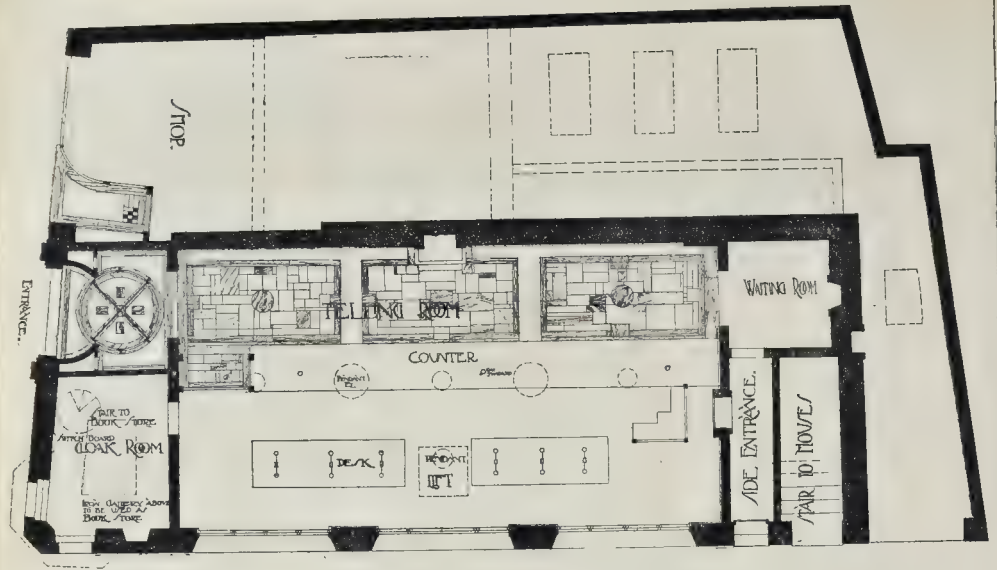
THE ROOD-SCREEN OF RANWORTH CHURCH. By Edward F. Strange. (Lumley & Co.)

SHIPPING MARKS ON TIMBER. 1903 Edition. (William Rider & Son. 6s.)

THE MODERN CARPENTER, JOINER, AND CABINET-MAKER. Edited by G. Lister Sutcliffe. Divisional Volume IV. (The Gresham Publishing Co.)

STATICS AND ALGEBRAICAL AND GRAPHIC METHODS. By Lewis J. Johnson, C.E. (Chapman & Hall.)





Anderston Branch Savings Bank Buildings. Plan.

### Illustrations.

#### GLASGOW SAVINGS BANK; ANDERSTON CROSS BRANCH.

**T**HE building is of red sandstone, finely tooled, roofed with Highland slates.

The bank occupies the greater part of the ground floor, with strong-room, heating chamber, and lavatories in the basement floor. A hydraulic lift raises the books to the floor of the office for daily use, and lowers them again into the strong-room at night. A large double shop and saloon take up what is left of the ground floor. There are nine dwelling-houses in the upper floors.

The walls of the entrance porch to the bank are finished in mosaic with blue Venetian glass. The mantelpiece of the telling-room is of *brèche claire* marble, and the floor of telling-room is laid in Pavonazza marble. The screens, counters, &c., are of polished mahogany, and the lower walls are panelled in mahogany.

The entrance door is a Van Kannel door. The total cost of the building was about £2,000. JAS. SALMON & SON.

#### OLD BUILDINGS ON THE HIGH BRIDGE, LINCOLN.

THE old thirteenth-century bridge which spans the river Witham at the point where the High-street crosses, is popularly supposed to be the only bridge in the country upon which inhabited houses are now standing.

Prior to their recent restoration, nearly all traces of the old half-timbered buildings had disappeared behind mean brickwork on the street side, and behind plaster and tarred board at the back; and in 1901 the structure had become so ruinous that the Corporation (to whom the property belongs) instructed us to report as to whether it were possible to make it safe and habitable, or whether it would not be better to remove it.

After a careful examination, we reported to the effect that, though exceedingly ruinous, the buildings were capable of being put into a state of repair, and work was commenced by entirely stripping them and exposing the skeleton timber construction.

When this had been done, the condition of the structure was shown to be worse than had been anticipated. In the front the whole of the timber framing had been cut away except the main story-posts and the horizontal sills, and even these had been cut down and their mouldings defaced; the centre portion of the building had sunk 2 ft. 6 in. out of level, and

had all but gone through into the river below, chiefly owing to the fact that a large modern chimney-stack, weighing several tons, had been built upon the top of a 3 in. oak partition; further, the stone rib spanning the river and carrying the back of the building, was sinking at the crown and giving way.

The next step was to raise the sunken portion, and this was done by carefully tying the timber framing together, and by placing screw-jacks beneath the story-posts; the excellent condition of the old joints—being hinged, as it were, upon their pins—enabled the screwing up to be done without mishap. A rigid horizontal line was not insisted upon. The defective stone rib across the river was next carefully taken down and rebuilt with the old stones, the building above being carried on temporary timber trusses thrown across the river. All the missing timbers were then replaced, their position being ascertained by the mortice holes in the old sills, and the filling in was done in the original manner, viz., by oak lathing sprung into a groove in the centre of the framing, and plastered both sides.

The original building had no staircases, but the floors were trimmed for step ladders; and seeing that there were also no fireplaces, and that the back windows were not glazed, it is safe to assume that they were not intended for dwelling-houses, but probably for warehouses in connexion with the extensive traffic which was then carried on with the port of Boston at the mouth of the river.

The illustration shows the back of the buildings with the bridge beyond and beneath. The original half-timbered building shows on the upper story, the rough-cast portion below being an annexe containing the staircases, and replacing a dilapidated boarded and tarred shed which had served the same purpose prior to this restoration.

The buildings are now heated by gas, there being, as before mentioned, no fireplaces; and electric light has been installed throughout.

W. WATKINS & SON.

\*.\* We may add to the architects' account of the old buildings and the means taken to preserve them from ruin, that there was at the Burlington Loan Exhibition, in a corner of Gallery II., a very fine little picture by De Wint of these High Bridge buildings as they existed in his day. The exhibition unfortunately has just closed, otherwise some of our readers might have found it of interest to compare De Wint's picture with our illustration, from a photograph, of the buildings as they now appear, after what appears to have been as conservative a restoration as was possible under the circumstances.—Ed.

#### PULPIT OF ST. JOHN THE BAPTIST, HOLLAND-ROAD, W.

THIS pulpit was dedicated on Christmas Day. The materials employed are Corsham stone, with Beer stone for the figures. These figures are St. John the Baptist and the four Doctors of the Church. The marble inlay used in the panels is Greek rosso antico; for the small columns vert antique was used. The capping of the pulpit and the columns which support the figures is *brèche sanguine*. Temporary stone columns, which show on the photograph, were put in, as the marble columns could not be finished in time for the dedication. Messrs. Martyn & Co., of Cheltenham, carried out the work from the designs of Messrs. James Brooks, Son, & Godsell, London and Hereford.

#### SOME EXHIBITS AT THE "ARTS AND CRAFTS."

WE give this week some further illustrations of works exhibited at the Arts and Crafts Exhibition.

No. 1 is a chimney-piece of marble, made by Messrs. Farmer & Brindley, from designs by Professor Lethaby.

No. 2. An Italian walnut cabinet, inlaid with ivory, made by Mr. W. Sparrow and Mr. E. J. Minihane; designed by Mr. Charles Spooner.

No. 3. On an oak sideboard, by Mr. S. H. Barnsley, is a box inlaid with pearl, also by him.

No. 4 is a mantel register made by the Falkirk Iron Co. The modelling is by Mr. H. Wilson, from designs by Mr. Leonard Stokes and Mr. H. Wilson.

No. 5 is a brass lamp for electric light, made for Messrs. Elsiey & Co., by Messrs. W. Kuhlman, J. Summerland, and T. Webb, from designs by Mr. Walter Cave.

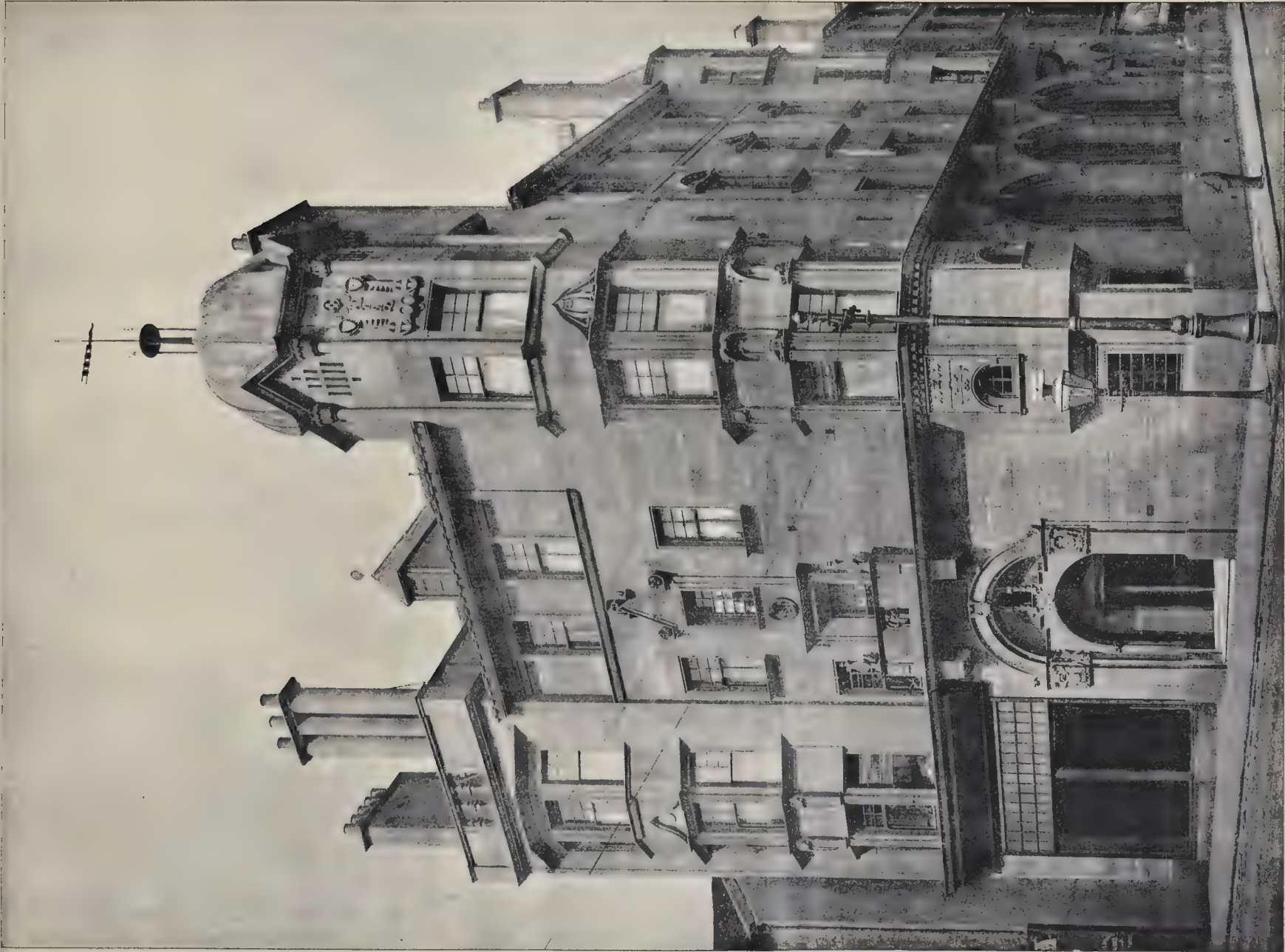
Messrs. Farmer & Brindley's admirable marble work is shown to great advantage in the chimney-piece here illustrated. No one knows better than Professor Lethaby how to base a design upon the proper use of materials. We need hardly point out how dependent the design is upon the colour of the marbles used.

The walnut cabinet by Mr. Spooner is a good piece of work. We think it would have been quite as successful if he had spared the cornice with its compound curve.

The box on Mr. S. H. Barnsley's cabinet shows the charming decorative value of mother-of-pearl inlaid on a dark background.

The mantel register by the Falkirk Iron Co., has a beautiful modelled panel and

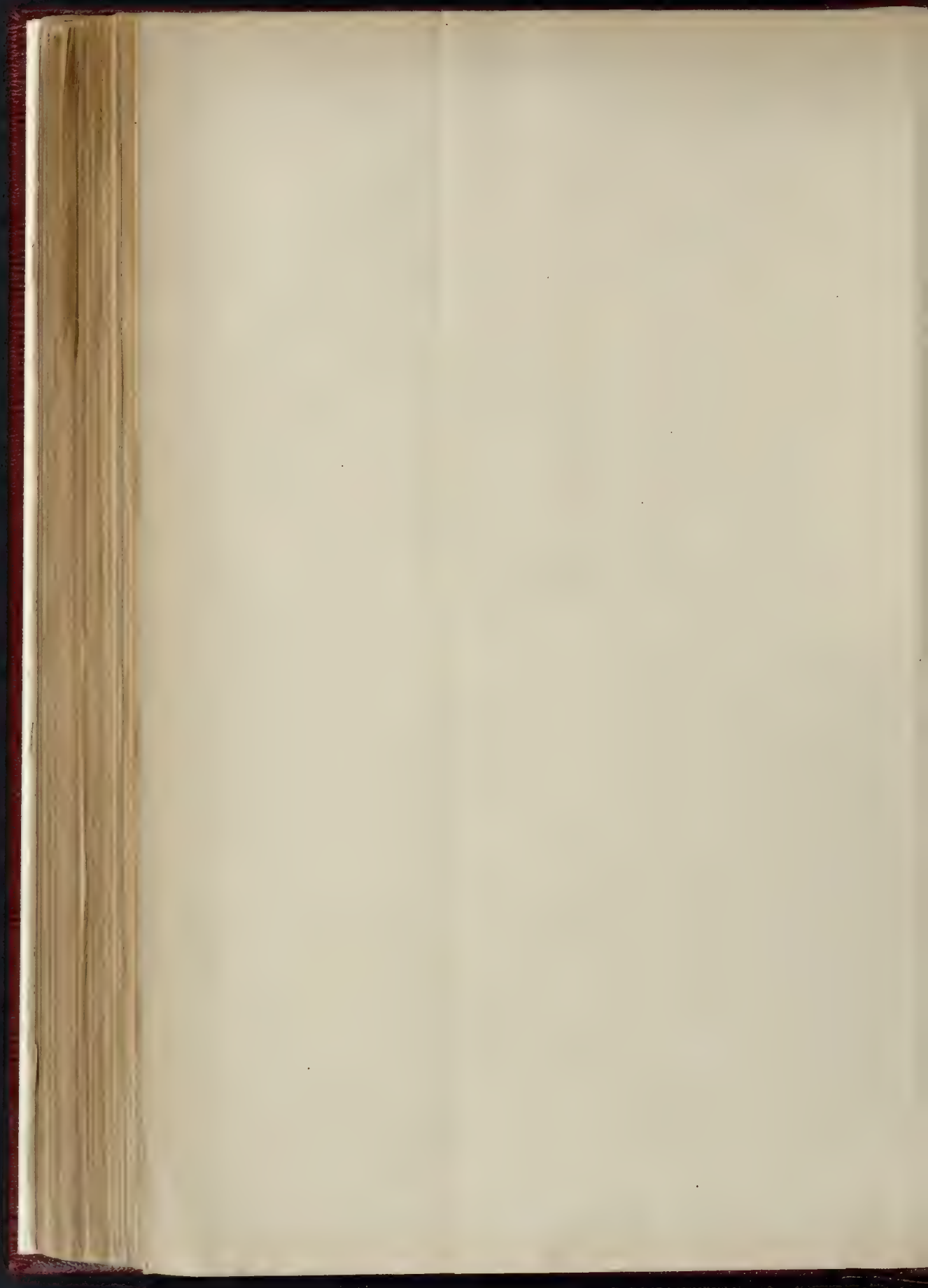




THE PHOTOGRAPHIC ART. 4 & 5 EAST-HARDING STREET, LONDON E.C.

GLASGOW SAVINGS BANK, ANDERSTON BRANCH.—MESSRS. JAMES SALMON & SON, ARCHITECTS.









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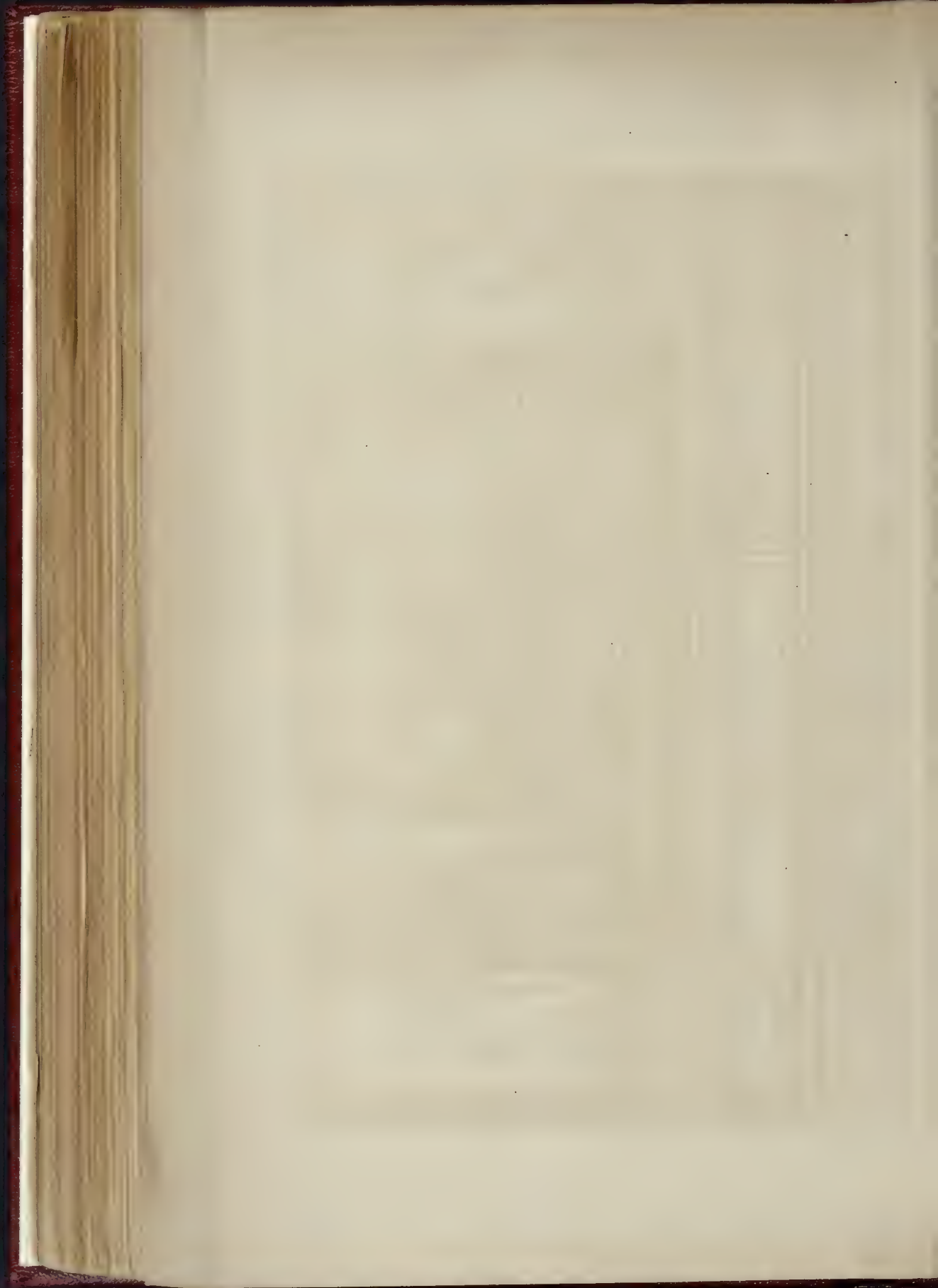
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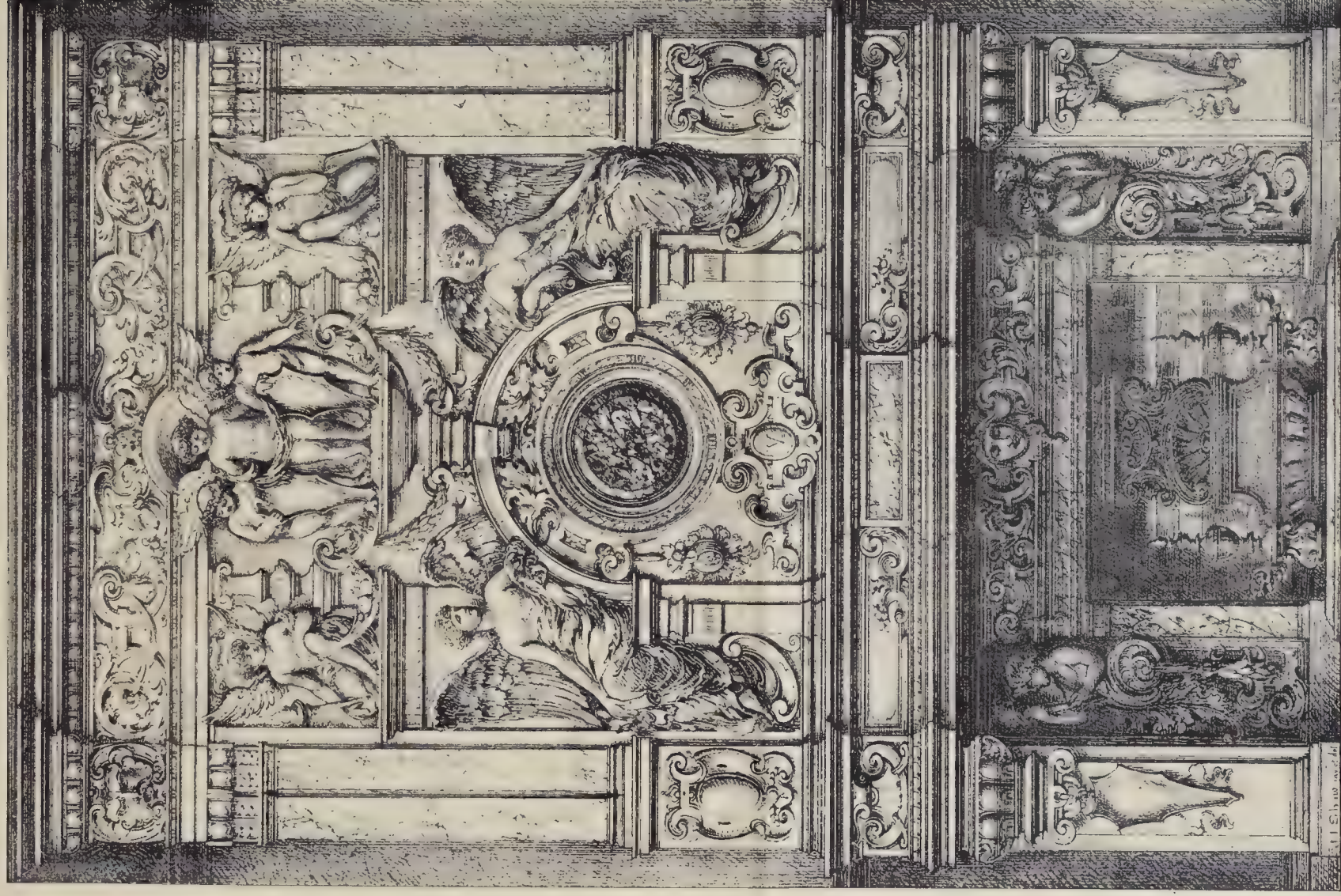
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INK PHOTOGRAPHIC E.C. L. 4 & 5 EAST HARTING STREET PETER LANE E.C.







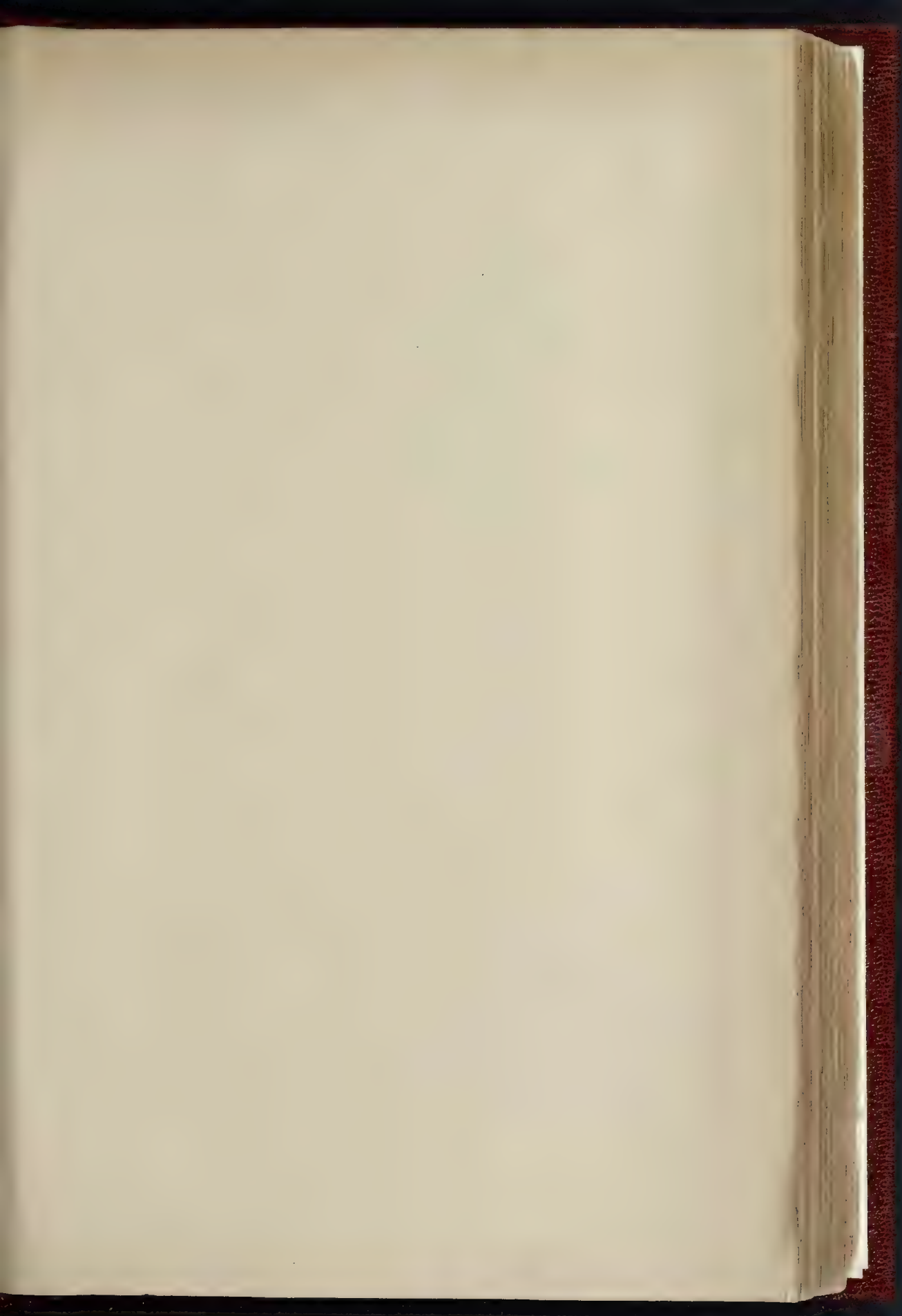


A RENAISSANCE CHIMNEY-PIECE.—DESIGNED BY MR. JOHN J. SHAW.



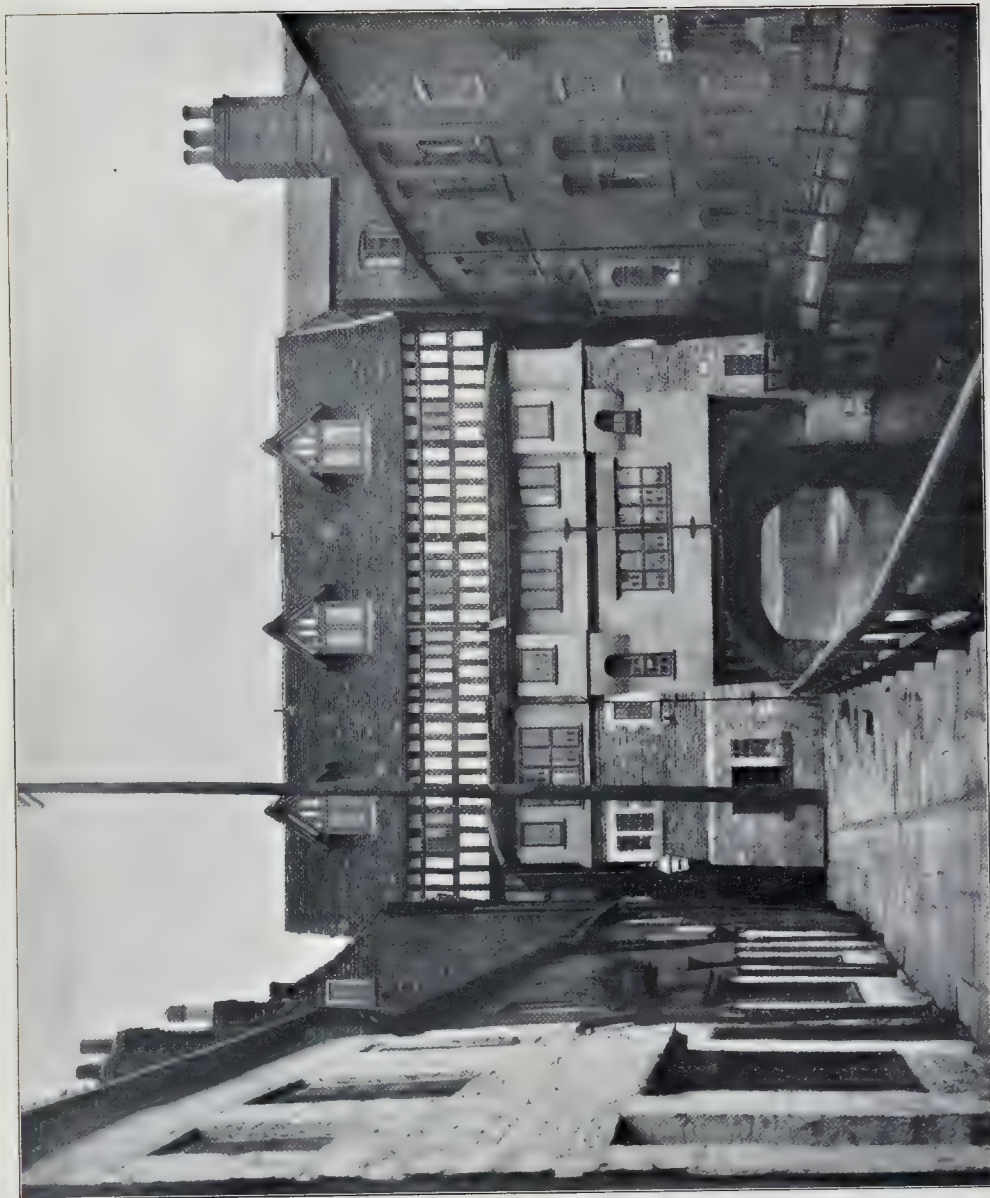






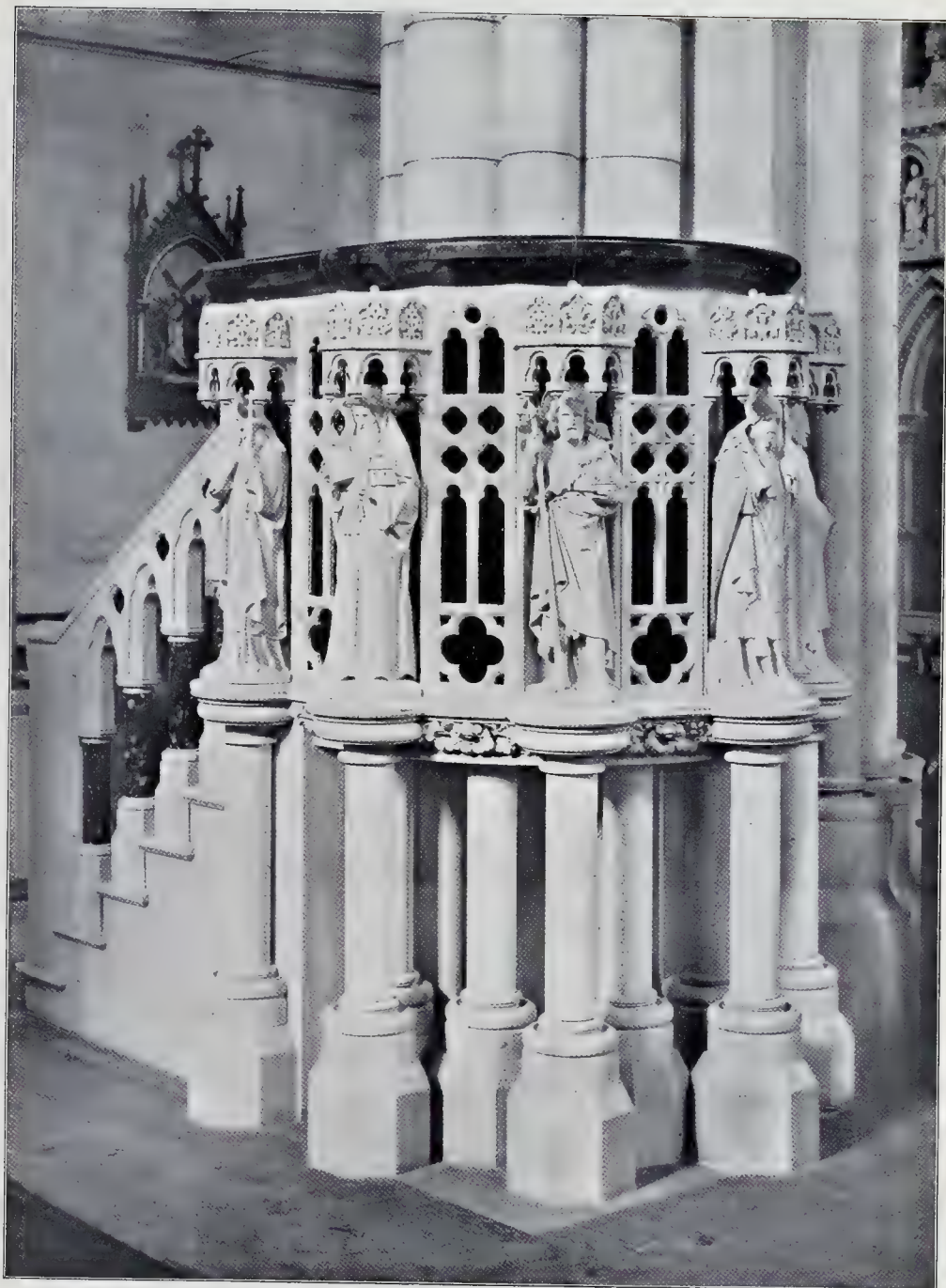


THE BUILDER, MARCH 21, 1903.



OLD BUILDINGS ON THE HIGH BRIDGE, LINCOLN:





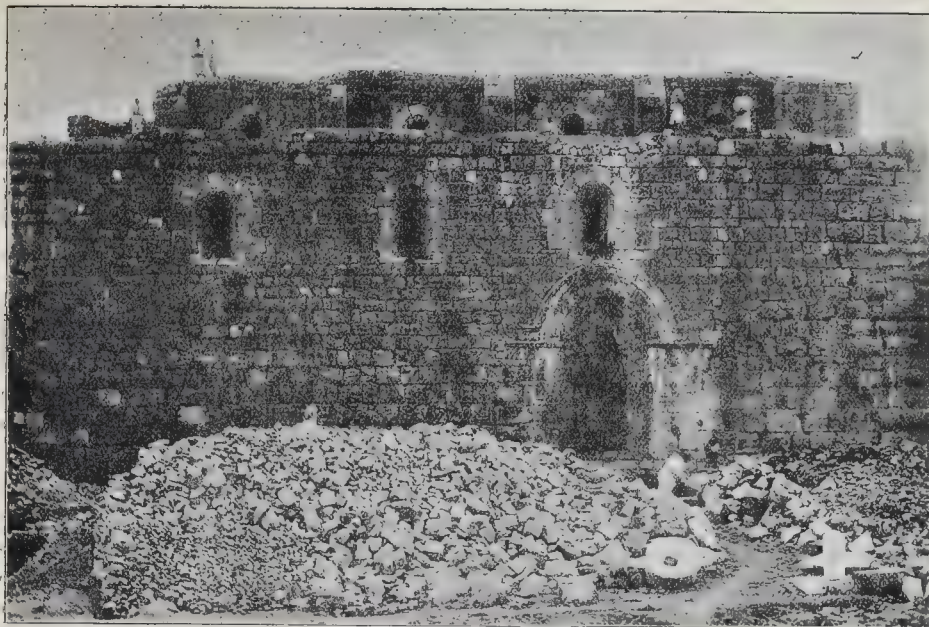
Sprague & Co., Ltd., Printers, 18, & East Harding St., E.C.

PULPIT, ST JOHN THE BAPTIST, HOLLAND ROAD  
MESSRS. BROOKS, SON & GODSELL, ARCHITECTS









Exterior of Church at Abu Gosh.



Inscribed Stone at Abu Gosh.

inscription by Mr. H. Wilson; in reality it is somewhat overpowered by the shelf, and would, in our opinion, be better without it. Practically, the grate gives a great deal of heat for its size.

The brass lamp designed by Mr. Walter Cave, and made by Messrs. Elsley, is a fine piece of brass work, with sufficient flat surfaces to give the value of the material.

The photographs were mostly taken specially for us by Mr. Geo. E. Martin.

#### A RENAISSANCE CHIMNEY-PIECE.

This is a design for a chimney-piece in Renaissance style, by Mr. J. J. Shaw.

The upper portion is intended to be executed in plaster in low relief and wax tinted; the lower part in marble and bronze.

**THE SANITARY INSTITUTE.**—The Duke of Cambridge, President of the Sanitary Institute, will preside at the annual dinner of the Institute to be held on Friday, May 15, at the Hotel Cecil.

**PUBLIC IMPROVEMENTS, BLACKPOOL.**—Mr. R. H. Bicknell, C.E., held an inquiry recently on behalf of the Local Government Board regarding an application by the Corporation to borrow £10,000 for private street improvement works. The inspector afterwards inspected the streets.

## Correspondence.

### THE CHURCH AT ABU GOSH— IMPORTANT DISCOVERY.

SIR.—The writer of the extremely interesting article in your issue of March 7 does not seem to be aware of a most important discovery recently made in connexion with the Church of St. Jeremiah at Abu Gosh.

That wonderful Crusaders' church, with its fortified keep, was in reality built on the massive foundations of a Roman military station belonging to the tenth legion, one of those mentioned by Josephus as serving in Palestine under Vespasian. The enclosed photo of an inscription on one of the massive foundation-stones makes this perfectly clear.

Abu Gosh is one of the sites claimed for the ancient Emmaus. On this point I am not competent to speak; but it is noteworthy that the centurion Arius, with a band of soldiers, are said by Josephus to have been surprised and massacred at Emmaus by the insurgent Judeans, in revenge for which act Emmaus subsequently was burnt by Varius.

I may venture to add that the fears expressed that this interesting building will be spoiled by

the proposed restoration are, I trust, groundless. For that restoration the French Government is responsible, and not the Benedictine monks; but the latter will be able to control the work, and it is their earnest desire to do nothing which may in the slightest degree alter any feature of the building, but solely to save it from falling into utter ruin.

The interior of the building is in far better repair than would be imagined from a view of the outside.

A. H. O. S. B.

### THE GLAZING OF WESTMINSTER CATHEDRAL.

SIR.—Having known the late Mr. Bentley from the time that he was preparing his plan for a metropolitan cathedral on the top of St. Mark's, Venice (*sic*), I may perhaps throw some light upon the character of the glazing used in his great building.

Mr. Bentley was himself a first-rate hand in preparing cartoons for painted glass, but determined that the cathedral should not have any kind of ordinary pictorial glass.

It is well known that when leaded glass is properly designed the absence of painted glass in a building is not felt.

The "cible" glazing adopted at Westminster is a case in point. This was only occasionally used in England, at Chester in a part of the cloister, and, it is believed, in some ancient mansions; but the system, which is most beautiful either alone or in combination with pictorial glass, is met with "from Cologne eastward as far as Rome."

In particular, the church of St. Peter's, Cologne, is a model in point of successful glazing, as also are traces of the same thing in village churches on Lake Como and throughout the Engadine, mostly left in the traceries where they occur.

When in Venice I secured as many ancient specimens as possible, which are late in form, less green than the early ones, and have less definite concentric lines and a small central butt, but are very effective when properly leaded. The leads must be as small as possible if the effect in any kind of glazing is to be lace-like; and in the case of cibles they must be placed breaking joint, not quadrilaterally, as at Westminster.

A coloured border is a good adjunct, as also is a square pictorial subject in the middle of a light; and in every ancient example I have examined in its original leads the six little spandrels round an occasional cible are coloured either ruby or blue, without any particular regularity.

As regards Westminster, the glazing is a failure from the position of the cibles one to another, and from the mixture in the building of other systems of leaded-glass, as I warned Mr. Bentley that it would be; but the fact is, that by the time this not unimportant work was in hand the great artist had fallen into absolute ill-health, and probably did not superintend the actual work of the glaziers.

It is surprising the difference of effect of the



same design in small and large leads. In my district I have in some places prevailed upon the persons concerned to substitute the smallest possible lead in ordinary quarries; the improvement is in each case acknowledged to be well marked.

The fact is that leading up-cables breaking joint is apt, if the specimens are irregular in size, to be a difficult work; and at St. Mark's, Venice, they have all been re-leaded wrong because it is easier; but the effect is entirely without character.

The best size is 3/4 in. and the butt should be inside the building, as it causes more play of light. Swiss cottages often contain specimens which are fast disappearing.

AN AMATEUR.

#### THE VENTILATION OF SCHOOL BUILDINGS.

SIR,—I should be very much obliged if you would allow me space in your columns to raise the question as to whether "the Plenum system" of ventilation which is at the present time so largely adopted for schools is as satisfactory as those who advocate it make out. Without going into matters of practical detail, which would be impossible within the limits of a letter, there are two points to which I should like to draw special attention.

1. In order that the system of downward propulsion should work it is necessary that the temperature of the incoming air should be above that in the room; as a matter of fact, in this system the air is warmed sufficiently to provide for the heating of the rooms, and is consequently in cold weather hot enough to allow for the cooling effect of the windows, walls, &c. The point to which I wish to draw attention is the serious hygienic disadvantage of breathing this hot air; there is not only the enervating effect caused by working in rooms so heated, which must be within the experience of most people, but, if continued for long, a deleterious and weakening effect upon the mucous membranes and the delicate organs of the throat.

2. In this system the inlet is arranged over the outlet on the same wall, which is, of course, the best position where the temperature of the admitted air is above that in the room, but what will happen in summer, when the incoming air will be colder than that in the room? Surely it will flow straight down from the inlet to the outlet, leaving the bulk of the air in the room unaffected. It is quite unusual to find a double set of inlets and outlets to provide for the exactly contrary conditions of summer and winter ventilation.

It is, of course, necessary where there are large numbers in one room to have some means of mechanically forcing fresh air into the building, and this must, of course, be sufficiently warmed to prevent any feeling of cold draught. I would urge that for the sake of the health of the children the temperature of the incoming air should be limited to, say, 55 deg. at the most, supplemented by some form of direct heating.

Splendid results are claimed for this downward system, and often proved by experiments in models, &c.; but under the actual conditions of school work it is very apt to break down, and I think a conversation with a teacher in general class-room the system is at work would generally surprise those who so warmly advocate its use. Air heated to warm a room in cold weather is unpleasant and hurtful, even though it can be shown by analysis not to have more than the prescribed amount of carbon dioxide. Although carbonic acid gas is heavier than pure air, yet air which has been breathed is, owing to the amount of moisture which it takes up, lighter than ordinary air, and so is found in the upper part of the room even when it has become cooled down. It is surely better to use the pressure of the incoming air to accelerate this upward movement, than to have to counteract it, and force the breathed air down past the heads of those in the room, for nothing short of an intolerable draught will prevent its rising some distance.

FELIX CLAY.

#### A QUESTION OF QUANTITIES.

SIR,—Will you permit a discussion upon the following subject?

I priced a bill of quantities in which there were the usual provisional amounts for works to be done by special trades, such as electric lighting, heating, &c. To these amounts I added a moderate sum as profit, the largest addition being 10 per cent. Some of these items have been paid by the architect and not by me.

In setting up the account the surveyor has deducted not only the provisional amounts, but the sums I added as profit and use of my plant, &c.

The items in quantities bearing upon the subject are as follows:—

"Contract to be for a lump sum, and no allowance will be made for errors or contingencies."

"Provisional and P.C. amounts are for full value named without profit, vouchers for net payments to be produced at settlement."

Will any of your readers state what is the correct custom in a case of this kind, as in a long experience I have never known such deductions to be made, neither can I hear from any architect, builder, or surveyor whom I have consulted that it is in order.

I do not give the architect's or surveyor's names, but if it is thought desirable I have no objection to do so privately to you as an evidence of good faith.

A BUILDER.

#### MEMORIAL WINDOW, CHAPEL ROYAL, SAVOY.

SIR,—Will you kindly permit me to say that Mr. J. E. C. Carr was associated with me in preparing the design and cartoons for this window, and the latter are chiefly his work?

E. J. PREST.

#### TRADE CATALOGUES.

The London Fireproof Plate Wall Co. send a leaflet with description and illustrations of their fire-proof plate walling for partitions. Which, if we remember right, we have seen and described before when exhibited at one of the building trade exhibitions. These are 24 in. thick slabs with vertical tubular hollows; the meeting of two slabs, with their fluted edges, forms a similar tube, and the courses are connected by liquid cement poured down the continuous tubes thus formed. Iron rods can also be passed through the tubes so as to suspend the partition from a girder where it is desired to keep the weight of it off the floor. The system has a great deal to recommend it; it is permanent and fire-resisting; said to be sound-proof (this we have not tested); and it saves space in partitions.

Mr. R. D. Stewart sends us his price list of paints, colours, oils, varnishes, &c.; also a list of specialties, including English white lead ground, linseed oils, three kinds of oak varnish, including a cheap hard drying pure gum varnish, to dry in four to eight hours.

A leaflet on the "Bellophone" has been sent us by the General Electric Co. of Queen Victoria-street. The "Bellophone" consists of a telephone receiver and transmitter which can be at once fitted on to any existing system of electric bells, and thus verbal communication between any room and the kitchen can be established by means of the existing wires. The price of a complete set is only 15s., and a screw-driver is all that is necessary in order to attach the fittings to the bell-push in the room and the indicator in the kitchen. They also send us a leaflet of the "Geeko" battery buttons, which can be used for recharging ordinary "Leclanché" batteries when they begin to get run down. It is claimed that it is more economical to use these soluble pellets of compressed sal ammoniac than the usual crystal or powder. Spilling the salt on the top of a porous pot is a frequent cause of "creeping." There would be little likelihood of this happening when the pellets were used.

The James Keith & Blackman Co., Ltd., have sent us an illustrated pamphlet relating to the Keith Light. This is a high-pressure gas lamp, and consists of an incandescent gas burner supplied with gas compressed by a device operated by water. The pressure of the gas as it issues from the injector into the mixing tube of the burner is equivalent to that of about 8 in. of water. The cost of compressing 1,000 cubic ft. of gas is about 1d. With a consumption of 10 cubic ft. of gas per hour the mantle emits a light of 300 c.p.; so that with gas at 2s. 6d. per 1,000 cubic ft., the cost of the gas required to maintain a light of 1,000 c.p. for one hour is 1d. The initial cost of the compressing apparatus and burner is not mentioned.

The Simplex Steel Conduit Co., Ltd., of 20, Bucklersbury, London, E.C., have sent us a new annual edition of their price list in the form of a neat pocket book. Their system of wiring is now well known and has come into extensive use. A clear illustrated description of it is given, and we note that the prices of the conduits are in several cases considerably reduced. We were specially struck with the "Simplex" brass-cased conduit, which has all the appearance and finish of a brass tube combined with the strength and lightness of thin steel. It may also be used as a picture rod, light rack, &c., with perfect safety. An oval tube which is described ought to prove useful for many purposes. All interested in the safe wiring of buildings ought to write to the company for a copy of this book.

The Anaglypta wall-paper manufacturers (Darwen) send us a large and sumptuous catalogue of illustrations of their numerous designs in "Anaglypta" for ceiling and wall decoration. The general style of these designs is very good; many of them have high artistic

character as well as considerable originality. In addition to the effective illustrations showing details of the designs, there are outline drawings to 1/2-in. scale, showing how many of the designs work out over a whole ceiling; and an architect who wishes to employ any of these drawn-out designs, by placing tracings of the plans of rooms, to the same scale, on these outline drawings, can see at a glance how the design can best be worked into the space and proportion afforded by the room. The volume contains also full directions for fixing the Anaglypta paper. Altogether it is a remarkable example of an illustrated catalogue, and highly creditable to the firm issuing it.

Messrs. Archibald Smith & Stevens, of Queen's-road, Battersea, have sent us a carefully got-up illustrated pamphlet on electric lifts. It contains a great deal of original matter, and deserves careful study by everyone interested in lifts. Tables are given of the comparative cost of working hydraulic and electric lifts, and the results are most instructive. The figures are not calculated theoretically, but are tabulated from the annual meter bills of their customers, and there seems to be no reason to doubt their substantial accuracy. The initial cost of a high-pressure hydraulic lift is about 25 per cent. less than the initial cost of an electric lift, but the subsequent working expenses of the latter are very much smaller. Examples of lifts in London, Manchester, Dublin, and Glasgow are worked out, and in some cases the meter bill for electric power is less than one-fifth that for water power. They also state that it makes little difference what the system of electric supply is, although the direct current is the most economical. The cost of repairs, methods of control, and various automatic systems are discussed in an able and interesting manner.

#### PROPOSED QUANTITY SURVEYORS' ASSOCIATION.

We are asked to give publicity to the following circular letter:—

"17, Bedford-row, W.C.,

March, 1903.

SIR,—Arising out of correspondence which has recently taken place in the columns of the *Builder* upon the question of the desirability of a distinctive Association being formed for quantity surveyors, a meeting of London and provincial members of the profession was held on March 6, 1903, at the offices of Mr. F. B. Hollis, 17, Bedford-row, London, W.C., Mr. W. Hoffman Wood (Leeds) in the chair, when it was resolved to seek the co-operation of gentlemen favouring such formation.

The following were the main resolutions passed at the meeting:—

1. That there was a distinct need for an Association solely for quantity surveyors.

2. That such an Association be named 'The Quantity Surveyors' Association.'

3. That in the formation of the Association, the value and importance of the Surveyors' Institution be fully respected and recognised, and that that body shall be courteously approached to assist in the registration of the Association, and that members of the Surveyors' Institution who are practising, as quantity surveyors be invited to also join the distinctive Association.

4. That none but qualified quantity surveyors be admitted to membership.

The main objects of the proposed Association being briefly as follows, viz.:—

1. To uphold the dignity and importance of the profession, and to provide the means for quantity surveyors to meet and discuss subjects of interest, and to settle cases of difficulty.

2. As a guarantee of efficiency and fair dealing as between the building owner and the builder.

3. As an additional means, of ensuring the confidence of architects.

4. To encourage uniformity of practice.

It was further resolved at the meeting that the founders' first annual subscription should be one guinea, which should cover entrance fees, and that after the registration of the Association, it is suggested that the entrance fee should be five guineas, and the annual subscription two guineas.

The promise of your influence and support will be greatly esteemed.

A postcard is enclosed, addressed to the (Interim) hon. sec. of the Association, and you are courteously requested to express your views thereon, and return it to the above address as soon as convenient.

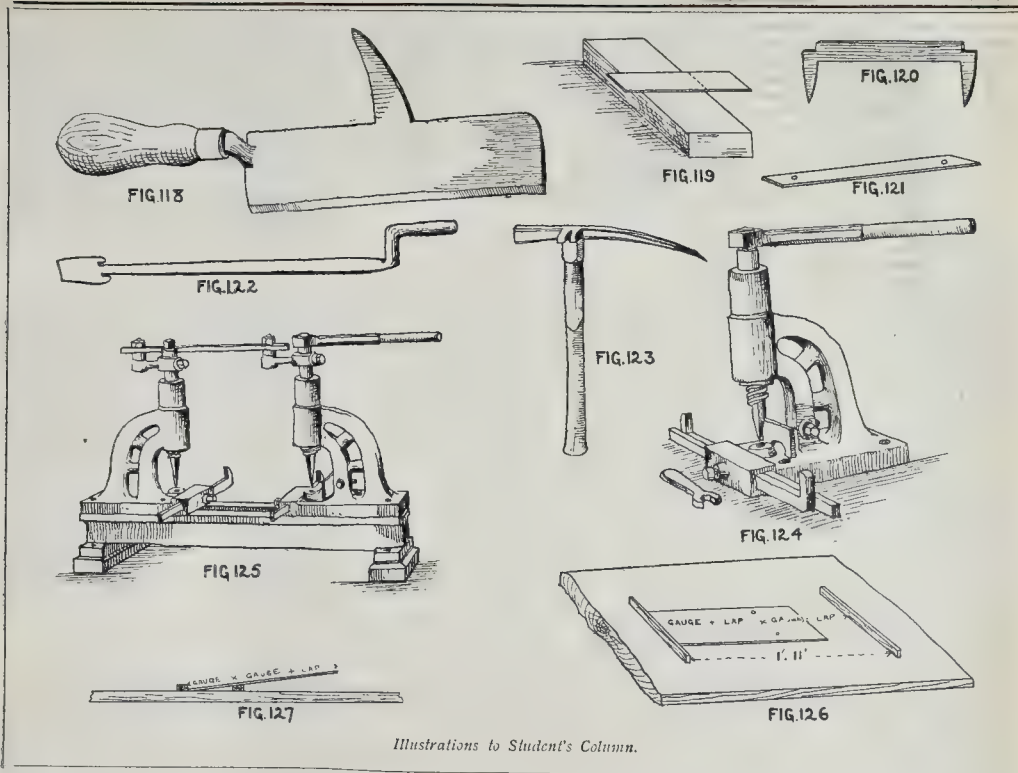
A general meeting will be called at an early date to elect a president, officers, &c., of which you will be duly notified.—Yours faithfully,

F. B. HOLLIS,

Hon. Sec. and Treasurer.

The above letter has been sent to all London and provincial quantity surveyors in so far as their





Illustrations to Student's Column.

names and addresses can be obtained from directories and from the secretaries of architectural associations.

The hon. sec. will be glad if any quantity surveyor who has been omitted will communicate with him at once."

## The Student's Column.

### BUILDERS' TOOLS AND THEIR USES.

#### CHAPTER 7.

#### Slaters' Tools.

THE following tools are employed by the slater:—

- |                  |                    |
|------------------|--------------------|
| 1. Zax.          | 7. Holing Machine. |
| 2. Dog.          | 8. Scantle.        |
| 3. Ripper.       | 9. Chisel.         |
| 4. Hammer.       | 10. Mallet.        |
| 5. Square.       | 11. Trowel.        |
| 6. Shaving Tool. | 12. Rod.           |

The *Zax*, *saix*, *axe*, *chopper*, or *cutter*, as it is variously named, is a large steel knife-shaped instrument, with a blade 6 in. or more long, and 2 in. wide, having a bevelled edge, and used for trimming and cutting the slates square. At the back there is a sharp, pick-like projection, 3 in. to 5 in. long, for holing the roofing slates, although for large quantities the holing process is performed by a special machine (fig. 118). The word is evidently derived from the *seaxe*, or short sword, of the Saxons.

The *Zax* is thus brought into operation: A brick is placed on the bench at which the slater works, and a slate is then taken up with the left hand and placed with the portion of it desired to be cut off overlapping the brick (fig. 119). A series of holes is now hacked along the slate (on a line previously scored with a nail) with the tooth of the *zax*. With the blade of his instrument the slater then chips off the overhanging part of the slate at these holes, neatly trimming off the roughened edge. Instead of utilising a brick, a slate is also trimmed by holding it horizontally over another slate placed vertically, the pressure keeping the lower one in position.

The *Dog*, or cutting iron (fig. 120), is 1 ft. to 2 ft. long, with two sharp feet for driving into the wooden bench, and is employed when reducing the dimensions of slates. These are laid on the dog, and are cut with the *zax*; in

fact, the cutting iron takes the place of the brick in fig. 119.

An iron straight-edge is sometimes used for the same purpose, and is fixed to the bench by means of screws (fig. 121).

The *Ripper* consists of a thin steel blade, 2 ft. or 3 ft. long, and some 1½ in. broad, enlarged at the point, with a notch on both sides and sometimes at the tip, for drawing nails (fig. 122). It is slipped up under damaged slates to cut the nails when taking off the former to repair the roof.

The *Hammer*, or slater's pick hammer, has a notch or claw at one side of the head for grasping and drawing nails, and a pointed and slightly curved end for holing slates (fig. 123).

The *Square*, of iron, is required for squaring and testing slates.

The *Shaving Tool*, or drawing knife, is similar to that of the carpenter's, and is used for smoothing the face of slates, slate slabs, &c. It has a cast steel blade, about 12 in. long and 2 in. wide, sharpened on one edge, and with a beech handle at each end.

The *Holing Machine* is employed for drilling the holes in the slates, there being two kinds of machine, single and double. The single slate-holing machine is seen in fig. 124. It is made of iron, with a lever handle, and rests on, or is clamped to, the bench when in use. A single machine, with a smart boy, will be able to hole from 300 to 400 slates per hour. A double slate-holing machine is illustrated in fig. 125, which punches two holes in one operation, thus obviating the necessity for reversing the slate. It will be noticed that the gauges and distances can be readily arranged to any length. These appliances are simple, rapid, and effective, and will hole slates as fast as any man or boy can put under them, with the least breakages. The latest type punches *countersunk* holes.

The *Scantle* is a gauge by which slates are regulated to their proper length when trimming and holing them. Fig. 126 represents two bits of lath nailed on the bench at a distance apart (which forms the scantle or gauge) of the slate plus lap—i.e., at a distance of the slate + distance of nail hole from tail of slate—that is, if the slates are centre nailed,

remembering the rule,  $\frac{\text{Length} - \text{Lap}}{2} = \text{Gauge}$ ,

which for a Countess slate would work out  $\frac{20 \text{ in.} - 3 \text{ in.}}{2} = 8\frac{1}{2} \text{ in.}$  Gauge. A slate

is then placed close up against one lath, and a hole is drilled by the machine. It is then reversed, set against the other lath, and the second hole bored. As soon as one slate is punched it is put aside, and another one brought forward for piercing. A boy and a man are usually employed in the operation, though one person only may be so occupied. It will be observed that the single slate-holing machine already possesses gauging irons to hold the slates at the proper distance when being holed, thus dispensing with the pieces of lath.

Fig. 127 shows another method of attaining the same end, the laths being placed at a distance apart equal to the gauge of the slate. A line is scored across the slate at the distance of the gauge, and the holes there pierced.

*Chisels* and *Mallet* are used for working slabs of slate, and are similar to those employed by stonemasons.

A *Trowel*, as well as a hod and mortar board, are necessary when torching or bedding the slates in hair mortar.

A *Rod*, or long lath, is essential for making and setting out slating to roofs.

### PUBLIC WORKS AND BUILDINGS.

AMONGST the works which the Government propose to carry out in the financial year ending March 31, 1904, subject to the House of Commons voting the necessary supplies, are the following:—*Buckingham Palace*, erection of an official residence in the grounds for the clerk of the works, to cost 1,000l.; formation of pathways in forecourt, 150l. *Royal Mews, Piccadilly*, erection of coach-house and dormitory, 1,500l. *Kennington Palace*, alterations and sanitary improvements, 300l. *Pembroke Lodge, Richmond Park*, provision of water supply, pipes, cisterns, &c., 400l. *Osborne House, Isle of Wight*, alterations and improvements (including new lifts; heating, lighting, and water services; and new furniture), 10,500l. *Bushey Park*, enlargement of the Hampton Court entrance to the Park, 500l. *Hampton Court Gardens*, reconstruction of plant-houses in new frame-ground, 1,000l. (on account); total cost, 1,700l. *Kennington Gardens*, new plant-house, 200l. (to complete); total cost, 600l. *Kew Gardens*, new pumping-house, mains, &c., 1,425l. (to complete); total cost, 2,525l. *herbarium*, new wing, 1,400l.



(to complete; total cost, 7,050l.); additional sanitary accommodation, 200l. *Hyde Park*, reconstruction of frame-ground, 3,000l. (on account; total cost, 12,000l.). *Houses of Parliament*, improving ventilation of five of the Peers' Committee rooms, 1,000l.; altering smoke shafts, 1,050l.; improving ventilation of lavatories, lower waiting hall, smoking room, and tea room, House of Commons, 250l. *Croydon County Court*, for the acquisition of site and the erection of new courts and offices, 5,500l. (on account; total cost, 11,500l.). *British Museum*, erection of store for newspapers, &c., at Hendon, 10,000l. (on account; total estimated cost, including site, 18,000l.). *Victoria and Albert Museum, South Kensington*, providing fittings for new rooms in the Art Library, 1,100l. *Bethnal Green Museum*, renewing iron pillars, 1,000l. (on account; total estimated cost, 4,000l.). *Custom House*, alterations to laboratory, 750l.; improving the ventilation of the Long Room, &c., 550l.; providing additional lavatory accommodation, 150l.; alterations to offices, Royal Albert Docks, 250l.; erection of new Custom House at Barry Dock, 5,600l.; erection of new Custom House and Mercantile Marine offices, Manchester (Salford), 5,000l. (on account). *Somerset House*, alterations to the wing vacated by Exchequer and Audit Department, and to the west wing, for the accommodation of various branches of the Revenue, and preparing vaults for reception of records, &c., 8,000l. *Post Office Buildings*, Mount Pleasant, extension of boiler-house, 1,050l. (to complete; total cost, 3,750l.); Walthamstow, new sorting office, 2,500l. (to complete; total cost, 4,000l.); West Kensington, new sub-district post office, 2,000l. (to complete, total cost 18,325l.); Burnley, new post office, 8,000l. (on account; total cost 11,250l.); Bridgewater post office, extension, 4,000l.; Burton-on-Trent, new post office, 8,000l. (on account; total estimated cost, 10,000l.); Darlington post office, enlargement, 6,000l. (to complete; total cost 10,000l.); Derby head post office, enlargement, 1,350l. (to complete; total cost 5,350l.); Esher, new post office, 6,000l. (to complete; to al cost 3,900l.); Huntingdon, new post office, 1,000l. (to complete; total cost 2,300l.); Liverpool, Wavertree district, new sorting office, 1,500l. (to complete, total cost 1,800l.); Norwich post office, enlargement, 8,500l. (to complete, total cost 12,250l.); Oxford post office extension, 6,000l. (on account; total estimated cost 7,000l.); Plymouth head post office enlargement, 7,800l. (to complete; total cost 14,800l.); Preston, new post office, 3,026l. (to complete; total cost 26,500l.); Southampton, new head telegraph and branch office, 8,500l. (on account; total estimated cost 20,800l.); Sunderland, new head post office, 4,304l. (to complete; total cost, 32,354l.); York, head post office extension, 5,900l. (to complete; total cost, 9,400l.); General Post Office West, new roof to kitchen of Central Telegraph Office, Bathpost office, 1,300l.; Northern district (London) new post office, 57,500l.; Northern district (London) new post offices, 85,500l.; Blackfriars, new power station, 40,000l.; Chelsea, new post office, 14,200l.; Ealing Dean, new sorting office, 2,450l.; Finchley, Church End, extension of sorting office, 2,800l.; Hanwell, new sorting office, 2,170l.; Holloway, telegraph factory extension, 13,000l.; Kentish Town, new sorting office, 3,400l.; Knightsbridge, branch office, 2,200l.; Lower Edmonton, new sorting office, 2,425l.; Manor Park, new sorting office, 2,220l.; savings bank, West Kensington, new workshops (motive of cost) 1,300l.; Southwark, new parcel office, 75,000l.; Stockwell, new sorting office, 4,950l.; Tooting, new sorting office, 3,600l.; Upper Edmonton, new sorting office, 2,400l.; Upper Holloway, new sorting office, 1,660l.; Waltham-green, extension of sorting office, 3,000l.; Wimbledon branch post office, enlargement, 1,250l.; W. Achmore Hill, new sorting office, 2,050l.; Ashford station, new sorting office, 1,980l.; Barnet, new post office, 5,200l.; Barnsley post office, extension, 4,200l.; Barrow-in-Furness post office, extension, 7,170l.; Barry Docks, new post office, 7,800l.; Birmingham post office, alterations, 5,900l.; Bootle, new post office, 5,500l.; Bournemouth post office, extension, 4,900l.; Brentwood post office, alterations, 1,300l.; Burslem, new post office, 4,350l.; Buxton, new post office, 3,500l.; Crewe, new post office, 4,000l.; Croydon (East) sorting office, extension, 2,250l.; Dorchester, new post office, 7,800l.; Durham post office, extension, 2,845l.; Enfield, new post office, 5,000l.; Hanley, new post office, 14,000l.; Hereford, post office enlargement, 2,800l.; Hull, new post office, 40,000l.; Ilford, new post office, 5,550l.; Ipswich post office, alterations, 3,100l.; Leeds, Hyde Park corner, branch post office, 3,500l.; Leicester Hunstet, new sorting office, 1,500l.; Leek, new post office, 4,500l.; Leicester head post office, enlargement, 23,400l.; Lichfield, new post office, 4,300l.; Lincoln, new post office, 10,500l.; Liverpool, new office for Northern District, 9,000l.; Liverpool, four new sorting offices, 6,020l.; Maidstone post office, extension, 5,250l.; Manchester post office, new rooms in roof, 5,000l.; Manchester Quay-street, engineer's office and store, 27,000l.; Merthyr Tydfil, new post office, 5,650l.; Michel-dever post office, alterations, 1,400l.; Middlesbrough post office, enlargement, 4,880l.; Newport (Mon.) head office, enlargement, 24,850l.; Peterborough post office, extension, 11,000l.; Portsmouth post office, extension, 14,100l.; Reading post office, alterations, 1,685l.; Richmond (Surrey) post office, enlargement, 2,100l.; Salisbury, new post office,

8,500l.; Thornton Heath, new post office, 1,400l.; Warrington, new post office, 16,200l.; Wigan post office, extension, 5,200l.; Worcester, Green, new post office, 3,800l. *Colonial Office*, alterations in rooms now in occupation of the Crown Agents, to adapt same for the Colonial Office, 2,000l. *Land Registry*, alterations consequent on rearrangement of staff, 1,300l. *Albert Docks (London)*, erection of new Mercantile Marine Offices, 3,200l. (on account; total estimated cost, 8,500l.). *Post Office*, extension, 4,000l. (to complete; total cost, 167,750l.). *Royal Mint*, alterations to provide for increased boiler accommodation, 5,000l. (on account; total estimated cost, 12,000l.).

## BRITISH FORESTRY.

THE importance of questions bearing on the condition of forestry in this country as affecting the timber supply and other matters has of late years received an increasing amount of recognition. One of the latest proofs of this was the appointment last year by the President of the Board of Agriculture of a Departmental Committee to consider and report as to "the present position and future prospects of forestry, and the planting and management of woodlands in Great Britain, and to consider whether any measures might with advantage be taken, either by the provision of further educational facilities or otherwise, for their promotion and encouragement." The Report of the Committee was recently issued as a Parliamentary paper. It covers about a dozen closely printed pages of foolscap, in which the importance of afforestation is demonstrated and the means of improving British methods of forestry discussed. The following passages in the Report have special interest for those connected with the timber trade.

"It will be found in our evidence that experts of high authority have recorded the opinion already expressed in many reliable publications, that the world is rapidly approaching a shortage, if not actual dearth, in its supply of coniferous timber, which constitutes between 80 and 90 per cent. of the total British timber supply. The great area of waste land in these islands, which might be afforested, and with regard to which such valuable evidence has been given, thus becomes a matter of grave national concern. No individual effort is likely to cope with such extensive afforestation, not only because British forestry, as now practised, is inefficient, but because of the capital required, the time during which it remains sunk before producing income, and the lack of all security on private estates for continuous good management from the time that the forest is formed until matured timber is placed upon the market. We do not feel justified in urging the Government to embark forthwith upon any general scheme of State forests under the present circumstances; but the question of planting suitable waste lands under the control of the Crown, or over which the Crown exercises manorial rights, where it may be proved practicable and desirable, is, for the reasons above mentioned, worth the attention of the Commissioners of Woods and Forests."

The present condition of existing woodlands has been repeatedly and clearly reviewed by many eminent authorities. It is the common verdict that timber of the kind and quality imported in such large quantities from the Baltic and similar temperate regions can be grown as well here as anywhere; in fact, it is a matter of common knowledge that European "red wood" and "white wood," so highly esteemed for structural purposes, are yielded by the Scots pine and the spruce, two of the commonest trees of British woodlands. That foreign is so generally preferred to home-grown timber is in no way due to unsuitability of soil or climate, but is entirely due to our neglect of sylvicultural principles. It is hardly too much to say that until within the last ten years or so owners of woodlands, with few exceptions, failed to realise that the shape, size, and quality of trees could be influenced by anything that they could do. They seemed to imagine that the character of the final product was largely a matter of accident, whereas it is mainly determined by management. They failed to recognise that cultural treatment which suits oak or ash is unsuited to pine or spruce; and so it has come to pass that British coniferous timber has been gradually excluded by architects from building specifications. As another instance of this we may refer to the statements supplied by the Post Office as to the unsuitability of home-grown pine for telegraph poles.

That the yield of our woodlands can be materially improved admits of no doubt, and the evidence before us unanimously favours immediate and effective provision for bringing systematic instruction within the reach of owners, agents, foresters, and woodmen. There has been too long an emphasis as the first requisite in any project for the improvement of forestry."

The Committee's chief recommendations are that two areas for practical demonstration be acquired, one in Scotland and the other in England, of from 2,000 to 10,000 acres each; that additional facilities be afforded, by the appointment of a lecturer on forestry in connexion with the Universities of Cambridge and Oxford, and that example plots be provided in connexion with each of these centres

and with Edinburgh; that a good grounding in forestry form an integral part of the curriculum of the colleges providing instruction in agriculture in Great Britain, and that short courses of instruction suitable for the requirements of young foresters be also provided there; that provision be made for the education of foresters and woodmen by employing students to work in both the demonstration forests, and that suitable buildings be erected on the ground for the instruction and, where necessary, for the accommodation of these student-foresters; that lectures be given, under the auspices of the County Councils, in the neighbourhoods where there is a considerable area under wood, and that scholarships be offered in such counties to enable working foresters to attend courses of lectures.

## OBITUARY.

MR. EALES.—We have to announce the death on March 13, at his residence in London, of Mr. Christopher Eales, of Somerset Mansions, 9, Welbeck-street, W., and of Worthing, Sussex, in his ninety-fourth year. Mr. Eales practised as an architect and surveyor in co-partnership with his son, Mr. Frederick Ernest Eales, F.R.I.B.A., under the style of Messrs. Christopher Eales & Son, at Somerset Chambers, Welbeck-street. Of the architectural works carried out by the firm the following have been described, with illustrations and plans, in the columns of the *Builder*: Hyde Park residential flats, August 4, 1883; the King's Arms Hotel, Edgware-road, September 22, 1883; Oxford and Cambridge Mansions, Marylebone-road, February 3, 1883; additions to 6, Gloucester-road, Regent's Park, N.W., for Mr. R. Borwick, consisting of a new wing, with music-room, billiard-room, nurseries, &c., November 7, 1885; and Hyde Park Mansions, by Mr. F. E. Eales, April 14, 1894. The Oxford and Cambridge Mansions and the adjoining Hyde Park Mansions were erected upon the Bond-Cabell Estate in St. Marylebone parish.

## GENERAL BUILDING NEWS.

ST. KATHERINE'S MISSION-ROOM, UPPER HELLEDON, NORFOLK.—A new mission-room has just been built at Upper Helledon, and dedicated to St. Katherine. The new room is situated on part of a site within the angle formed by the junction of Half Mile-lane with the Aylham-road. It has been built from the plans of Mr. T. G. Jackson, R.A., the contractor being Mr. T. Mann, of Drayton. It has been built of red brick internally.

UNITARIAN BUILDINGS, HIGGHATE.—The memorial stones of the new building to be attached to the Higgate Unitarian Christian Church were laid recently. These church buildings are known as the Robert Spears' Memorial Church, in commemoration of the founder and first pastor. The new buildings are to take the form of a lecture-hall and class-rooms, facing Higgate Hill and occupying the vacant space between the church and school-room. The new hall will be 20 ft. wide by 36 ft. long, and the school hall hold rather less than 100 people. Behind it there will be a classroom 16 ft. by 10 ft., and over the existing vestry is to be erected a new vestry. These and other minor works have been contracted for by the General Builders' Co., Ltd., of Notting Hill. The architect, Mr. Arnold S. Taylor, has designed the new work to group with the existing buildings. The estimated cost is 1,400l.

NEW HOUSE, SHEFFIELD.—The unfinished corner building which abuts on Norfolk-road and Norfolk-street has until the past three months for nearly a quarter of a century marred the completeness of the architectural grouping, and been, moreover, an object of curious inquiry and comment to the passer-by. As a first step towards the immediate erection of a new clergy house, it is now on the point of completion. The entrance doorway in Norfolk-road will afford a more convenient access to the sacristies, as well as to a new parish-room, which will be erected at the lower end of the site in Norfolk-street, next to the proposed new rectory, thus leaving open the view of the eastern front of the church. The doorway is surmounted by a sculptured representation of the Annunciation. The shields of arms on either hand have some historical interest, giving, as they do, a clue to the date of the erection in 1879. They are charged with the armorial bearings of Pope Leo XIII. and of the Duke of Norfolk. The plan of the new rectory have been completed, and the work will be commenced during the coming spring. The new buildings are to be executed in brick and stone, harmonising with the general architectural design of St. Marie's Church. The architects are Mr. Hadfield and Mr. C. M. Hadfield, of Sheffield.—*Sheffield Telegraph*.

WESLEYAN CHURCH, OXFORD.—A new church is to be erected at East Oxford for the Wesleyans. The new church will be situated at the corner of Jeune-street and Cowley-road, and has been designed by Mr. Stephen Salter, of the firm of Messrs. Davey & Salter. The church will be 100 ft. in length, 48 ft. in width, and 50 ft. in height. A balcony will run around the entire interior of the building, the total seating accommodation of which will be for 700 worshippers. On either side of the rostrum will be doors leading to the preacher's vestry, the stewards' vestry, ladies' cloakroom, and other offices. The classrooms above will be reached from the gallery;



the organ will also be in the gallery. At the rear of the chapel the schoolrooms will be erected. On the ground floor there will be an infants' room, 35 ft. by 25 ft., and two classrooms, each 16 ft. square; and on the floor above, a church parlour, 34 ft. by 24 ft., and two classrooms of the same size as those below.

**BAPTIST CHAPEL, MORCOTT, RUTLAND.**—A new Baptist chapel has just been opened at Morcott. The new chapel, erected on the old site, is 45 ft. in length, with 20 ft. internal width. The structure is of local rubble stone, with Ketton freestone dressings, and covered with Collyweston slates. The old baptistry has been rebuilt in a new position. The outbuildings, covered with blue slates, include a vestry. Mr. J. B. Corby, of Stamford, was the architect, and Messrs. Joyce Bros., of Morcott, the builders.

**PRIMITIVE METHODIST CHAPEL, OULTON, NORFOLK.**—A new Methodist chapel is to be erected at Oulton. Plans for a new building have been prepared by Mr. F. W. Richards, of Lowestoft. The building is to be 40 ft. long and 28 ft. wide inside. It is to be of red bricks, and the front relieved with white Costessey ware dressings. The contract has been entrusted to Mr. J. S. Youngs, of Oulton Broad.

**BANK, ABERDEEN.**—The Town and County Bank, Ltd., have erected at Aberdeen a new harbour branch bank. The building occupies a site at the south-east corner of Marischal-street, at its junction with Regent Quay. The elevation to Marischal-street is 83 ft. in length, and to Regent Quay 26 ft., the site being wedge-shaped. The ground floor is to be occupied by the bank, having a public office of about 40 ft. by 21 ft., with agent's room and waiting room, &c. There will be a suite of offices on the first floor, while on the upper floor there is another suite of offices. The building, which is designed in the Renaissance style, and of granite, consists of a rusticated base, on which is a row of pilasters extending two stories in height, with Ionic capitals, which are carried up to the entablature at the Regent-quay front, where the principal entrance to the bank is situated. The Marischal-street front is crowned by a balustrade, and is divided into sections by moulded panels. As Shore-lane is at the rear of the bank the building is lighted from three sides. Electric light has been installed. The architect is Mr. R. G. Wilson, and the contractors are:—Mason work, Mr. J. Morgan; carpenter, Mr. J. Henderson; slater, Mr. George Farquhar; plumber, Messrs. Thom & Strachan; plaster work, Messrs. James Bannochie & Sons; and painter work, Messrs. Gordon & Watt.

**MISSION BUILDING, GOSWORTH, LINCOLNSHIRE.**—This building, which is at present under construction, will consist of a nave, chancel, and vestry, and will give seating accommodation for 122 persons. Messrs W. Bucknall and J. N. Comper, of London, are the architects, and Mr. William Wade, of St. Neots, is the contractor.

**NEW THEATRE, ST. MARTIN'S-LANE, W.C.**—A new theatre has been erected in St. Martin's-lane for Sir Charles Wyndham. The decorations throughout, including the Royal box and the King's room, are in Louis Seize style; the seats in the stalls and dress circle are upholstered in Aubusson tapestry chosen by Sir Charles Wyndham in Paris; there are busts of Louis Seize and of Marie Antoinette in the King's room, presented by Mr. Claude Ponsouby, an artist, and there are some Wedgwood medallions. The architect was Mr. W. G. R. Sprague. The electric fittings have been supplied principally by the firm of Escare and Denelle, and have been manufactured from Louis XI. castings. The furnishing and decorations have been carried out by Messrs. Waring & Co.

**DISTRICT BATHS, BRADFORD.**—A meeting of the Baths and Team Labour Committee of the Bradford City Council was held on the 6th inst. at the Town Hall. The City Architect (Mr. F. E. P. Edwards) submitted plans for the district baths to be erected, on sites already acquired, in Leeds-road, Wakefield-road, and adjoining Peel Park, and after examination by the Committee the plans were approved, and the City Architect was instructed to proceed with the preparation of working drawings.

**SUNDAY SCHOOL, COLCHESTER.**—The Right Hon. James Round, M.P., laid the foundation-stone of the new Sunday school and parish-room for the parish of St. Giles, Colchester, recently. The building, which will be of red brick, is being erected on the south side of St. John's Green Baptist School. The architect is Mr. C. E. Butcher, and the builder Mr. T. Ward.

**WORKMEN'S CLUB, BOLDON COLLIERY.**—The foundation-stone of a workmen's club was laid in the Station-road, Boldon Colliery, recently. The building will be one story in height, and built of red pressed bricks, with York stone dressing. There will be a large entrance hall, a luncheon-bar, billiard-room for two tables, luncheon-room, games-room, magazine-room, and general newsroom, and a smoker. Adjoining the club, with access from the luncheon-bar, is the steward's house, with large kitchen. Combined with the steward's apartments is the secretary's office and boardroom. In the basement is cellage accommodation. The building has been designed by the architect, Mr. O. Mark, of Sunderland, and is being built by Mr. G. M. Storey, West Boldon, at an estimated cost of about 3,000.

**ST. ANDREW'S-STREET BAPTIST CHURCH, CAMBRIDGE.**—This church is to be entirely rebuilt,

partly on the foundations of the old building. The tender of Messrs. Kerridge & Shaw, of Cambridge, has been accepted by the committee at 7,458l., and the work has just commenced. The architects are Messrs. George Baines & R. Palmer Baines, of London.

**SCHOOLS, NEWQUAY.**—New infant school and girls' classroom have just been opened at Newquay. Messrs. Cowell & Cowell were the architects of the new schools. Messrs. Trehan & Son, of Liskeard, were the contractors.

**VICTORIA MEMORIAL HOSPITAL, SOUTHWOLD.**—This building has just been opened by the Right Rev. the Bishop of Ipswich. The new hospital is a two-storied building, erected in Fieldstile-road, opposite the parish church. Carried out in red facing bricks, with a Broseley tile roof, the building has a frontage of 81 ft., with a depth of 34 ft. The ground floor comprises two wards, each 16 ft. by 24 ft., accommodating four beds; a private ward with one bed, a small operating theatre, matron's sitting and bedroom, a double set of bathrooms, and storerooms. On the first floor there are a kitchen, nurse's bedroom, sitting-room, and committee-room, a private ward, and three bedrooms and bathroom for the use of the staff. A Waygood's service lift is fitted in a convenient position. The floors of the wards are of polished pitch pine, and the building is lighted throughout by electricity, installed by Messrs. Mann & Co., of Norwich. The architect was Mr. T. E. Key, of Bloomsbury-square, London, and Aldeburgh, and the builder, Mr. J. Thompson, of Southwold.

**WORKMEN'S HOUSES, NORWICH.**—Tenders are now being invited for the blocks of workmen's dwellings which are to be erected by the City Corporation of Norwich on the Angel-road estate. Two styles of model dwellings are to be built, a block of two-story flat tenements and one of self-contained tenements. The plans have been prepared by Mr. A. E. Collins, the City Engineer. The self-contained tenements consist of a living-room and large scullery on the ground floor, the scullery having a copper pantry and a sink. There are two bedrooms in the upper floor. Although there are two tenants in each of these houses, the houses are quite self-contained, with separate entrances back and front. There are large gardens in the rear. The two-story tenements are designed on a different principle, there being a common entrance for each group of tenements. The entrance is about 4 ft. wide, under a bold archway. At the farther end of the entrance the separate tenements open off on either hand, there being two rooms in each tenement, a living-room, and a bedroom. The open passage-way also gives direct access to a joint scullery built out at the back, containing pantry and sanitary arrangements. The same arrangement is repeated in the upper floor, except that the entrance is by means of a stairway from the yard at the rear, which gives access to the rooms of the tenement by a passage through the upper joint scullery. The tenants in the upper floor will have the additional advantage of the accommodation afforded by the attic which are lighted by skylights both back and front.

**BATHS, HULL.**—Colonel A. G. Durnford, R.E., an inspector of the Local Government Board, held an inquiry at the Town Hall, Hull, on the 10th inst., into the application of the City Corporation for sanction to borrow 27,000l. for the purposes of the proposed public baths on the Bevelay-road. Mr. A. E. White is the City Engineer, and he explained the plans in detail.

**WORKING-CLASS DWELLINGS, LONDON.**—Messrs. N. S. Joseph, Son, & Smith have been appointed architects of five blocks of dwellings which the Chelsea Borough Council will build on a site in Beaufort-street, Chelsea, and of similar blocks to be erected by the Four per Cent. Industrial Dwellings Company at Navarino-road and Dalston-lane, Dalston.

**STATION HOTEL, KIRKCALDY.**—The new Station Hotel at Kirkcaldy, occupying a site at the junction of Bennoch-road and Sang-road, was opened on the 11th inst. Mr. W. Williamson was the architect. The building is provided with the electric light, the fittings being supplied by the Birmingham Guild of Handicraft. The principal contractors were:—George Smith & Sons, builders; T. Scott & Co., joiners; James Wood & Son, plumbers; Alexander Hutchison, plasterer; Oliver Melville, electrical engineer; Currie & Cant, slaters; John Haxton & Co., glaziers; Wyllie & Lochhead, Ltd., Glasgow.

**FIRE STATION, ROTHERHITHE.**—The memorial stone has just been laid of a new fire station at Rotherhithe. The site faces to Rotherhithe-street and has a frontage to the River Thames. The Works Committee of the London County Council having expressed themselves satisfied with the architect's estimate of 9,535l., the work was entrusted to the Works Department. Operations were begun last October, and it is hoped that the building, which is being erected under the supervision of Mr. W. E. Riley, the Council's Architect, will be ready for occupation next October.

**SCHOOL, BRADFORD.**—The new school in Green-lane, Manningham, erected by the Bradford School Board, was opened on the 12th inst. The school is divided into three departments—senior mixed, junior mixed, and infants. The senior department there is an assembly-hall 60 ft. by 30 ft., four

classrooms capable of accommodating sixty scholars, and a fifth classroom for fifty scholars. The assembly-hall for the junior-mixed department measures 70 ft. by 38 ft., six classrooms for sixty scholars each, one for fifty scholars, and another for fifty scholars. For the infants there is also a large assembly-hall, and five classrooms with accommodation for sixty children in each. Adjoining the main building and fronting upon Green-lane is a separate school for special classes containing a central hall and two classrooms for twenty scholars each. The two wings at each side of the Green-lane part have been omitted for the present, but are included in a scheme for future enlargement together with a wing at the back by which seven extra classrooms may be added. Mr. E. P. Petersen, of Bradford, was the architect, and the contractors were Messrs. Daykin & Co., masons; Mr. W. M. Binn, joiner; Mr. R. Townend, plumber; Messrs. J. C. & A. Sunderland, plasterers; Messrs. H. Spurr & Sons, concreters; Messrs. Taylor & Parsons, ironfounders; Messrs. Thomas Nelson & Sons, slaters; Mr. Gurnell, painter; Mr. R. H. Dawhirst, wrought ironwork; Mr. G. A. Steinthal, electrician; Mr. Roger Lowe, wood pavior; Messrs. Heywood & Co., patent glaziers; and Messrs. Ashwell & Co., ventilating engineers.

**PROPOSED EXTENSIONS, BLACKPOOL VICTORIA HOSPITAL.**—An appeal is to be made to the public for 15,000l. to carry out extensions to Victoria Hospital, Blackpool. Alderman Mather, J.P., offered his services as honorary architect; these were accepted, and he prepared the plans which are to be carried out. On the ground floor of the administrative block increased kitchen accommodation will be provided, together with scullery, larder, pantry, receiving ward, nurses' and servants' dining-rooms adjacent thereto. At the rear of the kitchen it is proposed to construct a more capacious laundry, stores, and linen rooms, and servants' lavatories and conveniences. The proposed extensions to the male and female wards, which will be continuations of the existing wards in an easterly direction, provide for sixteen additional beds in each case, with lavatory and other accommodation. Connected on each side by corridors with these additional wards will be an anaesthetic-room entering upon an enlarged operating theatre, with dispensary and doctors' lavatory leading therefrom. The additions at the rear, under the proposed ward extensions, will comprise, under the male ward, an outdoor patients' department, and under the female ward male and female refractory wards. Under the laundry and operating theatre will be provided storage rooms for coats and wool, bath chairs, and tools, and also heating apparatus. The outdoor patients' department will contain a waiting-room, consultation-room, male and female examination-wards, with conveniences in each case, eye-room, dispensary, and storeroom. There will be two isolation patients' wards, one for each sex, and each containing six beds. Nurses' kitchens and sitting-rooms, with lavatory and other accommodation, will also be provided in connexion therewith. On the first floor it is proposed to provide eight additional single-bedrooms, and one bedroom for nurses, with bathroom and lavatory and boxroom. At the rear, over the laundry, will be the ironing-room connected with the laundry by an independent staircase, and lifts for linen. The attic floor will be devoted to accommodation for night and private nurses.

**HIGH SCHOOL FOR GIRLS, NEW KENT-ROAD, LONDON.**—The St. Saviour's and St. Olave's Grammar School for Girls has just been opened by the Princess of Wales. The site of the school is in the form of a triangle, one side having a frontage of some 320 ft. to the New Kent-road, another a frontage of some 112 ft. to Buckenham-square. The third side abuts on the yards of the houses in Warner-street. The large hall faces the New Kent-road and the various classrooms, which are arranged in connexion with it, face Buckenham-square. The principal entrance is from the New Kent-road whilst the pupils enter the school from Buckenham-square. On entering the building by the principal entrance, on the right-hand side a waiting-room is provided, and on the left an office of administration. Passing through the swinging doors, access is obtained to the entrance corridor at one end of which is the principal staircase, and at the other a door leading to the playground. The large hall, measuring at the floor level 71 ft. by 35 ft., is entered from the corridor. It has a series of large windows on the one side, and on the other a passage divided from the hall by a series of piers and open arches which admit to three ground-floor classrooms. At the northern end is another transverse corridor, from which are approached the manual and kindergarten rooms, also the lavatory and cloakrooms for the girls. The pupils' entrance and staircase is at the eastern end of it. At one end of the large hall is a gallery with space for an organ. On the first floor there are three more classrooms, entered from an arcade, which is open to the large hall, the headmistress's room, teachers' cloakroom, &c.; the science lecture-room, chemical laboratory, and art room being also on this floor at the northern end. A common-room for the mistresses, and four music practising-rooms are placed on a mezzanine floor at the south end of the building. On the top floor are the cooking classroom, dining-hall, kitchen, and offices, in addition to three more classrooms. There



is a separate service staircase with a lift arranged in the tower at the south-east corner, from the ground floor up to the kitchen on the top floor. A house for the caretaker has been erected in Buckenham-square, with access to the basement of the main building. The lighting throughout is by electricity. The elevations externally are treated with red bricks. Bath stone being used for the window dressings, &c. The original building contract, exclusive of fittings, boundary-walls, playgrounds, &c., amounted to 20,000*l.*, and the work has been carried out by Messrs. William King & Son, of Vauxhall Bridge-road, S.W., and Mr. George Peat was clerk of the works. The architect was Mr. W. Campbell Jones.

**CARDIFF NEW MUSEUM.**—Councillor S. Robinson presided at a meeting of the Museum Committee of the Cardiff Corporation on the 13th inst., when Mr. Edwin Seward, the architect, submitted amended plans for the lengthening of the front to the extent of 25 ft. This will mean that each wing will be lengthened 12 ft. 6 in.

**UNITED FREE HIGH CHURCH HALLS, ELGIN.**—New Free Church halls are to be erected in North Guildry-street, Elgin. The cost of the new buildings, including heating, furnishing, &c., will be about 1,250*l.* The contractors for the work are:—Builders, Davidson & Hay; carpenters, Mackie & Mackenzie; slater, Andrew Davidson; plumbers, John Gordon & Son; plasterer, James Brodie; painter, John James; and for the ironwork, George Souter. Messrs. A. and W. Reid & Wittet are the architects.

#### MISCELLANEOUS.

**PROFESSIONAL AND BUSINESS ANNOUNCEMENT.**—Mr. Rowland Plimbe, architect, 13, Fitzroy-square, W., has taken into partnership Mr. Frank M. Harvey, who has been associated with him for a period of over twenty-three years. The practice will be continued at the above address under the style of "Rowland Plimbe & Harvey."

**COURT OF COMMON COUNCIL.**—At the fortnightly Court of Common Council, on Thursday last week, Alderman Sir Henry Edmund Knight moved "That he be referred to the Streets Committee, with directions to confer with the City Lands and Bridge House Estates Committees, to consider the provisions of the London Building Act, 1894, and other cognate Acts, and their effect on property, trade, and commerce in the City of London; and to report what amendments therein are desirable." He said that the Act of 1894 had caused a lot of useless expense, and had driven some trades from the City, and mentioned several cases where great inconvenience had been caused by the Act. He wished the Corporation to be in possession of such information as would enable them to draft a Bill of their own. What was suitable for Westminster was not suitable for the City. The motion was seconded by Deputy Baddeley, and carried.—It was agreed to approve of the City and South London Railway Bill for extending their line from the Angel to Euston and for taking over the powers of the City and Brixton Co., subject to the insertion of the City's clauses and the depositing of 15,000*l.* by the Corporation as a guarantee for the proper completion of the works in the City. The City and North-East Suburban Electric Railways Bill for a line from the City to Waltham Abbey and Southgate was approved, subject to the same conditions, the sum to be deposited being 20,000*l.*—The following recommendations of the Streets Committee were agreed to:—That the carriageway of Little George-street, Minories, be paved with asphalt at an estimated cost of 250*l.* That the sewer in Cornhill be reconstructed for a distance of about 74 ft. west from White Lion-court at an estimated cost of 400*l.* That the contracts with the Val de Travers Asphalt Co. for maintaining the pavements of the undermentioned streets be extended as follows:—Queen-street (Pancras-lane to Queen Victoria-street) for ten years at 1*s.* 6*d.* per yard super. per annum; London-wall (Moorgate-street to East of Blomfield-street) for one year at 1*s.* 6*d.* per yard super.; King's Arms-yard (Moorgate-street to Coleman-street), Telegraph-street, Great Bell-alley, and Noble-street for ten years at 10*s.* 6*d.* per yard super. per annum; Camomile-street, Edmund's-place, Wood-street (Aldersgate-street to London-wall) for ten years at 9*s.* 6*d.* per yard super. per annum; Castle-street, Cripplegate, Barge-yard, Bucklersbury (Queen Victoria-street to Walbrook), Bow-lane (Cannon-street to Great Trinity-lane), for ten years at 6*s.* 6*d.* per yard super. per annum; New Broad-street and Great Winchester-street for ten years at 3*s.* 6*d.* per yard super. per annum; Old Change (Cannon-street to Knight-bridge-street) for ten years at 3*s.* 6*d.* per yard super. per annum; Queen-street (Cheapside to Pancras-lane) for ten years at 1*s.* 6*d.* per yard super. per annum (an increase of 9*s.* 6*d.* per yard per annum on the existing contract); and New Broad-street (London-wall to Liverpool-street) for two years at 1*s.* 3*d.* per yard super. per annum (an increase of 6*s.* 6*d.* per yard per annum on the existing contract). The following are footways only:—Duke-street (now Little Britain), for ten years, at 7*s.* 6*d.* per yard super. per annum; and Royal Exchange and Bishopsgate-street Within, for ten years, at 6*s.* 6*d.* per yard super. per annum. Where not mentioned the

price is the same as the existing contract. It was agreed also to extend the following contracts:—With the Improved Wood Paving Co., for maintaining the carriage-way of King William-street and Gracechurch-street for a period of fifteen years (the Corporation reserves the right to terminate the arrangement at the end of five or ten years), at 1*s.* 9*d.* per yard super. per annum; and with the French Asphalt Co., for maintaining the footway of St. Paul's Churchyard for a period of ten years, at 6*s.* 6*d.* per yard super. per annum (an increase of 2*s.* 6*d.* per yard on existing contract), and for maintaining the footway pavement of Aldersgate-street for a period of ten years at 6*s.* 6*d.* per yard super. per annum. [The Streets Committee were requested to arrange for a conference, on the Building Act question, between the Corporation, the London County Council, and the Councils of the City of Westminster and the Metropolitan Boroughs.]

**WATERPROOF PANEL BOARDS.**—Waterproof slabs suitable for use as a substitute for lath and plaster or matchboards in the construction of light partitions, ceilings, or verandah roofs, are being manufactured by the West Drayton Millboard Co. Some panels which have been sent to us for inspection are of remarkable strength. The material appears to be waterproof millboard prepared under great pressure. The boards can be manufactured of almost any thickness from  $\frac{1}{8}$  in. upwards, and in any sizes up to 8½ ft. by 4½ ft. The price of the material varies from 2*s.* 6*d.* to 6*s.* 6*d.* per sq. ft.

**WORKMEN'S PROPOSED CONCRETE DWELLINGS, LIVERPOOL.**—At a meeting of the Liverpool Housing Committee, Councillor Colton in the chair, a letter was read from Mr. Edward Mines, offering to erect workmen's dwellings of similar dimensions to the concrete houses proposed by the City Engineer, but of bricks and mortar, at 25 per cent. less than the City Engineer's estimate of 1,230*l.* It was resolved by the Committee to forward a letter to him for the purpose, which would be equally convenient in every way, upon his entering into a contract to erect a similar block of cottages to the satisfaction of the Committee, according to the plans and an agreed specification, for 25 per cent. less than the City Engineer's estimate.

**MEMORIAL TABLET, PUTNEY.**—A memorial tablet of alabaster, bearing a sculptured likeness of the late Dr. Woodhouse, M.D., F.R.C.S. Lond., for thirty-six years visiting Medical Officer of the Royal Hospital for Incurables, Putney Heath, was unveiled recently in the Assembly-room of that institution. The medallion is framed in walnut, and occupies a corner niche at the top end of the assembly-room. It is the work of Mr. Hems, of Exeter.

**ESTIMATES, CIVIL SERVICE.**—The estimated expenditure upon public works and buildings for the year ending on March 31, 1904, shows a net increase of 265,699*l.* as compared with the grants in the Bill of estimate of 1902; the total amount amounts to 2,557,712*l.* The estimate for Royal Palaces is 80,000*l.*, an increase of 7,800*l.*; for Royal parks and pleasure-grounds, 101,400*l.*;—increase, 3,676*l.*; Houses of Parliament buildings, 43,700*l.*;—decrease, 6,200*l.*; miscellaneous legal buildings in Great Britain, 66,120*l.*;—increase, 17,320*l.*; diplomatic and consular buildings, 35,300*l.*;—increase, 4,100*l.*; revenue buildings, 364,000*l.*;—increase, 19,000*l.*; public buildings in Great Britain, 447,000*l.*;—increase, 17,613*l.*; rates upon Government property, 571,607*l.*;—increase, 33,430*l.*; and, in Ireland, public works and buildings, 216,128*l.*;—decrease, 6,044*l.*, and railways, 107,214*l.*;—decrease, 18,588*l.*

**ROYAL INFIRMARY, MANCHESTER.**—The Corporation of Manchester have under their consideration a project for purchasing, at the price of 400,000*l.*, the buildings and site in Piccadilly of the Royal Infirmary, in view of a concurrent scheme for the erection of a new infirmary on a site of 12 acres at Stanley-grove, Longsight, with the proceeds of the sale; the trustees, it seems, are minded to erect new buildings upon a fresh site rather than enlarge the existing premises. The Royal Infirmary, originally established in 1752 at Shude Hill by Dr. White and Joseph Bancroft, was removed three years afterwards to buildings that had been erected by subscription in Piccadilly. A lunatic hospital and asylum was founded in 1795, and in 1792 the trustees established a dispensary; an Act of 1844 empowered the committee to erect a new lunatic asylum. The south and north wings of the infirmary were added in 1848-51; in 1853 the dome was added to serve as a clock tower, and the Piccadilly front was rebuilt. About twenty-five years ago the dispensary and out-patients' deale; the partitions were opened in the new building which faces Parker-street. It is stated that a special committee, nominated by the Corporation, have agreed to recommend the acquisition of the Piccadilly site for the erection thereon of an art gallery and a free library.

**THE ILLUMINATING POWER OF GAS.**—The Sanitary Publishing Co. is about to issue a table compiled by Mr. W. J. Dibdin, by means of which the so-called "true" illuminating power of any gas may be readily ascertained. The table is based upon a law enunciated by the late Dr. Pole more than thirty years ago. The table is applicable to any gas, whatever the illuminating power, provided the standard rate of consumption is 5 cubic feet per hour. For our own part, we see little utility in ascertaining the value which the gas would possess if

burned at a 5 cubic foot rate, and think that the illuminating power of a gas in any given burner should be the maximum efficiency of the gas in that burner, whatever may be the rate of consumption required to yield that efficiency. There is also no reason why the illuminating power should not be expressed in candles per unit of gas (i.e., per cubic foot), as in the case of incandescent burners. Those, however, desiring to know the illuminating value of any gas when calculated by Dr. Pole's method, will find Mr. Dibdin's table both useful and interesting.

**ICKFORD CHURCH, BUCKINGHAMSHIRE.**—It is proposed to raise a fund of 1,680*l.* for the restoration of St. Nicholas parish church in memory of Archbishop Sheldon, who, being then warden of All Souls' College, was presented to the living by Charles I. The church, having 150 sittings, consists of a chancel, nave, and two aisles, with a tower, and embodies many interesting features in the Transitional and Early English styles. The tower has a saddle-back roof; in the chancel are a low-side window and an Early English piscina with a projecting base.

**VENETIAN BRIDGES.**—Alluding to the protests which have been made abroad against the building of a bridge to connect Venice with the mainland, the British Consul, in his report for the year 1902, explains that the proposed bridge is to start from an extreme point of the town, fronting the mainland, where there is not a single monument or building of artistic importance of any kind, and is to run over shallows parallel to the railway bridge up to San Giuliano. The majority of the Communal Council have decided in favour of the proposal. It is added that a project has also been before the municipality at the instance of the Adriatic Railway Company for widening the actual railway bridge, reserving a portion of the new space to lay down a new track for goods traffic, and granting the use of the remaining part to pedestrians and cyclists, but the railway company would exclude tramways and motor-cars. In the event of the project being adopted the expense to be met by the municipality would be 52,000*l.*

**MUNICIPAL YEAR BOOK.**—The Municipal Year Book of the United Kingdom for 1903 (Edward Lloyd, Ltd., Salisbury-square, E.C.), has just been issued. The Editor, Mr. R. Donald, has included a complete digest of the Education Act in the present issue, the important clauses being set out in full. After a brief sketch of the notable municipal developments in 1902, and a synopsis of the chief Acts passed last year affecting local government, the arrangement is kept as much as possible alphabetical as follows:—I. London and its Government (London County Council, City Corporation, Metropolitan Boroughs). Summaries of works, statistics, and officials. II. England and Wales and under each town will be found a summary of the work carried on by the Corporation, showing the extent of its activities, with statistics of expenditure, rateable values, debts, &c., with the exception of statistical returns on (a) water, (b) gas, (c) electricity supplies, (d) tramways, (e) housing, and (f) telephones, to which special sections are devoted. Under the heading of each town will also be found complete lists of the members and chief officials of the Local Authorities. 2. Urban District Councils, particulars of works, statistics, officials. 3. Rural District Councils, chief officers, county Councils, clerks. 4. Municipal Government in Scotland. 5. Municipal Government in Ireland. The work is a most useful and interesting guide to municipal affairs.

**PRESENTATION TO A BUILDING MERCHANT.**—Last week Alderman Sessions, the head of the firm of Sessions & Sons, timber and building material merchants, of Gloucester, was presented with a testimonial from the employees of the firm on the occasion of his leaving Gloucester to settle at Kendal. The gift consisted of a roll-top desk, with pigeon-holes, &c., on which was fixed a silver plate with the inscription:—"Presented to Alderman Frederick Sessions on his leaving Gloucester by the staff and workpeople of Sessions & Sons, Ltd., and others formerly with the late firm of J. Sessions & Sons as a token of their sincere esteem and respect, March 10, 1903."

**ARCHÆOLOGICAL DISCOVERIES IN LEICESTER.**—The extensive excavations that have been proceeding recently in connection with the High-street improvement have resulted in the discovery of further indications of the Roman settlement in Leicester. Workmen were engaged digging the foundations of some buildings about to be erected in Town Hall-lane, when, about 14 ft. below the surface, they uncovered the remains of two Roman pavements, or possibly detached portions of one pavement. The larger fragment brought to light measures about 3 ft. by 4 ft., composed of ornamental limestone tesserae. An adjoining fragment is worked out in a red and blue pattern. Both pieces are similar in construction to a Roman pavement found in Highcross-street about two years ago. The squares slant considerably lower than compared with the present elevation of the adjacent land, but it is difficult to determine the cause of this. Alderman Wakerley, the owner of the land, hopes to be able to preserve the remains intact, but



if this is not found possible it is to be hoped that it may be added to the excellent collection of Roman remains at the Museum. A quantity of Roman pottery, but none of it particularly interesting, has been found on the site of the new Lloyd's Bank premises in High-street, and three Roman kilns containing half-baked pottery have also been found.—*Leicester Post*.

**ROYAL COMMISSION ON LONDON LOCOMOTION.**—At the first sitting of this Commission, on Friday last week, evidence was given by Sir H. Jekyll and Col. Yorke, both of the Board of Trade. The last witness suggested that tramways in congested districts should be constructed underground. He was of opinion that obstruction was frequently caused by the overloading of carts, and mentioned particularly builders as being offenders in this respect. The only real solution of the problem was, however, wider streets and the construction of new thoroughfares.

**BUILDING BY-LAWS, SOUTHAMPTON.**—At the meeting of the Works Committee of the Southampton Town Council, a letter was submitted from the local architects and surveyors, as referred by the Council, asking that a conference might be arranged for the purpose of considering certain suggested amendments to the by-laws relating to streets and buildings; also a letter from Messrs. W. H. Mitchell, Son, & Gutteridge, setting out the specific by-laws which, in their opinion, require amendment. It was resolved that a copy of the letter containing the suggested amendments be typewritten, and forwarded to each member of the Committee, together with a copy of the by-laws, and that the matter be further considered at a subsequent meeting.

**MANCHESTER CORPORATION AND THE FAIR CONTRACTS CLAUSE.**—The controversy with regard to the interpretation of the fair contracts clause recently adopted by the Manchester Corporation will in all probability be amicably settled in the course of another two or three weeks. On the 16th inst. Mr. George Macfarlane, on behalf of the Master Builders' Association, laid the views of the employers before the Special Committee appointed by the City Council, and shortly afterwards Mr. G. D. Kelley and Mr. Tom Fox, representing the Manchester and Salford Trades and Labour Council, had an interview with the Committee. It appeared that much of the dispute over the clause was due to misinterpretation of its terms. Therefore, to put the matter quite clear, the Committee resolved to draft the clause afresh. Mr. Macfarlane also undertook to draw up a clause which would embody the wishes of the employers. Altogether, it was stated, there was a better understanding as the result of these conferences, and the Committee are hopeful that at the April meeting of the Council they will be in a position to submit a recommendation which will be acceptable to all the parties concerned.—*Manchester Guardian*.

**INTERNATIONAL FIRE EXHIBITION.**—The Committee of the Loan Section of the proposed International Fire Exhibition are desirous of being able to present recent designs of fire-stations that are of an instructive and up-to-date character and of some architectural pretensions. Architects who have designed and executed fire stations since 1885 are hence requested to put themselves in communication with Mr. F. R. Farrow, Joint Hon. Sec. of the Section, 29, New Bridge-street, London, E.C., giving particulars and designs that could be exhibited, preferably accompanied by some print or photograph. The Committee are desirous of hanging well-drawn elevations, perspectives, or large photographs, and ground-floor and first-floor plans. The drawings and photographs must be framed, but there is no limitation as to character of frames or margins. The drawings would have to be sent in by the middle of April, and will be hung until the close of the Exhibition towards the end of September.

**ASSOCIATION OF MANAGERS OF SEWAGE DISPOSAL WORKS.**—The first ordinary meeting of this Association will be held at the arbitration Sewage Works at 2 p.m., March 28, being visit, inspection, and description of the works, under the guidance of Mr. Wm. Willis Gale, Surveyor to the Council. Afterwards there will be an address by the President, Mr. W. D. Scott-Moncrieff; followed by a visit to the County Borough of Croydon sewage farm at Beckington, under the guidance of Mr. John E. Farmer, Manager.

#### CAPITAL AND LABOUR.

**LEEDS PAINTERS' DISPUTE.**—The dispute between the Leeds operative painters and the master painters has at last come to an end. The resolution passed by the Masters' Association was to the effect that they would pay at the rate of 8d. per hour, the starting-time to be 7.30 a.m. This practically means that the conditions in force before the dispute occurred will continue.

**HULL BUILDING TRADES.**—The building trade of Hull is again threatened with a dispute of large dimensions, although it is hoped this will be avoided by the adoption of terms agreeable to both parties. The initiative in the matter has come from the masters, who are desirous of securing an alteration in the working rules. These rules were only agreed upon between the parties in May of last year, and it was understood they were to remain in

force for at least two years. The employers, however, have served a notice upon the Building Trades Federation asking for an alteration. One of the principal changes they seek to effect has reference to short time during winter months. By the agreement come to last May, for five weeks before Christmas and for an equal period afterwards the men commence work at seven o'clock, having half an hour for breakfast, an hour for dinner, and cease at five o'clock. The masters want them to commence work at eight o'clock (having breakfasted before), have half an hour for dinner, and cease work at 4.30, the object being to secure the maximum amount of daylight each day. Another suggested alteration, and one which is strongly opposed by the men, has reference to the time when notice of a reduction of wages or lock-out can be given. By the existing rules that can only be given in May; the masters want the power to give it in November as well. The men have submitted counter proposals. Negotiations are proceeding between the parties, and a conference has been arranged. If a settlement is not arrived at thousands of men will be affected.—*Hull Daily News*.

#### LEGAL.

##### AN ENGINEER'S ACTION AGAINST A DISTRICT COUNCIL.

THE hearing of the case of Lawford v. the Billericay Rural District Council concluded in the Court of Appeal, composed of Lords Justices Vaughan Williams, Stirling, and Matthew, on the 13th inst. on the appeal of the plaintiff from a judgment of Mr. Justice Darling, sitting without a jury in the King's Bench Division on April 14, 1902 (the case was reported in the issue of the *Builder* of April 19, 1902).

The action was brought by the plaintiff, an engineer, to recover from the defendants 160*l.* 14*s.* as remuneration for his services in preparing a Report and plans, &c., in connexion with a sewerage scheme which was being carried out by the Council. The defence was that as the common seal of the defendants was not affixed to the agreement, the agreement was not valid or binding on the defendants.

The facts were as follows:—The plaintiff was in July, 1899, retained under the common seal of defendants to act as Engineer for the defendants in connexion with some sewerage works which defendants were thinking of carrying out in the parishes of Shenfield and Hutton. The plaintiff under this agreement had to prepare plans, specifications, attend an inquiry held on behalf of the Local Government Board, and obtain tenders for and superintend the work. In September, 1900, defendants discovered that the drainage of Shenfield Common was unsatisfactory, but this portion of the district was not in the original sewerage scheme. A committee of the defendant Council thereupon passed a resolution that plaintiff should be requested to go to Shenfield Common and report what work was necessary, and to give an estimate of the probable cost. The plaintiff did as requested. The plaintiff was then verbally instructed by the committee to act as engineer in respect of the extension work, and to do like services rendered under the agreement of July, 1899, and this was confirmed by the defendants. In the correspondence plaintiff suggested that the agreement of July, 1899, should apply to and include services in respect of the extension work, and the Clerk to the Council replied that the Council were agreeable that the agreement relating to the Shenfield and Hutton scheme as to the payment of plaintiff's fees should apply to the Shenfield Common extension, but with no variation. The plaintiff duly performed the services in question, and one of his firm attended the Local Government Board inquiry when the extension scheme was sanctioned. The plaintiff afterwards took out quantities for the work. Tenders were advertised for and made, but none were accepted. The defendants admitted that the plaintiff had full instructions for the work he performed, but they relied on a number of cases to show the necessity of a corporate body contracting under their common seal. Mr. Justice Darling held that the agreement was binding on the defendants should be under their common seal, and on that ground gave judgment for the defendants. Hence the present appeal of the plaintiff.

Mr. C. A. Russell, K.C., Mr. Danckwerts, K.C., and Mr. Montague Lush, K.C., appeared for the appellant, and Mr. Macmorran, K.C., and Mr. Naldrett for the respondents.

At the conclusion of the arguments, Lord Justice Vaughan Williams, in giving judgment, said he thought the appeal should succeed. His lordship, having gone through the authorities bearing on the subject, said he preferred to follow the decision in the case of "Clarke v. The Cuckfield Union," which he thought was founded on justice and convenience. In his opinion, the consideration in the present case was clearly executed, and the defendants had accepted as available themselves of the plaintiff's services and of his work. That being so, there was an implied contract to pay for them.

The other Lords Justices concurred, and the appeal was accordingly allowed, and judgment entered for the plaintiff.

#### ACTION AGAINST AN ARCHITECT.

THE case of Steeles v. Ingram came before Mr. Justice Grantham and a special jury in the King's Bench Division on the 12th inst., an action by the plaintiff, an electrical engineer of South Tottenham, to recover from the defendant, an architect of Theobald's-road, damages for alleged negligence in the performance of his duties as architect.

Defendant, by his defence, denied any negligence on his part, and pleaded that the plaintiff had accepted *q. d.* in satisfaction of any defects in the work.

Mr. Duke, K.C., and Mr. George Wallis appeared as counsel for the plaintiff, and Mr. S. T. Evans, K.C. and Mr. Thora Drury for the defendant.

Mr. Duke, in opening the case, said the plaintiff purchased a house and land at Tottenham, and, desiring to erect a larger house on the adjoining land which he had purchased, employed the defendant as his architect to prepare plans and specifications. After this had been done tenders were invited, but the lowest being 820*l.* plaintiff decided not to accept them. The plans were then modified, and defendant introduced Messrs. Knight & Sons, builders, to the plaintiff, and their tender of 655*l.* was accepted. The contract was duly entered into and the house erected. It had not been finished long when it was discovered that the mortar and concrete used were bad, that the ceilings fell down, the back addition was sinking, and the walls cracking, whilst the chimneys were too short, and the brickwork generally bad. In fact, the masonry was loose and open. It would cost about 200*l.* to put the house into the condition it should have been in. These defects, he alleged, were due to the want of supervision on the part of the defendant.

Plaintiff was called, and stated that the house was altogether bad. He had paid both the builder and the defendant.

In cross-examination, plaintiff stated that his son was articled to the defendant, and it was not in consequence of what had taken place over his son that the action was started.

Mr. G. E. Nield, an architect, of 222, Strand, examined, said he had made a survey of the house, and had the specification with him. The house was not in accordance with the specification in quality. The masonry was not properly done. The mortar joints were large, and the mortar was of bad material. A dinner-knife would go into the mortar up to the hilt. He put the life of the house at twenty years.

Mr. H. Northcroft, F.S.I., a quantity and measuring surveyor, of Regent-street, and Mr. Benjamin Tabberer, F.R.I.B.A. and F.S.I., corroborated generally. The prices paid for the materials were fair prices.

The defendant, called and examined, said he gave every possible supervision to the work. He saw the materials of which the mortar was made, and it was good. He did not see the whole of the mortar mixed. The bricks cost 33*s.* a thousand. The concrete was good, and he saw no cause of complaint. He saw no cracks in the buildings. The materials of the house were of very good class.

Mr. John Knight, carrying on business as Messrs. J. Knight & Sons, builders, of Chelsea, said he paid a fair price for all materials used in the house. The house was a well-built house.

Mr. George P. Pratt, F.R.I.B.A., formerly with the defendant, said the defendant went twenty-five times to watch the work whilst it was in progress. Witness went there himself five times, and the work was being properly carried out as far as he could see. The house was well built and the concrete was of a substantial character.

Mr. G. Rogers, Military Superintendent of Works on the Salisbury Plains, said he was with the Tottenham Urban District Council formerly and had the work in question under his supervision. He inspected and passed the concrete, and he passed it as being in accordance with the by-laws of the Council.

Mr. J. D. Mathews, F.R.I.B.A., said he had inspected the house and found it very fairly built indeed. He saw nothing to indicate any negligence on the part of the architect.

Mr. W. H. White, A.R.I.B.A., also corroborated. Counsel having addressed the jury, and his lordship having summed up, the jury, after a short deliberation, returned a verdict for the plaintiff for 20*l.* damages.

Judgment accordingly.

#### AN ARCHITECT'S CLAIM: EARL V. PATTENDEN & CO.

THE hearing of this case, before his Honour Judge Addison, K.C., the first part of which was reported in our issue of March 7 (pp. 259-60 *ante*), was concluded at Southwark County Court on Monday, when the defence and counterclaim were proceeded with.

Mr. Warren, barrister, again appeared for the plaintiff, and Mr. Rose-Innes (instructed by Mr. Henry Hilbery) for the defendants.

Mr. William Beer Pattenden said that in February or the beginning of last March he agreed to hire the churchyard from the rector, and he was introduced to the plaintiff, who already had plans drawn for a Coronation stand. Witness told him he did not intend to employ an architect, and asked what he would sell his plans for. The plaintiff refused to



do that. After an interview with the builder the three came together on March 10, and the plaintiff for the first time produced the plans. The builder expressed surprise that the west-front tige was arranged so that people would look straight down the Strand. Another point in regard to the east end was pointed out, whereupon the plaintiff remarked, "I have studied these plans for four months, and you may take it that these are perfect, and every person will be able to get a good view and you will be able to sell the worst at not less than 3l. 3s. each." Upon that agreed to pay the plaintiff a fee of 200 guineas and 5 per cent. on the net profits realised from the stand, for the plans and his services. Within a week, however, he discovered that the plans made no provision for gangways, and he spoke to the plaintiff about it. The plaintiff expressed surprise at the suggestion, remarking that the people would clamour over the seats. Witness pointed out that such a thing was impracticable, especially in view of the prices being charged (from 3l. 3s. to 10l. 10s.), and although he was nearly overborne, he insisted on gangways being provided. The plaintiff remarked that he (witness) had not got to worry about how the people got to their seats or out of them, but that the stand was full as he (witness) would by that time have taken his money, and that was all he had got to see to.

Witness pointed out in reply to that observation that his first object was to make a profit, but at the same time he wanted to make the stand safe and comfortable. The gangways were put in, and they made the seating accommodation 200 seats less, which represented about 800 guineas, taking an average price. When the stand had been erected witness found that a large number of persons would not be able to get a view of the procession, and, on pointing that out to the plaintiff, he remarked that "people would see much better when standing up." In consequence of that defect, some of these particular seats had to be sold at a very low price. The plaintiff attributed all the bungling to the fact that the builder had departed from the plans, but witness expressed surprise that he (plaintiff) had not said anything about it in the hearing of the builder. He further pointed out that the builder could not have gone astray if he had been on the job, as he ought to have been. Witness also discovered that seven rows of seats instead of eight had been put up in one place, and the builder explained that there was not sufficient room to erect eight rows with 2 ft. 3 in. from back to back, as had been specified.

The plaintiff (in reply to his Honour): There was room for eight rows with 2 ft. 3 in. in from back to back at one part, and 2 ft. 1½ in. at the narrowest.

Continuing, the defendant said that the builder admitted that he altered the staircase at the east end, or else the people could not have seen anything. No complaint was made by the plaintiff about the builder not following out his plans until witness pointed out the fault in the stand. As to the plaintiff's suggestion that he (witness) could not interfere with the builder because he could not pay him, that was an absolute lie. He paid the plaintiff every penny as it became due, as also the builder. The plaintiff became so worried and dejected over the job that witness advised him to go to Worthing and have a rest, which he did.

After the rest the plaintiff proceeded with the making of seat-letting plans, a job he had refused to do some days before. On July 4 after the procession had been abandoned, the plaintiff called upon him and asked for a cheque for the 50 guineas balance. Witness expressed surprise and indignation, suggesting that he had been paid more than he deserved after the muddle he had made and the loss he had caused him, and telling him that several gentlemen who had lent money for the venture had advised him to take proceedings against him. The plaintiff jumped up, held out his hand, and remarking, "Very well, goodbye; we shan't quarrel over that," left. He (defendant) censured the builder for having departed from the plans to improve the stand without his knowledge.

It was an absolute falsehood that the plaintiff complained in April that the builder was not keeping to the plans. It was not for him (defendant) to suggest how certain seats should have been arranged; his complaint was that the seats were so arranged that people could not get a proper view. He did not lodge with the Westminster Council a tracing of the plaintiff's plans of which he complained, for the October procession. His builder lodged a plan on his behalf, but he could not say what plan it was. Since the last hearing he had had inquiries made, and discovered that the plaintiff was correct in his assertion that the plans were passed by the Westminster Council without the gangways being in, but he was informed that the gangways were always dealt with by the Council after the plans had been passed, and not when originally agreed to. At the time the fatal news of the postponement came the seats on his (defendant's) stand were selling as fast as money could be taken.

Mr. Warren: When you discovered that the builder was deviating from your plans, was the only step you took to complain to Mr. Earl?

Defendant: Yes.

Re-examined: The plans provided for six rows of seats on the top tier of the west front, but after they had been erected and the tickets sold, eighty-

six had to be exchanged because the holders could not get a good view from the front rows or any at all from the back owing to the low front. He called the attention of the plaintiff to it and he said it was the builder's fault; he had done his best and could not do any more. The plan lodged by the builder for the October stand, was not like the plaintiff's, he found after examination of the two. It provided for only one tier. The October stand was not erected after all.

Mr. Thos. Elkington said he was a builder and had had great experience in the erection of stands. He was employed by the defendant for the erection of the stand in question, and when he first saw the plans he asked the plaintiff if all the persons who would occupy seats on the west front would get a view. The plaintiff replied that they would and that he had given months the study and consideration to the plans. He proceeded with the east side first and when he had got the posts up he tried the sight line and found that occupants could not get a view of the roadway but 4 ft. of the shops on the other side. He altered it by raising the back and lowering the front, the plaintiff having suggested that the people could stand faced W.C. street instead of the Strand as intended, and he had to alter the rake of the tiers. All the alterations were made after consultation with Mr. Earl who, in regard to each, said he did not see what else could be done. He (witness) could not have made a mistake as he always consulted Mr. Earl before fixing a timber.

Cross-examined: He used other timbers than specified in some places because of the rush on the market, but they did not affect the strength. The plaintiff was consulted and agreed to what was used. The defendant did not know anything about the alterations in the rake until the stand was finished. He did not agree with Mr. Dicksee and Ford, the District Surveyors who gave evidence for the plaintiff, that a good view could have been obtained from every seat if the stand had been erected in perfect accord with the plaintiff's plans. Mr. Earl never complained of his variations.

Re-examined: He and his foreman tested the view from the stand. He paid the plaintiff 15s. 6d. for the quantities.

His Honour: I have a very great dislike to this system of inviting tenders for a job when it is really settled that a certain builder is to do it. To waste other people's time and money in that way is too bad. It is like some country districts where they London take the trouble to reply when it has already been settled who is to occupy the post.

Mr. F. Thos. Wilberforce Goldsmith, A.R.I.B.A., said that he inspected the stand and the plans on July 21, and found that, as originally planned, all the persons who would have occupied it could not have got a view of the procession. The seats at the west end of the stand commanded a very poor view of the centre of the roadway, whilst at other parts no view could be obtained at all. The plans were very cleverly drawn and the specifications and drawings were very skillfully executed, but they failed to provide the chief object that such a stand would be erected for, namely, giving every occupant a view of the centre of the roadway along which the procession would have passed. With the aid of a model witness proceeded to show the line of vision, remarking that in one block the people could not have seen the King (if he had passed) unless he had been raised from the ground 11 ft. As to the question of gangways, he was convinced that it was necessary for so many a number of persons.

His Honour: People would not use the gangways if they were provided. They would climb over the seats if they could.

Cross-examined: If the builder did not do as the architect instructed, it was the duty of the latter to compel the builder by withholding his certificate, which was the only way of compelling a builder.

His Honour: But suppose the builder did not want a certificate, being haad in glove with the owner, as here?

Witness: Then he should withdraw from the job. His Honour: But supposing he wants his fees and does not want to withdraw?

Witness: He is going to the limit of his power in withholding a certificate.

Continuing: From the plaintiff's plans it was very evident that he did not take into account the width of the road in front of the stand.

Re-examined: The alterations were a decided improvement on the plans.

Dr. Evan Jones said he saw Mr. Earl on the stand and had a conversation with him about the seats at the east end. He said "I suppose these seats are worth 25. 6d. each." Upon which Mr. Earl put his hands up to his head and remarked, "I am worried to death; I have made a mistake." From the seats witness could only see the shops opposite.

Cross-examined: He had an interest in the stand at the time. He found 200l. of the money. The front of the tier he had referred to was cut down, and then he, sitting on one of the seats, could see the tops of the omnibuses. On a later date the plaintiff said he had not slept for a fortnight owing to the worry caused by his mistake.

Mr. George Hubbard, F.R.B.A. and F.S.A., of 85, Gresham-street, said he had prepared a plan on the basis of the plaintiff's plans and the ordinance

survey, which showed that it would have been an impossibility for anybody to have got a view of the procession from the upper tier at the east end, except the persons in the two lowest rows of seats.

Cross-examined: He had taken the level of the road itself. Taking the view as 5 ft. above the surface of the roadway, even then those in the third and other back rows could not have seen the procession. He had ascertained if the persons in the back rows could have seen the procession as it proceeded down Fleet-street, but certainly a few at the extreme east of the stand could have done so.

Mr. Fred Leach, foreman to Mr. Elkington, the builder, corroborated Mr. Elkington as to the alterations in the plans which were carried out after consultation with Mr. Earl, who was present every day. He never heard Mr. Earl complain of the alterations.

Mr. Thomas Brennan said he was in the employ of the defendant as a clerk in July. He remembered an interview between Mr. Earl and Mr. Pattenden, when the former asked if he could be of any assistance to the latter in his trouble with the seat-holders. Mr. Pattenden replied in the negative, and when, after making a request for a cheque, he was told that he had already been paid too much, Mr. Earl practically agreed to waive his claim.

This concluded the defendants' case. At the request of Mr. Warren the plaintiff was recalled, and emphatically denied that Dr. Jones ever called his attention to the absence of view from one of the tiers, or that he admitted to the doctor that he had made a mistake. He added that even after the evidence given that day he did not consider his plans were wrong.

His Honour, in giving judgment, said he could not help but feel a very large extent the decision to which he was forced to come to in that case. When he heard the evidence on the first day it struck him that having regard to the way in which the site was sold by the parson, and to the fact that the plans had been prepared three months before the office in London, in which Mr. Earl, who had no "spec," and the way in which Mr. Earl, who had no office in London, had been introduced, that he might not be an architect of great skill and repute, or that he was out of the running, as it were. But during his time at the Bar he (his Honour) had to deal with a great many builder's references and arbitrations, and knowing their ways the plaintiff's plans, the trouble, not only to look at the plaintiff's plans, but to read very carefully through the specifications, and to look at the drawings therein, and he had been forced to the conclusion that Mr. Earl was a gentleman who thoroughly understood his business, for the plans were well made, and the specifications were such as could only have been drawn by a competent architect. Having come to that conclusion in Mr. Earl's favour, he was, when he came to Court that day fully expecting to be able to find in his favour, and strongly too. Nor was he altogether impressed by two-thirds of the case made against him. It was true that he had made plans without any intersecting gangways, but every one knew that although a stand without gangways was not as convenient as one with, many persons upon it as possible, the fear of a panic being a very slight one, seeing that it was a mid-summer's day and the people would be on it only a few hours. Therefore he could not find any negligence on the plaintiff's part in not providing gangways. Another point made against the plaintiff was that in one block he provided for eight rows of seats, but only seven could be erected. That was because the builder was not satisfied with the distance allowed from back to back, and, therefore, in making that alteration the builder did it on his own authority, so that those points were in the plaintiff's favour. But when he came to hear the remainder of the plaintiff's case, it was clear that by some misfortune seats were provided in the second tier, and were so arranged that a view of the procession could not have been obtained by persons occupying them. That was a most serious defect in the plans, not merely because so many seats were lost by it, but because the seats were sold to persons in all parts of England, and if ever the persons had come of trouble and law suits, which would have very seriously diminished the value of the stand. On that point he not only had the evidence of professional gentlemen like Mr. Hubbard and Mr. Goldsmith, but of Dr. Jones, who was interested in the speculation, and actually tried the seats, and got the confession from Mr. Earl that he had made a mistake and was worried to death over it. Such evidence he could not disbelieve. But then there was the evidence of the builder and the builder's foreman, who, it was said, had made alterations in the plans of the architect and his witness, and in contempt of anything except under the orders and instructions of Mr. Earl, and that they had no word of remonstrance from him about spoiling his plans. If that evidence was true, and he could not reject it, it was clear that the architect tried to remedy his fault, but did not succeed. It was absurd to suppose that a builder would do all that had been done out of his own head and without the architect having made a mistake. The plaintiff must have made a mistake, and therefore the question was, How much less than 200 guineas were the plans worth in consequence of that?



mistake? He could not go into the number of seats that were of no use, for there were many points to be considered, seeing that the procession did not come off, and that the defendant returned money paid for seats, and therefore he thought the best thing he could do would be to say that the sum the plaintiff had received was sufficient. Therefore there must be judgment for the defendants on the claim. As to the counter-claim he would strike that out, but he would not go into the reasons for doing it.

Mr. Warren: I ask for costs on the counter-claim which has failed.

His Honour: No; I do not say for a moment that it has failed; but I think you have suffered enough and I have some feeling for your client in the matter. I am sorry for Mr. Earl, because I cannot understand how he came to make the unfortunate mistake, and I cannot hide the fact that he is an architect of very considerable merit.

Mr. Rose lanes: Does your Honour find that he is guilty of a breach of contract because we do not want him bringing an action for 5 per cent. of the profits?

His Honour: I do; breach of contract to provide you with plans that would make the stipulated number of seats.

Judgment was then entered for the defendants on the claim with costs, and the counter-claim was struck out by consent, which precludes further action upon it, and the case, which had occupied two whole days, was concluded.

## PATENTS OF THE WEEK.

### APPLICATIONS PUBLISHED.\*

1,352 of 1902.—H. D. BARLOW: *Lifts and the Like.*

This consists of means for giving an approximately simple harmonic motion between two points of the part hauled, consisting of a motor driving a crank through reducing gear in combination with gear for multiplying the travel of the crank pin, whereby starting and stopping takes place gradually, and overrunning is rendered impossible.

1,355 of 1902.—T. E. DEVONSHIRE: *Construction of Underground Conduits more especially intended for Use in Systems of Underground Electric Traction.*

An underground conduit formed in lengths each consisting of or comprising a cement, mortar, or concrete body part provided with flanges, or the equivalents, at the ends, and with perforated metal, or metal network, or "expanded metal" embedded in the said body part.

4,041 of 1902.—W. STEWART and W. E. FARRER: *Supporting Brackets for Cisterns, Shelves, Seats, and Similar Articles.*

A bracket with an adjustable top, which top may be adjusted to suit closet cisterns, shelves, or the like of varying widths.

4,042 of 1902.—W. STEWART and W. E. FARRER: *Automatic Flushing Tanks and Siphons.*

A flushing siphon or tank consisting of the dome and standpipe in one casting, with a pressure pipe passing down the inside of the standpipe to such a point as enables the whole of the contents of the tank or siphon-chamber to be discharged, and on the outside to a point regulated by the depth of water it is desired to withdraw from the tank or chamber into which the apparatus may be fixed.

7,156 of 1902.—J. A. KEMP: *Fastenings for Window-sashes and the Like.*

This consists in the combination with the laying rails upper and lower and a lower set of fastening members, comprising a solid block having a rib lying transversely of its slot and a spring tongue secured to the bottom of the slot at one side of the rib, said tongue being adapted to be bent over the rib and rearwardly of the slot thereabove, and having a latch shoulder, and a second block having a channel extending longitudinally thereto to receive the shoulder of the spring tongue, the bottom of the channel of the second block being slanted to engage and press the spring tongue rearwardly, whereby it may snap over the upper end of the second block.

7,230 of 1902.—G. LLOYD: *Means and Appliances for operating Flaps and Swing Doors, applicable to Refrigerating-rooms and Otherwise.*

An apparatus for operating flaps and swing doors, consisting of a bar the rotary movement of which imparts a simultaneous movement to the flap.

7,413 of 1902.—W. ILLINGWORTH: *Machine or Apparatus for Pressing Pottery Ware.*

A machine or apparatus for use in pressing pottery ware, comprising a rocking frame mounted in bearings on a fixed support.

7,541 of 1902.—J. H. PICKLES: *Bricks and Building Blocks.*

This invention relates to bricks for building purposes. A longitudinal tongue, rib, or projection is formed along the top of each brick and a corresponding rib or recess along the bottom, adapted to fit the rib or projection of the brick beneath. In walls of two or more bricks in thickness the "tie" or "cross" bricks are made with cross ribs and grooves.

\* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

7,804 of 1902.—A. E. GEEKIE: *Air Inlet Valves for Ventilating Purposes.*

This invention relates to the manufacture of self-acting air inlet valves for the ventilation of drains, sewers, and the like, also adaptable for the rooms of dwelling-houses and workrooms. To apply this valve for drain purposes a casing preferably of cast iron is formed, of tubular siphon shape, one end of socket or spigot to fit into the usual stand pipe; and at the other inverted end, a loose sealing of faced metal or other material is formed, upon which a disc valve of mica is fitted, oiled silk or other suitable material with a centre pin passing upward and downwards through and fixed to valve, and working centrally in guide holes or bridges.

7,880 of 1902.—H. J. MORTON (A. E. Murray): *Implement for Excavating Hard Earth, Soft Rock, and Such-Like.*

A implement for excavating hard earth, soft rock, or such-like, consisting of a stem preferably straight and with a wide flat cutting edge at one end thereof.

8,711 of 1902.—P. TOWNEND: *Saws or Blades for Sawing or Cutting Stone and the Like.*

This relates to the production of saws or blades for sawing or cutting stone or the like by the employment of a gritty or granulated substance in conjunction therewith for performing the abrasion. In carrying this invention into effect, blades or saws are produced with a series of dish or hollowed recesses along both of their flat sides, said recesses being of such shape as to leave said blades thicker towards their edges and thinner at about their middle parts with portions between such recesses straight, or approximately so, to fortify or strengthen the blades.

9,450 of 1902.—P. L. MCCLELLAND: *Means to be Employed in Connection with the Fixture of Knobs to their Spindles.*

This consists in the combination of the several parts constituting means of adjustably securing knobs to spindles, and comprising a spindle having a series of all-through holes, a knob having an all-through hole in its foot, an affixing pin adapted to be passed through coincident holes in the said knob foot and spindle, and a combined rose and keeper fitting having a solid or unpierced sleeve part adapted to be secured over the knob foot so as to prevent the affixing pin from rising out of its engaging position.

21,081 of 1902.—T. D. FALCONER: *Interlocking Transportable Hut or Building.*

A transportable building comprised of one or more units, each room being complete in itself, and having the adjacent edges of the sides protected by a metal junction, and the adjacent sections of the roof protected by the angle plates and provided with intervening water channels.

24,659 of 1902.—J. ROEBUCK: *Outlets for Sinks and the Like.*

Outlets for sinks and the like in which the periphery of the grating is embedded in the lead by casting.

25,550 of 1902.—E. BESELER: *Door Fasteners.*

A door fastener consisting of a hook and an engaging part, the length of which can be adjusted, and which can be fixed to the door-latch.

25,795 of 1902.—A. KULHNER: *Flushing Apparatus for Water-closets, Urinals, and the Like.*

This consists of a chamber arranged in the flushing-pipe; a double tilting bucket eccentrically pivoted to said chamber, the double bucket consisting of the chief bucket and a secondary bucket, the latter provided with a small opening at its bottom, a fixed counterweight adapted to return the double bucket to its normal position after tilting; a tooth adapted to engage a butt on the bucket when the chief bucket is alone filled with water, which tooth can be pushed aside by a momentary pressure upon an external spring-controlled push piece, button, or like device.

27,146 of 1902.—B. A. BRIGGS and F. MATCHAM: *Construction of Theatres and other Places of Public Resort.*

This relates to the construction of the circles galleries, and like parts of theatres and like places of public resort, and consists in combination, a bowed girder made concentric or substantially so with the front rail of the circle theatre part, and with tangential ends, and a plurality of radiating girders crossing the bowed girder and secured thereto, and forming therewith an inner and outer spoked framework, the outer end of the girders of which are adapted to rest all so as to be supported by the theatre side and back walls, and to support the whole theatre part, without being loaded, and the inner end of the crossing girders of which are adapted to carrying the circle front railing.

27,639 of 1902.—A. J. BOULT (The Denney Galvanic Paint Co.): *Antifouling Paint for Coating Vessels and other Objects.*

An antifouling paint consisting of mercury, tallow, ochre, linseed oil drier, and red lead.

28,664 of 1902.—A. K. LOVELL: *Window Operating Devices.*

This invention relates to window operating devices, and it consists in a novel arrangement and construction of mechanism whereby a long line of windows are simultaneously opened and closed with but a slight expenditure of power. It also consists

of operating rods adapted to be moved in opposite directions, collars adjustably mounted on said rods and swivelled links connecting said rods with the window sashes.

28,343 of 1902.—C. G. ARMSTRONG: *Process of Regulating Heating Systems and Apparatus therefor.*

The process of regulating heating systems, which consists in mixing a heating fluid and a displacing fluid, introducing this mixture into the heater, causing the displacing fluid to accumulate in such heater, and then withdrawing a portion of said displacing fluid when the temperature of the compartment to be heated falls below a predetermined point.

1,123 of 1903.—J. JACKSON: *Half Pipe Channel Junction.*

A half pipe channel junction, in which the main and junction channels are of different levels.

22,930 of 1901.—G. H. LLOYD: *Manufacture of Tanks and other Vessels.*

A system of constructing tanks and vessels from stamped unit plates.

4,479 of 1902.—T. BREAKELL: *Mortar and Muller for Grinding, Crushing, and Mixing Ores, Chemicals, and other Substances.*

A grinding or levigating machine comprising a rotary pan or mortar, a rotary pestle or muller eccentrically mounted therein, the diameter of the grinding surface of the muller being not less than half the diameter of the grinding surface of the pan, the muller being positively revolved and the mortar revolving by friction with the muller.

4,517 of 1902.—P. RUDOLPH and H. KASISKE: *Process for Preparing Wood or the Like for Painting or Ornamenting.*

A process for preparing wood or the like porous material for staining or painting purposes, consisting in cutting out the contours of the design on the wood or the like by means of a suitably-shaped instrument, inserting in the furrows thus formed a metal wire and then smoothing off the surface.

5,200 of 1902.—W. T. STAINTON: *The Application of Oxygen Gas for Ventilating Purposes.*

The ventilation of public and other buildings, ships, holds, mines, wells, and other confined places by the use of oxygen gas in conjunction with the existing ventilating apparatus, such as fan ducts, sprays, nozzles, water-troughs, and the like; also the warm-air chambers used in the heating and ventilating of buildings, &c., by adding a given quantity of the above gas according to circumstances to the air that is being introduced to the buildings, &c., after it (the air) has been screened and otherwise cleansed, the air and oxygen being admitted at the same pressures.

5,263 of 1902.—J. E. DOUGHTY: *A Portable Electric Light for Sanitary Engineers and others, for the Examination of Drains, Tubes, and Pipes.*

A portable electric light, consisting of an incandescent lamp attached to portable wires, for lighting up tubes, drains, chambers, and traps without the aid of lanterns, rods, or any mechanism. It may be worked off the house supply or from accumulators, by simply passing it into the mouth of the traps or chambers and flushing it down the drain to be surveyed or dropped down in the tube requiring an examination.

6,601 of 1902.—D. F. COOKSEY: *Bricks, Tiles, and Terra-cotta, and Apparatus for making the Same.*

A method of applying sand or other minute particles or matter to the surface of bricks and tiles, and other articles of clay terra-cotta, or other ceramic material, when in a plastic condition, by subjecting the surface to the action of a blast of air in which such substance is carried or conveyed.

6,770 of 1902.—T. W. TWYFORD: *Waste and Overflow Fittings for Baths, Lavatories, and Sinks, and the Like.*

A combination waste and overflow fitting for lavatories, baths, and the like, consisting of a hinged or jointed standpipe having an open or perforated upper end, and provided at the lower end with a valve ring or socketting foot, and a waste outlet or mouth or entrance socketted or having a seating corresponding to the valve ring of the standpipe, the said parts being so arranged that when the standpipe is in an erect or upright position with its valve foot taking into and closing the mouth of the waste outlet, the fitting serves as an overflow or standing waste; but when the said pipe is swung or turned over upon its joint the valve part is taken out of the said waste outlet, which is thereby closed.

7,742 of 1902.—T. FRANKS: *Beams and Girders for the Support of Ceilings.*

A closed, tubular girder or beam of triangular or trapezoidal cross section rolled or drawn in one piece.

8,902 of 1902.—J. MERRILL: *Urinals.*

A urinal with a channel wider than the backs which are carried on bridges.

27,125 of 1902.—J. W. FERGUSON and G. W. FERGUSON: *Brick or Briquette-making Machines.*

This consists of moulds and partitions forced from a press-box by a ram and pitman, said pitman being pivoted to a crank, said crank loose upon the main driving shaft and rotating with the said shaft, said



clutch having a circumferential groove around it in which engages a pin for the arm of which has a rounded part thereon, said arm being pivoted to a pillar, and a clutch lever having a vertical recess beneath the same and engaging the said rounded portion on the arm.

## MEETINGS.

## FRIDAY, MARCH 20.

*Architectural Association.*—Mr. W. H. White on "Ancient and Modern Town Houses." 7.30 p.m.  
*Institution of Mechanical Engineers.*—Mr. J. Rowan on "A Premium System Applied to Engineering Workshops." 8 p.m.  
*Birmingham Architectural Association.*—Mr. Harold Baker on "A Sketch of the History of English Architecture." 8 p.m.

## SATURDAY, MARCH 21.

*Royal Institution.*—Right Hon. Lord Rayleigh on "Light: its Origin and Nature." 11. 3 p.m.  
*Architectural Association.*—Fourth Spring Visit.

## MONDAY, MARCH 23.

*Society of Arts (Cantor Lectures).*—Prof. J. A. Fleming, M.A., D.Sc., F.R.S., on "Hertzian Wave Telegraphy in Theory and Practice."—IV. 8 p.m.  
*Surveyors' Institution.*—Mr. J. L. Crouch on "The Rating of Brickfields." 8 p.m.  
*Junior Institution of Engineers.*—Visit to the Dalton works of Messrs. Shannon, Ltd. 4.30 p.m.

## TUESDAY, MARCH 24.

*Royal Institution.*—Sir Robert Ball, M.A., F.R.S., on "Great Problems in Astronomy."—II. 3 p.m.  
*Manchester Society of Architects (Students' Meeting).*—Mr. J. H. Somerset on "Ancient Roman Construction." 8 p.m.  
*Institution of Civil Engineers.*—Mr. Amyas Morse on "The Protection Works of the Kaiser-i-Hind Bridge over the River Sutlej, near Ferozepur." 8 p.m.

## WEDNESDAY, MARCH 25.

*Society of Arts.*—Mr. Arthur Wilson on "Oil Light by Incandescence." 8 p.m.  
*Builders' Townsmen and Clerks of Works' Institution.*—Quarterly meeting of the Directors. 8 p.m.  
*Dover Institute.*—Mr. E. H. Montague on "Light-houses." Illustrated. 8 p.m.  
*Edinburgh Architectural Association.*—Mr. A. Hunter Crawford on "The Building of a House." Illustrated.—IV. 8 p.m.

## THURSDAY, MARCH 26.

*Lords and Yorkshire Architectural Society.*—(1) Mr. R. P. Oglesby on "Sir John Vanburgh, Dramatist and Architect." (2) Election of officers. (3) Exhibition of R.I.B.A. prize drawings. 6.30 p.m.  
*Institution of Electrical Engineers.*—(1) "Distribution of Electric Supply Systems," by Mr. A. D. C. Losses in Electric Supply Systems." (2) An abstract of a Paper by Mr. M. B. Field, "A Study of the Phenomenon of Resonance in Electric Circuits by the Aid of Oscillographs." (3) If time permit, "Divided Multiple Switchboards: an Efficient Telephone System for the World's Capitals," by Mr. W. Aitken. 8 p.m.

## FRIDAY, MARCH 27.

*Incorporated Association of Municipal and County Engineers.*—Meeting in London (Westminster Palace Hotel), Mr. J. Patten Barber to open a discussion on "Wooden Structures and the Powers of Metropolitan Borough Councils with respect thereto." 7.30 p.m.  
*Institution of Civil Engineers (Students' Meeting).*—Mr. J. C. Y. D. Morgan on "The Advantages of Motor-Driven Printing Machines." 8 p.m.  
*Institute of Sanitary Engineers, Ltd.*—Examination in Practical Sanitary Science.  
*Birmingham Architectural Association.*—Mr. C. Silk on "The B.A.A. excursion to Banbury," illustrated by Mr. T. Cooper, A.R.I.B.A., and Mr. J. Ward.

## SATURDAY, MARCH 28.

*Royal Institution.*—Lt. Hon. Lord Rayleigh on "Light: its Origin and Nature."—V. 3 p.m.  
*Institution of Sanitary Engineers, Ltd.*—Examination in Practical Sanitary Science.  
*Edinburgh Architectural Association.*—Visit to Darn Hall.

## SOME RECENT SALES OF PROPERTY:

## ESTATE EXCHANGE REPORT.

March 2.—By Dyer, Son, & Hulton (at Lee Green).  
Lee.—Old-rd., The Institute, with land in rear, f. p. .... £1,010  
374, 318, and 372, Summerfield-st., u.t. 66 yrs. g.t. 101. 108, w.r. 541. 128. .... 295  
March 4.—By W. HARRIS REES & SON (at North).  
Greig Trebanos, Glamorgan.—Tynypant Farm, 3 a. 3 r. 8 p., f. y.r. 381. .... 1,300  
Celly Trebanos, house and 4 a. 3 r. 37 p., f. y.r. 44. .... 300  
Freehold house and 2 a. 1 r. 10 p., y.r. 41. 108. .... 210  
Two freehold cottages and 0 a. 3 r. 7 p., y.r. 72. Banwen Meadow, 4 a. 1 r. y.r. 34. 108. .... 205  
(All the foregoing lots include mines and minerals.)  
Four freehold fields, 5 a. 0 r. 33 p., y.r. 42. Melnucrythan, Glamorgan.—53 and 54, Cahir-villas, f. y.r. 321. 108. .... 400  
March 6.—By Hussey & Son (at Exeter).  
Tipton St. John, Devon.—Lower Coombe Farm, 90 a. 0 r. 9 p., f. y.r. 321. 108. .... 2,600  
Various enclosures of land, 17 a. 3 r. 19 p., f. y.r. 41. .... 440  
Three freehold building sites, 13 a. 2 r. 18 p., f. y.r. 41. .... 612  
Two freehold cottages and orchard, 3 r. 10 p., March 7.—By John Wilson & Sons (at Horncastle).  
Tetford, Lincs.—A freehold estate, comprising 75 a. 1 r. 33 p., f. y.r. 618. .... 1,695  
March 9.—By Aldridge & Lysons.  
Camden Town.—118, 120, and 124, Bayham-st., y.r. 224. ; also i.g.r. 821. u.t. 24 yrs. g.t. 61. 58. .... 630

120 and 122, King's-rd., u.t. 20 yrs. g.t. 21, y.r. 801. .... £770  
114, King's-rd., u.t. 20 yrs. g.t. 11. 108, y.r. 114. .... 330  
3, Wilnot-pl., u.t. 20 yrs. g.t. 11. 108, y.r. 301. .... 410  
By BEARD & SON.  
Holborn.—6, Furnival-st., area 2,090 ft., f. y.r. 1401. .... 4,000  
Kilburn.—108, Canterbury-rd., u.t. 56 yrs. g.t. 61. 108, w.r. 551. 128. .... 355  
Gillingham, Kent.—29, Stafford-st., f. y.r. 321. .... 490  
By G. HEAD & CO.  
Edgeware-rd.—60, Bell-st., f. y.r. 351. .... 600  
St. John's Wood.—55, St. John's Wood-ter., u.t. 162 yrs. g.t. 41. 108, e.r. 551. .... 205  
By KEMBLEYS.  
Stepney.—328, Oxford-st., f. w.r. 631. 148. .... 700  
68, Bedford-st. (S), f. y.r. 401. .... 775  
70, 72, and 74, Bedford-st., f. w.r. 157. 68. .... 2,000  
63, Ben Jonson-rd. (S), u.t. 801 yrs. g.t. 74, y.r. 301. .... 330  
65 to 75 (odd), Ben Jonson-rd., u.t. 801 yrs. g.t. 301. .... 1,810  
g.t. 301, w.r. 2341. .... 1,430  
77, 79, and 81, Ben Jonson-rd. (S), u.t. 801 yrs. g.t. 221, y.r. 1181. .... 300  
Leytonstone.—239, Leytonstone-rd., u.t. 421 yrs. g.t. 101, y.r. 401. .... 450  
Camberwell.—180 and 182, Grosvenor-ter., u.t. 31 yrs. g.t. 51. 108, w.r. 101. .... 1,150  
Bromley-by-Low.—Hope-ter., a freehold building site, p. .... 1,315  
East Ham.—Roman-rd., a block of freehold building land, 11 a. 0 r. 5 p. .... 3,000  
By JONES, LANG, & CO.  
City of London.—5, Creechbuck-lane (warehouse), u.t. 191 yrs. g.t. 551, e.r. 4501. .... 1,500  
Cheapside and Paternoster-rd., u.t. 191 yrs. g.t. 551, e.r. 4501. .... 1,500  
Newgate-st. and Panyer-alley, building lease of corner site, area 1,200 ft., let at per annum. .... 970  
By WEATHERALL & CO.  
Twickenham-London-rd., with Dog p-h., and shop adjoining, f. with goodwill, p. .... 5,820  
Stanley-rd., the Nelson Inn, f. with goodwill, p. .... 7,020  
Enfield.—Bycullaburk, Ravenswood, f. y.r. 501. .... 575  
March 10.—By REYNOLDS & EASON.  
Streatham.—Palace-rd., S.C., corner block of building land, area 2 a. 2 r. 20 p., f. y.r. 301. .... 2,450  
Battersea.—34, Cabul-rd., u.t. 741 yrs. g.t. 301. .... 330  
By J. S. RICHARDSON.  
Willesden.—12, Connaught-rd., u.t. 741 yrs. g.t. 301. .... 420  
By ROGERS, CHAPMAN, & THOMAS.  
Spitalfields.—23, Fountain-st. (S), f. y.r. 1021. .... 1,950  
Pimlico.—70, Warwick-st., u.t. 801 yrs. g.t. 91. .... 440  
By F. STONEHURST.  
Bernardsey.—17 and 19, Maltby-st., f. w.r. 511. 108. .... 701  
Peckham.—Blake-rd., f. y.r. 1021. .... 310  
y.r. 1021, f.g. rents 301. 108, reversion in 43 yrs. .... 925  
Canterwell.—68 and 70, Talford-rd., f. y.r. 851. .... 1,400  
Brookley.—Breakspears-rd., f.g.r. 81, u.t. 73 yrs. g.t. 11. .... 165  
By FRED VANDER & SON.  
Camden Town.—25, Leybourne-rd. (S), u.t. 261 yrs. g.t. 71, y.r. 601. .... 475  
Finsbury Park.—18, Somersfield-rd., u.t. 64 yrs. g.t. 81, y.r. 481. .... 450  
By WESTON & SONS.  
Holloway.—14, Ashburnton-rd., u.t. 37 yrs. g.t. 37, 61, f. y.r. 371. 48. .... 220  
Brixton.—Grove-rd., Altona Lodge, u.t. 31 yrs. g.t. 41, e.r. 801. .... 550  
By E. BENNINGTON (at Church).  
Twickenham.—Sawconder-rd., Sandycroft Lodge, f. p. .... 865  
Isleworth.—St. Margaret's-rd., St. Cyres and St. Albans, f. e.r. 721. .... 925  
By HUSSEY & SON (at Watford).  
Bushey Heath, Herts.—The Rusts, The Retreat, and 1 a. 0 r. 2 p., f. y.r. 301. .... 830  
March 11.—By G. DEARD & CO.  
Partman-square.—8, Seymour-st., u.t. 15 yrs. g.t. 201, y.r. 1801. .... 1,500  
South Kensington.—7, Cathcart-rd., f. e.r. 651. .... 510  
Norwood.—73, 75, 79, 81, 83, and 85, Thornlaw-rd., f. y.r. 1941. .... 2,300  
29, 31, 35, 37, 39, and 45, Thornlaw-rd., u.t. 38 yrs. g.t. 51, 148, y.r. 851. .... 2,355  
Beulah Hill, Grecian Villa and 3 a. 2 r. 26 p., f. p. .... 8,000  
Beulah Hill, Meadow, orchard and garden land, area 11 a. 2 r. 9 p., f. p. .... 6,500  
Beulah Hill, f.g.r. 121. 108, reversion in 91 yrs. .... 800  
Grecian Cottages, f.g.r. 61. 58, reversion in 91 yrs. .... 700  
Crown Hill, Beulah Lodge, f. y.r. 301. .... 1,250  
178 and 180, Beulah-hill, f. y.r. 301. .... 1,600  
141, Beulah-hill, f. y.r. 1001. .... 700  
Balham.—27, Tunley-rd., u.t. 93 yrs. g.t. 101, e.r. 651. .... 775  
By GLASIER & SONS.  
Dulwich.—Abbey-rd., f.g.r. 501, u.t. 67 yrs. g.t. 11. .... 1,240  
Hammersmith.—The Gr., The Grove Tavern, f.g.r. 501, reversion in 64 yrs. .... 1,050  
Walworth.—231, Walworth-rd. (S), f. y.r. 301. .... 1,100  
By GRAVES & SONS.  
Westbourne Park.—11, Cornwall-rd., u.t. 56 yrs. g.t. 91, y.r. 521. 108. .... 450  
Battersea.—31 and 33, Surrey-lane, u.t. 791 yrs. g.t. 121, y.r. 761. .... 600  
Pimlico.—91, Tachbrook-st., u.t. 31 yrs. g.t. 571. 108. .... 425  
By MORETON RICHES.  
Tooting.—59 and 61, Trevelyan-rd., u.t. 90 yrs. g.t. 121, w.r. 618. .... 450  
Camberwell.—39, Parkhouse-st., area 11,200 ft., f. y.r. 771. 108. .... 1,100  
Battersea.—27, Severus-rd., u.t. 81 yrs. g.t. 81. 88, w.r. 651. .... 630

March 12.—By BEALE & CAPES.  
Shepherd's Bush.—45, Uxbridge-rd., u.t. 61 yrs. g.t. 71, e.r. 551. .... £530  
Notting Hill.—234, Ladbroke-gr., u.t. 67 yrs. g.t. 101, y.r. 801. .... 500  
Woodford.—Chelmsford, Chestnut Lodge, f. y.r. 451. .... 760  
By BISLEY & SONS.  
Walworth.—59, Barlow-st., u.t. 37 yrs. g.t. 51, w.r. 331. .... 230  
By FAREBROTHER, ELLIS & CO.  
Hornsey Rise.—West View, f.g.r. 121. 128, reversion in 731 yrs. .... 395  
Holloway.—Benwell-rd., f.g.r.'s 791, reversion in 301 yrs. .... 2,045  
Queensland-rd., f.g.r.'s 281. 88, reversion in 54 yrs. .... 720  
Streatham.—62, Streatham Hill, area 2 of an acre, u.t. 191 yrs. g.t. 251, y.r. 1001. .... 450  
Clapham.—65 and 67, Larkhall-lane (S), u.t. 21 yrs. g.t. 181. .... 750  
By MATTHEWS, MATTHEWS & GOODMAN.  
Tottenham.—2 to 18 (even), Avenida-rd., u.t. 35 yrs. g.t. 471. 108, w.r. 261. .... 1,575  
By C. C. & T. MOORE.  
Mile End.—25 and 26, Beaumont-sq., u.t. 25 yrs. g.t. 91. 08. 101. .... 670  
Clapton.—31, Rendlesham-rd., f. y.r. 311. .... 1,800  
31, Rendlesham-rd. (S), f. y.r. 751. .... 1,400  
117, Rendlesham-rd. (S), f. e.r. 361. .... 1,800  
Mile End.—47 and 49, Globe-rd., and 2, Follet's Bldgs., f. y.r. 871. 48. .... 935  
65, 68, and 70, Cleveland-st., u.t. 271 yrs. g.t. nil, w.r. 851. 168. .... 500  
7, Cephas-st., u.t. 271 yrs. g.t. 36. 38, y.r. 251. 48. .... 235  
Limehouse.—4, 6, and 8, Gill-st., f. y.r. 751. 48. .... 580  
Stoke Newington.—68, Manor-rd., u.t. 711 yrs. g.t. 91, y.r. 91. .... 335  
Plaistow.—89 to 97 (odd), Trinity-st., u.t. 62 yrs. g.t. 171. 108, w.r. 1241. 168. .... 570  
By W. STREVE.  
Hoxton.—49 and 50, Shaftesbury-st., u.t. 321 yrs. g.t. 311, y.r. 581. .... 215  
Islington.—127, Balls Pond-rd., f. w.r. 571. 48. .... 580  
Dalston.—9, Colvestone-rd., u.t. 33 yrs. g.t. 41. 48. .... 445  
By W. HALLITT & CO.  
Paddington.—30, Formosa-st., u.t. 631 yrs. g.t. 91. 08. 101. .... 580  
16, Blomfield-st., u.t. 391 yrs. g.t. 71. 78, e.r. 601. .... 430  
Holloway.—42, St. John's-villas, u.t. 72 yrs. g.t. 51. 59, y.r. 301. .... 450  
Peckham.—17, Muschamp-rd., u.t. 73 yrs. g.t. 51. 108, y.r. 321. .... 335  
By NEWSON, EARDS, & SWEET.  
Hackney.—67, Temple-st., f. y.r. 461. 168. .... 515  
Bethnal Green.—51, Moss-st. (Site), f. p. .... 455  
Dalston.—17, Middleton-rd., f. y.r. 321. .... 595  
63, Holly-st., u.t. 61 yrs. g.t. 91. .... 105  
Holloway.—51 and 53, Loraine-rd., f. e.r. 1001. .... 1,870  
11, Queensland-rd., u.t. 301 yrs. g.t. 61, y.r. 401. 68. .... 145  
60 and 62, Holloway-rd., f. y.r. 1201. .... 1,850  
13 and 15, St. John's-villas, u.t. 45 yrs. g.t. 131, y.r. 301. .... 740  
Hornsey Rise.—108 to and 12, u.t. 48 yrs. g.t. 101, y.r. 1101. .... 780  
Barnsbury.—Westbourne-rd., The Middlesex Tavern, f.g.r. 1041, u.t. 56 yrs. g.t. 661. .... 800  
49, Thornhill-cp., u.t. 421 yrs. g.t. 71, e.r. 501. .... 475  
88, Hemingford-rd., u.t. 391 yrs. g.t. 101, e.r. 301. .... 420  
Islington.—79, 77, and 74, Queen's Head-st., u.t. 321 yrs. g.t. 101. 108. .... 875  
Highgate.—30 and 32, Raydon-st., u.t. 612 yrs. g.t. 101. 108, g.t. 61. .... 470  
De Beauvoir Town.—56, Downham-rd., u.t. 74 yrs. g.t. 41. 108, e.r. 501. .... 405  
Muswell Hill.—Barnard Hill, Arundel House, f. y.r. 401. .... 675  
By STIMSON & SONS.  
Mile End.—24, Clinton-rd., f. y.r. 271. 68. .... 420  
Limehouse.—14 and 16, Regent-st., e.r. 661. .... 595  
Poplar.—30, India Dock-rd., u.t. 702 yrs. g.t. 61. 61, y.r. 331. .... 350  
10 and 62, Woolmore-st., f. w.r. 401. 68. .... 370  
Blackwall.—32 and 34, Coltharbour, f. w.r. 331. 168. .... 275  
Stratford.—60 to 74 (even), Barnby-st., u.t. 67 yrs. g.t. 281, w.r. 1661. 88. .... 980  
Walthamstow.—77, y.r. 181, y.r. 881. .... 650  
East Ham.—28 to 36 (even), Giltch-av., u.t. 96 yrs. g.t. 301, w.r. 1241. 108. .... 780  
New Cross.—10 and 12, Barborough-st. (S), u.t. 77 yrs. g.t. 101, w.r. 681. 188. .... 620  
Brockley.—13 and 15, Arabin-rd., u.t. 71 yrs. g.t. 101, y.r. 351. .... 560  
Kingston, Surrey.—3, East-rd., u.t. 76 yrs. g.t. nil, y.r. 241. .... 370  
1, 2, and 5, Acre-rd., u.t. 76 yrs. g.t. nil, w.r. 661. 68. .... 620  
Balham.—285 and 288, Balham High-rd., y.r. 1621; also i.g.r. 61. u.t. 52 yrs. g.t. 301. .... 1,770  
Deptford.—6, New King-st. (S), f. e.r. 301. .... 300  
Blackfriars.—78, Blackfriars-rd., with workshop and stabling, u.t. 23 yrs. g.t. 171, y.r. 1321. 108. .... 690  
Old Kent-rd.—17, Coopers-rd., u.t. 211 yrs. g.t. 31. 48, w.r. 361. 88. .... 125  
Stoke Newington.—41, Osbaldeston-rd., u.t. 751 yrs. g.t. 81. 88, e.r. 551. .... 580  
Kew, Surrey.—280, Kew-rd., u.t. 68 yrs. g.t. 401. 108, e.r. 1201. .... 1,410  
Bermundsey.—20, Riley-st. (S), f. w.r. 351. 28. .... 415  
Holloway.—49, St. John's-villas, f. e.r. 551. .... 960  
45, George-st., f. w.r. 191. 108. .... 150  
9 and 10, Hope-st., f. y.r. 351. 28. .... 500  
201, Holloway-rd. (S), u.t. 31 yrs. g.t. nil, y.r. 661. .... 1,040  
61 and 63, Parkhurst-rd., u.t. 28 yrs. g.t. 161, y.r. 961. .... 795  
14 and 15, W. H. Hallitt & Co. G. & Co. .... 665  
40 Hackney.—99, Lauriston-rd. (S), f. y.r. 301. .... 535



Stoke Newington.—64, King Henry's-walk (S.), u.t. 194 yrs. g.r. 82, y.r. 381.....	£255
By KERMS & PUCKRIDGE.	
Kenley, Surrey.—Hayes-ln., Sunnyside, and 1 a., f. 10, p. 10.....	1,450
Notting Hill.—4, Crescent-st. (S.), f. 1, y.r. 201.....	200
By TYLER & CO.	
Brompton.—South-ln., i.g.r. 401, u.t. 22 yrs. g.r. 124.....	415
By A. W. TYRRELL.	
Nately, Hants.—Newham-rd., an enclosure of freehold meadow land, 4 a. 1 r. 0 p.....	120

# PRICES CURRENT OF MATERIALS.

\* \* \* Our aim in this list is to give, as far as possible, the average prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.	
Hard Stocks ....	£ s. d.
Rough Stocks and Grizles.....	1 14 0 per 1,000 alongside, in river.
Grizles.....	12 0 0 "
Gravel Stocks.....	2 12 0 "
Shingles.....	2 0 0 "
Flettons.....	1 7 6 " at railway depôt
Red Wire Cuts.....	12 0 0 "
Best Firebricks.....	3 12 0 "
Best Firebricks.....	5 0 0 "
Ruabon Facing Best Blue Pressed Stourbridge.....	4 5 0 "
Do. Bulnose.....	4 11 0 "
Best Stourbridge Fire Bricks.....	4 8 0 "
GLAZED BRICKS.	
Best White and Ivory Glazed Stretchers.....	23 0 0 "
Headers.....	12 0 0 "
Quoins, Bullnose, and Flats.....	17 0 0 "
Double Stretchers.....	19 0 0 "
Double Headers.....	16 0 0 "
One Side and two Ends.....	19 0 0 "
Two Sides and one End.....	20 0 0 "
Squints.....	20 0 0 "
Best Dipped Salt Glazed Stretch- ers and Headers.....	12 0 0 "
Quoins, Bullnose, and Flats.....	14 0 0 "
Double Stretchers.....	15 0 0 "
Double Headers.....	14 0 0 "
One Side and two Ends.....	15 0 0 "
Two Sides and one End.....	15 0 0 "
Squints.....	14 0 0 "
Splays Chamfered, Second White and Dipped Salt Glazed.....	2 0 0 " less than best.
Thames and Pit Sand.....	7 0 per yard, delivered.
Thames Ballast.....	6 0 "
Best Portland Cement.....	30 0 per ton, delivered.
Best Ground Blue Lias Lime.....	21 0 "

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.  
Grey Stone Lime..... ros. 6d. per yard, delivered.  
Stourbridge Fire-clay in sacks 27s. 6d. per ton at rly. depôt.

STONE.	
Ancestor in blocks.....	1 11 per ft. cube, deld. rly. depôt.
Bath.....	1 7 "
Farleigh Down Bath.....	1 3 "
Beer in blocks.....	1 6 "
Grinshill.....	1 10 "
Brown Portland in blocks.....	2 2 "
Dartley Dale in blocks.....	2 4 "
Red Corshill.....	2 5 "
Cloeburn Red Freestone.....	2 0 "
Red Mansfield.....	2 4 "
YORK STONE.—Robin Hood Quality.	
Scappled random blocks.....	s. d.
6 in. sawn two sides land- ings to sizes (under 40 ft. super.).....	2 10 per ft. cube, deld. rly. depôt.
6 in. Rubbed two sides slabs (random sizes).....	3 6 " "
3 in. Sawn two sides slabs (random sizes).....	0 11 1/2 " "
2 in. to 2 1/2 in. Sawn two sides slabs (random sizes).....	0 7 1/2 " "
1 1/2 in. to 2 in. ditto, ditto.....	0 6 " "
Best HARTY YORK Scappled random blocks.....	3 0 per ft. cube
6 in. sawn two sides, landings to sizes (under 40 ft. sup.).....	2 8 per ft. super.
6 in. Rubbed two sides ditto.....	" "
3 in. sawn two sides slabs (random sizes).....	1 2 " "

## PRICES CURRENT (Continued).

STONE.	
2 in. self-faced random flags.....	0 5 per ft. super dld. rly. depôt.
Hopton Wood (Hard Bed) in blocks.....	2 3 per ft. cube.
" " 6 in. sawn both sides landings.....	deld. rly. depôt.
" " 3 in. do.....	1 2 1/2 " "
SLATES.	
in. in. ....	£ s. d.
20x12 " " " " " " " "	13 7 6 "
20x10 best seconds.....	12 15 0 "
20x12 " " " " " " " "	13 10 0 "
16x8 best blue Portma- doc.....	7 0 0 "
16x8 best blue Portmadoc.....	12 5 0 "
20x10 best blue Eureka un- facing green.....	15 0 0 "
20x12 " " " " " " " "	16 10 0 "
18x10 " " " " " " " "	11 10 0 "
16x8 " " " " " " " "	8 7 6 "
20x10 permanent green 10 x 12 " " " " " " " "	10 10 0 "
18x10 " " " " " " " "	9 0 0 "
16x8 " " " " " " " "	6 5 0 "

TILES.	
Best plain red roofing tiles.....	42 0 per 1,000, at rly. depôt.
Hip and valley tiles.....	3 7 per doz.
Best croseley tiles.....	50 0 per 1,000 " "
Do. Ornamental Tiles.....	52 6 " "
Hip and valley tiles.....	4 0 per doz. " "
Best Ruabon Red, brown or brindled Do. (Edwards).....	57 6 per 1,000 " "
Do. Ornamental Do. ....	60 0 per doz. " "
Hip tiles.....	3 0 " "
Valley tiles.....	3 0 " "
Best Red or Mottled "flat" fordale Do. (Peakes).....	51 9 per 1,000 " "
Do. Ornamental Do. ....	54 6 " "
Hip tiles.....	4 1 per doz. " "
Valley tiles.....	3 8 " "
Best "Rosemary" brand.....	" " " "
plain tiles.....	48 0 per 1,000 " "
Do. Ornamental Do. ....	50 0 " "
Hip tiles.....	4 0 per doz. " "
Valley tiles.....	3 8 " "

WOOD.	
Deals: best 2 in. by 12 in. and 4 in. by 9 in. and 11 in. ....	At per standard. £ s. d. £ s. d.
Deals: best 3 by 9.....	14 10 0 13 10 0
Battens: best 2 1/2 in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.....	11 10 0 12 10 0
Battens: best 2 1/2 by 6 and 3 by 6.....	7 10 0 8 10 0
Deals: seconds.....	10 0 11 0 0
Battens: seconds.....	9 0 10 0 0
2 in. by 4 in. and 2 in. by 6 in.....	9 0 9 10 0
2 in. by 4 1/2 in. and 2 in. by 5 1/2 in.....	8 10 0 9 10 0
Foreign Sawed Boards.....	10 0 10 0 more than battens.
2 in. ....	1 0 0 "
3 in. ....	1 0 0 "
4 in. ....	1 0 0 "
5 in. ....	1 0 0 "
6 in. ....	1 0 0 "
7 in. ....	1 0 0 "
8 in. ....	1 0 0 "
9 in. ....	1 0 0 "
10 in. ....	1 0 0 "
11 in. ....	1 0 0 "
12 in. ....	1 0 0 "
13 in. ....	1 0 0 "
14 in. ....	1 0 0 "
15 in. ....	1 0 0 "
16 in. ....	1 0 0 "
17 in. ....	1 0 0 "
18 in. ....	1 0 0 "
19 in. ....	1 0 0 "
20 in. ....	1 0 0 "
21 in. ....	1 0 0 "
22 in. ....	1 0 0 "
23 in. ....	1 0 0 "
24 in. ....	1 0 0 "
25 in. ....	1 0 0 "
26 in. ....	1 0 0 "
27 in. ....	1 0 0 "
28 in. ....	1 0 0 "
29 in. ....	1 0 0 "
30 in. ....	1 0 0 "
31 in. ....	1 0 0 "
32 in. ....	1 0 0 "
33 in. ....	1 0 0 "
34 in. ....	1 0 0 "
35 in. ....	1 0 0 "
36 in. ....	1 0 0 "
37 in. ....	1 0 0 "
38 in. ....	1 0 0 "
39 in. ....	1 0 0 "
40 in. ....	1 0 0 "
41 in. ....	1 0 0 "
42 in. ....	1 0 0 "
43 in. ....	1 0 0 "
44 in. ....	1 0 0 "
45 in. ....	1 0 0 "
46 in. ....	1 0 0 "
47 in. ....	1 0 0 "
48 in. ....	1 0 0 "
49 in. ....	1 0 0 "
50 in. ....	1 0 0 "
51 in. ....	1 0 0 "
52 in. ....	1 0 0 "
53 in. ....	1 0 0 "
54 in. ....	1 0 0 "
55 in. ....	1 0 0 "
56 in. ....	1 0 0 "
57 in. ....	1 0 0 "
58 in. ....	1 0 0 "
59 in. ....	1 0 0 "
60 in. ....	1 0 0 "
61 in. ....	1 0 0 "
62 in. ....	1 0 0 "
63 in. ....	1 0 0 "
64 in. ....	1 0 0 "
65 in. ....	1 0 0 "
66 in. ....	1 0 0 "
67 in. ....	1 0 0 "
68 in. ....	1 0 0 "
69 in. ....	1 0 0 "
70 in. ....	1 0 0 "
71 in. ....	1 0 0 "
72 in. ....	1 0 0 "
73 in. ....	1 0 0 "
74 in. ....	1 0 0 "
75 in. ....	1 0 0 "
76 in. ....	1 0 0 "
77 in. ....	1 0 0 "
78 in. ....	1 0 0 "
79 in. ....	1 0 0 "
80 in. ....	1 0 0 "
81 in. ....	1 0 0 "
82 in. ....	1 0 0 "
83 in. ....	1 0 0 "
84 in. ....	1 0 0 "
85 in. ....	1 0 0 "
86 in. ....	1 0 0 "
87 in. ....	1 0 0 "
88 in. ....	1 0 0 "
89 in. ....	1 0 0 "
90 in. ....	1 0 0 "
91 in. ....	1 0 0 "
92 in. ....	1 0 0 "
93 in. ....	1 0 0 "
94 in. ....	1 0 0 "
95 in. ....	1 0 0 "
96 in. ....	1 0 0 "
97 in. ....	1 0 0 "
98 in. ....	1 0 0 "
99 in. ....	1 0 0 "
100 in. ....	1 0 0 "

JOINERS' WOOD.	
White Sea: First yellow deals, 3 in. by 11 in. ....	23 0 0 24 0 0
" " 3 in. by 10 in. ....	21 0 0 22 0 0
Battens, 2 1/2 in. and 3 in. by 7 in.....	17 0 0 18 0 0
Second yellow deals, 3 in. by 11 in.....	18 0 0 19 0 0
" " 3 in. by 10 in.....	17 0 0 18 0 0
Battens, 2 1/2 in. and 3 in. by 7 in.....	13 10 0 14 10 0
Third yellow deals, 3 in. by 11 in. and 9 in. ....	15 10 0 16 10 0
Petersburg: first yellow deals, 3 in. by 11 in. ....	15 10 0 16 10 0
Do. 3 in. by 9 in. ....	13 0 0 14 0 0
Battens.....	13 10 0 14 0 0
Second yellow deals, 3 in. by 11 in. ....	16 0 0 17 0 0
Do. 3 in. by 9 in. ....	14 10 0 15 0 0
Battens.....	11 10 0 12 10 0
Third yellow deals, 3 in. by 11 in. ....	13 10 0 14 0 0
Do. 3 in. by 9 in. ....	13 0 0 14 0 0
Battens.....	10 0 0 11 0 0
White Sea and Petersburg.....	10 0 0 11 0 0
First white deals, 3 in. by 11 in.....	14 10 0 15 10 0
" " 3 in. by 9 in.....	13 10 0 14 10 0
Second white deals, 3 in. by 11 in.....	11 0 0 12 0 0
" " 3 in. by 9 in.....	12 10 0 13 10 0
" " battens.....	9 10 0 10 10 0
Pitch-pine deals.....	16 0 0 17 0 0
Under 2 in. thick extra.....	0 10 0 1 0 0
Yellow Pine—First, regular sizes.....	33 0 upwards.
Oddments.....	22 0 24 0 0
Second, regular sizes.....	24 0 26 0 0
Yellow Pine Oddments.....	0 10 0 1 0 0
Kauri Pine—Planks, per ft. cube.....	0 3 6 0 4 6
Danzig and Stettin Oak Logs— Large, per ft. cube.....	0 2 6 0 3 6
Small.....	0 2 3 0 3 6
Wainscot Oak Logs, per ft. cube.....	0 5 0 0 5 6
Dry Wainscot Oak, per ft. sup. as inch.....	0 7 0 0 8 0
2 in. do.....	0 6 1/2 0 7 1/2
Best Mahogany— Honduras, Tabasco, per ft. sup. as inch.....	0 0 9 0 11
Selected, Figury, per ft. sup. as inch.....	0 1 6 0 2 0
Dry Walnut, American, per ft. sup. as inch.....	0 10 0 10 0
Teak, per load.....	16 10 0 20 0 0
American Whitewood Planks— Per ft. cube.....	0 4 0 0 4 0

## PRICES CURRENT (Continued).

WOOD.	
Prepared Flooring— 1 in. by 7 in. yellow, planed and shot.....	£ s. d. £ s. d.
1 in. by 7 in. yellow, planed and matched.....	0 14 0 0 18 0
1 1/2 in. by 7 in. yellow, planed and matched.....	0 16 0 0 20 0
1 in. by 7 in. white, planed and shot.....	0 11 6 0 13 6
1 in. by 7 in. white, planed and matched.....	0 12 0 0 14 0
1 1/2 in. by 7 in. white, planed and matched.....	0 14 6 0 16 6
3/4 in. by 7 inch yellow matched and beaded or V-jointed boards.....	0 11 0 0 13 6
1 in. by 7 in. do. do. ....	0 14 0 0 18 0
1 1/2 in. by 7 in. do. do. ....	0 16 0 0 20 0
1 in. by 7 in. do. do. ....	0 11 6 0 13 6
1 1/2 in. by 7 in. do. do. ....	0 14 6 0 16 6
6-in. at 6d. to 9d. per square less than 7-in.	

JOISTS, GIRDERS, &c.	
In London, or delivered. Railway Vans, per ton.....	£ s. d. £ s. d.
Roller Steel Joists, ordinary sections.....	6 5 0 7 5 0
Compound Girders.....	8 2 6 9 5 0
Angles, Tees and Channels, ordi- nary sections.....	7 17 6 8 17 6
Fitch Plates.....	8 5 0 8 15 0
Cast Iron Columns and Stanchions, including ordinary patterns.....	7 2 6 8 5 6

METALS.	
Per ton, in London	£ s. d. £ s. d.
IRON— Common Bars.....	7 15 0 8 5 0
Staffordshire Crown Bars, good merchant quality.....	8 5 0 8 15 0
Staffordshire "Marked Bars".....	10 10 0 10 10 0
Mild Steel Bars.....	9 0 0 9 10 0
Hoop Iron, basis price.....	9 5 0 9 10 0
" galvanised.....	15 0 0 15 0 0
(* And upwards, according to size and gauge.)	
Sheet Iron, Black— Ordinary sizes to 20 g.....	10 0 0 10 0 0
" 20 to 24 g.....	11 0 0 11 0 0
" 24 to 26 g.....	12 10 0 12 10 0
Sheet Iron, Galvanised, flat, ordi- nary quality— Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.....	12 15 0 12 15 0
" 22 g. and 24 g.....	13 5 0 13 5 0
" 26 g.....	14 5 0 14 5 0
Sheet Iron, Galvanised, flat, best quality— Ordinary sizes to 20 g.....	16 0 0 16 0 0
" 22 g. and 24 g.....	16 10 0 16 10 0
" 26 g.....	18 0 0 18 0 0
Galvanised Corrugated Sheets— Ordinary sizes, 6 ft. to 8 ft. 20 g.....	12 15 0 12 15 0
" 22 g. and 24 g.....	13 5 0 13 5 0
" 26 g.....	14 5 0 14 5 0
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g.....	12 0 0 12 0 0
" and thicker.....	13 0 0 13 0 0
" 22 g. and 24 g.....	13 0 0 13 0 0
" 26 g.....	14 5 0 14 5 0
Cut nails, 3 in. to 6 in.....	9 5 0 9 15 0
(Under 1 in. usual trade extras.)	

LEAD, &c.	
Per ton, in London.	£ s. d. £ s. d.
* LEAD—Sheet, English, 3 lbs. & up. Pipe in coils.....	16 7 6 16 7 6
Soil pipe.....	16 17 6 16 17 6
Comp. Pipe.....	19 7 6 19 7 6
ZINC—Sheet— Vielles Montagne..... ton	27 2 6 27 2 6
Silesian.....	27 0 0 27 0 0
Copper— Strong Sheet..... per lb.	0 10 1/2 0 10 1/2
Thin.....	0 11 1/2 0 11 1/2
Copper nails.....	0 11 1/2 0 11 1/2
BRASS— Strong Sheet.....	0 10 0 0 10 0
Thin.....	0 11 0 0 11 0
Tin—English Ingots.....	0 1 5 0 1 5
SOLDER—Plumbers'.....	0 6 1/2 0 6 1/2
Tinmen's.....	0 8 1/2 0 8 1/2
Blowpipe.....	0 0 1/2 0 0 1/2

\* Our quotation for sheet lead last week should have been £16 5s. The correction reached us too late for insertion.

ENGLISH SHEET GLASS IN CRATES.	
15 oz. thirds.....	2 1/2d. per ft. delivered.
" fourths.....	1 1/2d. "
21 oz. thirds.....	3 1/2d. "
" fourths.....	2 1/2d. "
26 oz. thirds.....	4 1/2d. "
" fourths.....	3 1/2d. "
32 oz. thirds.....	5 1/2d. "
" fourths.....	4 1/2d. "
Fluted sheet, 15 oz.....	3 1/2d. "
" 21 oz.....	4 1/2d. "
1/2 Hartley's Rolled Plate.....	1 1/2d. "
3/4 " " " " " " " " " "	2 1/2d. "
1 " " " " " " " " " "	2 1/2d. "

OILS, &c.	
Raw Linseed Oil in pipes or barrels.....	per gallon 0 2 3
" " " in drums.....	0 2 7
Boiled " " in pipes or barrels.....	0 2 5
" " " in drums.....	0 2 9
Turpentine, in barrels.....	0 3 8
Genuine Ground English White Lead.....	per ton 21 10 0
Red Lead, Dry.....	20 0 0
Best Linseed Oil Putty.....	per cwt. 0 8 0
Stockholm Tar.....	per barrel 1 12 0

[See also page 323.]



## CONTRACTS AND PUBLIC APPOINTMENTS.

(For some Contracts, &amp;c., still open, but not included in this List, see previous issues.)

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c., supplied by	Tenders to be delivered
Additions to Schools	Alva (N.B.) School Board	Kerr & McCulloch, Architects, 30, Mar-street, Allos.	Mar. 24
Rebuilding the Star Inn, North Burton	Trustees of the late Mr. Kirk	D. Petch, Architect, Huntriss-row, Scarborough	do.
Warehouse, Strathmill Distillery, Keith		C. C. Dalg, Architect, Elgin	do.
Shelters on Esplanade	New Hunsanton U.D.C.	G. C. Dalg, Architect, King-street, King's Lynn	do.
Additions to Cattle Market, Wombold-road	Guldford Town Council	C. G. Mason, Civil Engineer, Tins Gate, Guldford	do.
Additions to Homes, Taylor-street, Chatham		J. Ewing, Sea House, Chatham	do.
Granite Road Metal (350 tons)	Gretton R.D.C.	Engineer to the Council, Liphicham	do.
Granite Road Metal (350 tons)	Uppicham R.D.C.	do.	do.
Refining Mill, London-road	Manchester Corporation	City Surveyor, Town Hall, Manchester	do.
Additions to Hospital, Pattilloff, Lancs.	Barton-upon-Irwell Guardians	T. Worthington & Co., Architects, Union Offices, Parliam.	do.
Farmhouse, Cromcombe, Taunton	Mr. Thos. Starkey	G. C. Strawbridge, Architects, 25, Alma-street, Taunton	do.
Reconstructing Clayton-lane Bridge	Manchester Corporation	City Surveyor, Town Hall, Manchester	do.
Surveyor's Materials, &c.	Brownhill (Staffs) U.D.C.	W. B. Chancellor, Surveyor, Public Buildings, Brownhill	do.
Water supply Works, &c.	Witham (Essex) U.D.C.	F. S. Courtney, Civil Engineer, 25, Victoria-street, S.W.	do.
Roadmaking & Paving Ladsyouth, Crellion, &c. Road	Willesden District Council	Engineer to the Council, Public Offices, Dyno-road, Kilburn, N.W.	do.
Chapel, School, &c., Dulock		Rev. G. Gill, Wantage	Mar. 25
Alterations, St. Joseph's School, Cockermouth		J. Howes, Architect, Workington	do.
Convent, Brownhill, Birstall, Yorks		Holton & Fox, Architects, Corporation-street, Dewsbury	do.
Cart Shed, Harris-street, Stait	Bradford Corporation	City Architect, Whitaker-buildings, Brewery-street, Bradford	do.
Emergency Stables at Workhouse	Lancaster Guardians	J. Parkinson, Architect, 67, Church-street, Lancaster	do.
Four Cottages, Golgothar-st.	Mr. R. Wad	do.	do.
Execution of Works and Supply of Materials	Holborn Borough Council	Town Clerk, 197, High Holborn, W.C.	do.
Broken Granite (1275 tons)	Thames (Oxon) U.D.C.	H. Howland, Surveyor, 17, Chinnor-road, Thame	do.
Covering in the Market House, Warrminster		Holton & Fox, Architects, Dewsbury	do.
Bacteria Filters at Sewage Works	Milrow U.D.C.	The Surveyor, Logistical Esat - Office, Warrminster	do.
Three Cottages, Houghton, near Winchester	Trustees of St. John's Hospital	T. Trophor, Surveyor, 57, High-street, Haywood	do.
House, Bell-street, Southdown, near Halifax		E. Taylor, Architect, 15, Church-street, Halifax	Mar. 26
Six Houses, &c., Houghton, near H. B. Hall		J. Kirk & Sons, Architects, Dublin	do.
Post Office, Clones, Co. Monaghan	Board of Works, Dublin	E. G. Mawbey, Civil Engineer, Town Hall, Leicester	do.
Pumping Station at Sewage Works	Leicester Corporation	Walsh & Nicholas, Architects, The College, Durham	do.
Additions to St. Martin's Church, Brighouse	Cheshunt U.D.C.	C. H. Fowler, Architect, 25, Victoria-street, Belfast	do.
Sewage Works, &c.	Camelford R.D.C.	City Surveyor, Town Hall, Chester	do.
Lavatories in Public Market	Chester Corporation	Grime-Watt & Tulloch, 7A, Victoria-street, Belfast	do.
Alterations to Kitchen, New Service Room, &c., Asylum	Down District Lunatic Asylum	Borough Engineer, Town Hall, Leicester	do.
Sewage Pumping Station, &c.	Cpn. Leicester Sewage Wks. &c. Com.	Nicholas, Architects, Museum Chambers, Halifax	Mar. 27
House and Stabling, Shelf, Yorks	Sunderland Corporation	J. P. C. Snell, Civil Engineer, Town Hall, Sunderland	do.
Cables and Stoneware Castings	Birkenhead Corporation	H. Hartley, Architect, 8, Harrington-street, Liverpool	Mar. 28
Rebuilding Part of Tower, Town Hall		L. Coates, Architect, Waterhouse-street, Halifax	do.
House and Stabling, Buckfold, Petworth, Sussex	Gateshead Corporation	J. Bower, Civil Engineer, Town Hall, Gateshead	do.
Additions to Sbroge's Wire Works, Halifax		C. F. L. Horsall & Sons, Architects, Halifax	do.
Surveyor's Materials (One Year)	Canterbury Town Council	W. V. Gough, Architect, 24, Bridge-street, Bristol	Mar. 30
Villa, Victoria road, Elland, Yorks	Bristol School Board	H. J. Jones & Sons, Architects, Bridge-street, Bristol	do.
Screens, &c., at Municipal Offices, Guildhall	Mr. B. H. Morris	C. M. Davies, Architect, 112, High-street, Merthyr	do.
School Works, Windmill Hill, Bodminster	Halifax School Board	W. C. Williams, Architect, 29, Southgate, Halifax	do.
Rebuilding 51, High-street, Merthyr	Cannockwell Borough Council	Cannockwell Engineer, Town Hall, Cannockwell, S.E.	do.
Additions to Schools, Parkins in Lane	Barnsley Town Council	Borough Accountant, Barnsley	do.
Heating and Ventilating Apparatus, Harvey Institute	East Cowes U.D.C.	W. Brown, Engineer, 706, High-street, N.	do.
Well-sinking Works	Steyning West R.D.C.	F. Slaghter, Engineer, West-street, New Shoreham	do.
Main Laying (10,000 yards)		do.	do.
Two Steel Bridges, &c.	Carliff Railway Co.	G. N. Abernethy, Architect, 4, Delahay-street, S.W.	do.
Sewers, &c.	Sewthicks U.D.C.	S. Towson, Civil Engineer, Sevenoaks	do.
Street Works, Lime-street	Smethwick Corporation	C. J. Fox Allen, Borough Surveyor, Town Hall, Smethwick	Mar. 31
Electrical Apparatus	Brigflint U.D.C.	T. J. Hughes, Council Offices, Bridgford	do.
Rebuilding, &c., Fulwell-street, &c.	Dartford U.D.C.	W. Harston, Civil Engineer, 8, Fycho-street, Dartford	do.
Maltings, Altwick, Northumberland	Messrs. J. P. Simpson & Co.	Drewell & Bally, Architects, 44, Parliament-street, Nottingham	do.
Main Sewerage Works, Wyke Regis	Weymouth R.D.C.	Lemon & Blizard, Castle-lane, Southampton	do.
Boundary Wall and Governor House, &c.	Sheffield United Gas Light Co.	Company's Engineer, Commercial-street, Sheffield	April 1
Erection of Postal Stores Building, Ilstington	Commissioners of H.M. Works, &c.	H.M. Offices of Works, Storey's Gate, S.W.	do.
Constructing Area to Infirmary, Hoxton-street, N.	Hampstead Borough Council	O. E. Winter, Town Hall, Haverstock Hill, N.W.	April 2
Wood Paving Works	Ealing Borough Council	Council's Engineer, Town Hall, Ealing, W.	do.
Erection of Boundary Wall at Cemetery	Hampstead Borough Council	Council's Engineer, Town Hall, Haverstock Hill	do.
Making and Completing Roads at Infirmary, Highgate	Islington Guardians	V. Smith, Esq., Chancery-lane, W.C.	do.
Overseer's Convenience, Vauxhall Park	Lambeth Borough Council	Council's Engineer, Lambeth Town Hall, Kennington Green S.E.	April 3
Infant Bridge Reconstruction	Essex County Council	Chief Surveyor, County Offices, Chelmsford	do.
Barking Bridge Reconstruction		do.	do.
Road Works, Boxton-road, &c.	Clancor (Essex)	W. Stair, 14, The Parade, Chingford	April 4
Sewerage and Drainage Works, &c.	Paddington Borough Council	Council's Surveyor, Town Hall, Paddington, W.	do.
Supply and Delivery of Filtering Material	Tynemouth Corporation	J. Mansergh & Sons, 5, Victoria-street, S.W.	April 6
Road Making and Paving Works	Hornsey U.D.C.	Council's Engineer, 93, Southwood-lane, H. H. Gate, N.	April 7
Isolation Hospital	Hampson U.D.C.	Council's Surveyor, Council Offices, Hampton, Middlesex	do.
Two Blocks of Workmen's Dwellings	Stepney Borough Council	Council's Engineer, 15, Great Alie-street, Whitechapel, E.	do.
Excavation, Making Road, &c., Brentwood	Metropolitan Asylums Board	H. E. Milner & Sons, 25, Victoria-street, S.W.	April 8
Temporary Shed for Motor Ambulance Vagon		Newman & Newman, 31, Teoloy street, N.E.	do.
House for Female Attendants, Levensham	Colwyn Bay U.D.C.	W. Jones, Civil Engineer, Colwyn Bay, N.W.	April 9
Public Offices and Fire Station	Aldershot U.D.C.	C. E. T. Hine & Co., 35, Parliament-street, S.W.	April 10
Superstructure of New Infirmary Annex, Macledale	Chester County Asylum	H. Bewick, County Architect, Negvato-street, Chester	April 18
Convent, Chapel	Stanwell Parish Council	W. Ralph Low, Clarence-street, Victoria Embankment, W.C.	No date
School Furniture, &c.	Dunfermlie Town Council	W. A. Carter, Civil Engineer, 5, St. Andrew-square, Edinburgh	do.
Sewerage Works, &c.	Bacup (Lancs) Corporation	A. B. Clarke, Town Hall, Bacup	do.
Surveyor's Materials, &c.		J. Davidson, Architect, Academy-street, Grathbridge	do.
Cottage, Bothwell Park, Bellshill, N.B.		C. T. Smith, Architect, 11, John-street, Skipton	do.
Stabling at Hotel, Threshfield, near Skipton		W. C. Hardisty, Architect, 5, John-street, Manchester	do.
Hospital, Manchester		Messrs. Oliver-Partington, Ltd., Turn Lee Mills, Glossop	do.
Four-story Building, Glossop		Broadley & Co., Architects, Hull	do.
Offices, Parliament-street, Hull		J. M. Dossor, Architect, Manor-street, Hull	do.
Five Houses, Anlaby-road, Hull	Mr. W. M. Hopper	do.	do.
Business Premises, Alfred-street, Hull	do.	do.	do.
Business Premises, Brook-street, Hull	do.	do.	do.
Three Shops, Kegworth, Leicester	Turner & Drinkwater	E. R. Ridgway, Architect, Long Eaton, Nottingham	do.
	Long Eaton Wag. Men's Co-op. Soc.		do.

[See also next page.]



## PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
Temporary Assistant in Engineer's Office (Water Dept.)	Tottenham, U.D.C.	2l. 3s. per week	Mar. 27
President of Engineer's Office	Tottenham, U.D.C.	7l. 18s. p. week	Mar. 30
Chief of Works	Tottenham, U.D.C.	11l. p. week	do.
Building Inspector and Chief of Works	Acton District Council	170l.	Mar. 31

Those marked with an asterisk (\*) are advertised in this Number.

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Public Appointments, xvi.

## PRICES CURRENT (Continued).

## VARNISHES, &amp;c.

	Per gallon.
£ s. d.	
Fine Pale Oak Varnish	0 10 0
Fine Copal Oil	0 10 0
Superfine Pale Elastic Oak	0 12 6
Best Black Japan	0 10 0
Superfine Hard-drying Oak, for Seats of Churches	0 14 0
Fine Elastic Carriage	0 14 6
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 16 0
Fine Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flattening Varnish	0 18 0
White Copal Enamel	1 4 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 0
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 0
Berlin Black	0 16 0
Knotting	0 12 0
French and Brush Polish	0 10 0

## TO CORRESPONDENTS.

S. & C. M. & C. R. & S. (Amounts should have been stated.) A. G. D. (Below our limit).

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and giving addresses.

Any communication to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR, those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

## TENDERS.

[Communications for insertion under this heading should be addressed to THE EDITOR, and must reach us not later than 10 a.m. on Thursday. N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the acceptance of the Tender is given, nor any list in which the lowest Tender is underfoot, unless in some exceptional cases and for special reasons.]

\* Denotes accepted. † Denotes provisionally accepted.

ATRESFORD (Hants).—For the erection of a house, Town House Estate. Mr. H. Volland Boreham, architect, 75, Finsbury-pavement, E.C. 2.  
Jenkins & Sons, £380  
McWilliam & Son, £383  
Eddolls, £390  
W. Harris, £390  
H. Avery, Winchester, £390  
A. A. Gale, £390

BARNARD CASTLE.—For the erection of a warehouse for the Barnard Castle Co-operative Society, Ltd. Messrs. Pepp & Farrow, architects, 7, Market-place, Barnard Castle. Quantities by architects:—  
D. H. Hall, £543 14 3  
R. Wilson, £359 8 0  
C. Martin, £518 8 0  
G. Scott, Bar, £390  
G. Robison, £390

BRENTWOOD.—For the erection of a country house, Warrin-road, Shenfield. Mr. Hugo R. Bird, architect, High-street, Brentwood:—  
Dix & Rogers, £735  
Burtwell & Jarvis, 715

BRISTOL.—For the erection of a new shop and premises on the new Clifton Estate, Redland, for the Bristol Alliance. Mr. Thomas Scammell, architect, 1, St. Stephen-street, Bristol:—  
W. Church, £3,075  
Perkins & Son, £2,800  
Denby & Co., £3,033  
A. J. Beavan, £2,743  
C. Humphries, £2,927  
E. Love, £2,724  
A. Dowling, £2,833  
Wilkins & Gosling, £2,551  
Jones & Hill, £2,830  
T. R. Lewis, £2,606  
[All of Bristol.]

CROYDON.—For rebuilding shop premises, No. 11, 11A, 11B, and 13, George-street. Mr. A. Broad, architect, 22, George-street, Croydon. Quantities by the architect:—  
W. Potter, £3,310  
Smith & Sons, £4,853  
D. W. Barker, £2,230  
Lascelles & Co., £4,796  
Dawson & Son, £4,287  
B. E. Nightingale, £4,790  
Hanscomb & Smith, £4,925  
R. J. Saunders, £4,694  
Bulled & Co., £4,915  
Akers & Co., £4,655  
Bartley, Sons, & Holness, £4,879  
Lorden & Son, £4,388

HANDSWORTH (Staffs).—For sinking a well, &c., Hestock-road, and Grove-lane, for the Urban District Council:—  
W. Barrick, £2,014 10 0  
J. North, £753 10 0  
Isler & Co., £70 0 0  
Timmins & Sons, £100 0 0  
Mathews & Co., £85 3 6  
Ltd., Run-corn, £739 12 6  
J. Thom, £15 10 0

HIGHAM FERRERS (Northants).—For the erection of a villa residence, Kimbolton-road, Higham Ferrers, for Mr. Frank Walker. Mr. Geo. Hall, architect, Higham Ferrers:—  
Machine Joinery Wks., £399  
Rushden, £455  
John Titmus, Finedon, 335  
Josiah Ireson, 435

HOVE (Sussex).—For the erection of boundary walls, &c., Sackville-road, for the Corporation. Mr. H. H. Scott, Borough Surveyor, Town Hall, Hove:—  
Brown & Son, Brighton, £3,797

LEICESTER.—For Coalwells Waterworks (Contract No. 7). Mr. J. B. Everard, M.Inst.C.E., Leicester:—  
T. Herbert, £2,220 0 0  
W. Moss, £2,986 0 0  
Herbert & Sons, £2,17 8 0  
E. Orton, Coal-vill, £2,938 0 0  
F. Elliott, £3,185 0 0  
Griffin Bros., £3,075 14 4

LONDON.—For works to the Union Brewery, Wandsworth, S.W., for the Holsten Brewery Co., Ltd. Mr. C. Botterill, architect and surveyor, 58, Fulham-road, Walham Green, S.W.:—  
Cleansing, Repairs, and Decorations to Offices.  
Wood & Son, £58 8 6  
McArthur & Co., £79 10 0  
W. T. Humphrey, 98 0 0

Painting and Repairs to Residences and Premises.  
S. S. Witton, £397 14 10  
W. J. Grant, £255 0 0  
J. Knight, £350 0 0  
McArthur & Co., £253 10 0  
W. T. Humphrey, 335 0 0

Paving and Drainage.  
Neave & Son, £683  
Mowlem & Co., £665  
Wimpey & Co., 675  
Nowell & Co., 631

LONDON.—For the erection of new chimney-shaft and engine-house, and alteration to boiler-house, &c., at Kensington Workhouse, Marlow-road, Kensington, for the Guardians of the Poor of the Parish of St. Mary Abbots. Mr. Ernest Flint, architect, 80, Coleman-street, E.C. Quantities by Mr. V. A. Edlin, 80, Coleman-street, E.C. 2:—  
Nail & Co., £4,300  
Chambers Bros., £2,052 0  
Fraser & Sons, £2,230  
Thos. Robinson, £2,025 0  
Windsor & Co., £2,230  
Gray & Co., £1,980 0  
Chas. Ansell, £2,167 0  
J. O. Richardson, £1,969 0  
Deering & Son, £2,135 0  
T. Pearce, £1,966 0  
Jarvis & Sons, £2,130  
Wallis & Co., £1,899 0  
Wm. Webber, £2,130  
Foster Bros., £1,875 0  
W. J. Renshaw, £2,065 0  
Chas. R. Price, £1,857 0

LONDON.—For erection of factory premises at 57, Glengall-road, Peckham, S.E. Mr. C. Collas Robin, architect, 203, Strand, W.C.:—  
Josselyn & Young, £2,687  
J. Anley, £2,440  
Lancaster, £2,685  
Lascelles & Co., £2,440  
Shurmer & Sons, £2,619  
G. Packer, £2,334  
H. L. Holloway, £2,515  
W. Nash, New Cross, £2,278  
Shettfield Bros., £2,497

LONDON.—For constructing an underground convenience in Blomfield-street at the Junction with Liverpool-street, for the Corporation:—  
Finch & Co., £1,618

LONDON.—For the supply and fixing of gas-holders after fitting and for repairs at the Westminster gas-meter testing office, for the London County Council:—  
Glover & Co., Ltd., £2,451  
Parkinson and W. Sugg & Co., Ltd., £1,895  
B. Cowan, Ltd., £1,575

LONDON.—For electric battery at the electricity-meter testing station, 42, Cranbourne-street, for the London County Council:—  
Chloride Electrical Storage Co., Ltd., £513 0  
D. P. Battery Co., Ltd., £439 0  
Tudor Accumulator Co., Ltd., £372 0  
Electrical Power Storage Co., Ltd., £307 14  
Hart Accumulator Co., Ltd., £307 9  
Pritchett & Gold, Ltd., £242 0

SWANSEA.—New police and fire-brigade station, for the Corporation. Mr. George Bell, Borough Surveyor. Quantities by Mr. C. H. Rogers, 33, Glamorgan-crescent, Swansea:—  
John Williams, £7,765

TROWBRIDGE (Wilts).—For the erection of Trowbridge and District Joint Isolation Hospital (for thirty patients), for the Hospital Committee. Mr. J. Hugh Goodman, architect, Town Hall Chambers, Reading. Quantities by Messrs. Henry Cooper & Sons, Surveyors, Reading:—  
Extra for plastering walls of pavilions, &c.

	£ s. d.	£ s. d.
Wilkins & Sons	10 43 4	6
Wort & Way	9 13 14	1
Chancellor & Sons	9 4 0	0
Henry Ash	9 4 0	0
W. J. Bloxham	9 14 6	11
Wills & Sons	9 14 0	0
Pittard & Son	9 15 10	0
J. & M. Patrick	9 15 0	0
Jenkins & Sons, Ltd.	9 17 0	0
Wakeham Bros.	9 17 0	0
Fincher & Co.	9 17 4	7
Butcher & Son	9 17 17	0
E. C. Hughes	9 17 0	0
H. Hoskings	9 17 0	0
Hayward & Wooster	9 17 0	0
McCarthy & Fitt	9 17 0	0
Jacob Long & Sons	9 17 0	0
A. J. Colborn	9 17 11	0
E. Linzey	9 17 2	0
Stephens, Bastow, & Co., Ltd.	9 17 0	0
G. Moore, Trowbridge	9 17 0	0

TWICKENHAM.—For laying out Marble Hill, for the London County Council:—  
J. East, £495 0 0  
Horton & Son, £48 0 0  
C. Light, £44 0 0  
E. C. White, £40 0 0  
S. & S. Agate, £473 17 6  
Turner & Son, £470 0 0  
Murray Marshall, £450 0 0

WALTHAMSTOW.—For additions and alterations to the Casual public-house, Eden-road, Walthamstow:—  
Geo. B. Jerram, architect, Hoe-street, Walthamstow:—  
Amey, £680  
J. A. Read, £536 0  
Fuller & Son, £670  
Castle & Son, £590  
Stewart, £600  
Crisp, £490  
Bruce, £604  
Fairhead, £411 5  
Slatter, £596 10

WILLESDEN.—For the erection of dyeing and cleaning works, for Mr. J. Todd, of Westbourne Park. Mr. F. P. Shaw, architect and surveyor, Harlesden:—  
Goodman & Sons, £2,458  
G. Robinson, Holloway, £269  
Parish & Co., £269  
C. Simmons, £203  
J. Sharp (withdrawn), £1,870

LONDON SCHOOL BOARD TENDERS.  
At the last meeting of the London School Board the Works Committee submitted the following lists of tenders. Mr. T. J. Bailey is the Board's Architect:—  
\* Recommended for acceptance.

BROADWATER-ROAD.—Accommodation: Boys, 120; girls, 306; infants, 38; total, 464. Graded school on three stories. Halls: Boys, 10 ft. by 26 ft.; girls, 50 ft. by 26 ft.; infants, 50 ft. by 26 ft. Classrooms: Boys, 56, 56, 56, 48, 48; girls, 56, 56, 50, 48, 48; infants, 56, 56, 50, 48, 48. Drawing classroom and science room, about 1,000 sq. ft. area. Special school—three classrooms of 20 each; total, 60. Heating by low-pressure hot-water apparatus in main school, and open fire in special school. Schoolkeeper's house:—  
Leslie & Co., Ltd., £25,176  
Stimpson & Co., £22,309  
Holloway Brothers, £22,276  
Ltd., London, £21,658  
W. Downes, £21,807  
Smith & Son, £21,634  
Garrett & Son, £21,705  
Lawrence & Sons, £21,937  
P. & H. F. Higgs, £21,497  
Wallis & Sons, £21,834  
Latney Bros., £21,404  
King & Son, £22,870  
Johnson & Co., £21,918  
Ltd., £21,351  
Marland & Sons, £21,351  
[See also next page.]



**Write for Catalogue "Section 30" Post Free**



# The Builder.

VOL. LXXXIV.—No. 339.

MARCH 28, 1903.

## ILLUSTRATIONS.

Some Exhibits at the "Arts and Crafts."—III. .... From Photographs.  
Competitive Design for St. Peter's Church, Sharrow ..... By Mr. F. C. Eden.  
The Royal Villa and Golf Pavilion at Coq-sur-Mer, Ostend ..... Mr. Arnold Mitchell, F.R.I.B.A., Architect.  
St. Saviour's and St. Olave's Girls' School, New Kent-road, S.E. .... Mr. W. Campbell Jones, A.R.I.B.A., Architect.

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### London Traffic.



Last there is some reason to hope that before long a clearly-defined policy will be established for the guidance of those who offer and those who consider schemes for additional means of locomotion within the Metropolis, and from the Metropolis to outlying districts.

Until comparatively recent times it has been accepted as an axiom that the construction and operation of railways and tramways, and the provision of public conveyances generally, ought to be left entirely to private enterprise, but it is now recognised that municipalities may usefully share in such work. Regarding the matter from a thoroughly impartial standpoint, it is clearly evident that railways and tramways in a great city, such as London, are just as necessary for the well-being of the population as roads, streets, and sewers. They are, in fact, public services, and should be so designed and executed as to afford the greatest convenience to the greatest possible number. This being so, it is manifestly absurd to expect that individual companies, each having some laudably selfish object in view, can ever combine to build up a homogeneous and satisfactory network of communications for the people of the Metropolis. Therefore, in the fact that each company must work for the benefit of shareholders, we have one reason for the chaotic condition of traffic facilities.

The lamentable lack of accommodation for the travelling public would be less noticeable than it now is if private enterprise had been more encouraged by those in authority. From the very first railways were hampered in every imaginable way. Terminal stations were relegated to out-of-the-way sites, and every obstacle was placed in the way of those who were the pioneers of railway enterprise. Then the great railway companies became obstructionists in turn, and began to oppose the construction of new and competing lines; a policy they have kept in force to the present day. The Im-

perial Parliament is not altogether unaffected by internal influence, and many are the schemes that have been sacrificed at the shrine of vested railway interests. It is perfectly absurd that Bill after Bill, introduced for the benefit of the public, should be rejected just because one or two large railway companies come forward to say that the construction of a new line would cause undesirable competition. In this irrational state of things we have one reason for the paucity of railway facilities in the Metropolitan area. As for tramways, every one knows the endless trouble attending their first introduction into this country. The usual opposition had to be encountered in Parliament, and all sorts of oppressive restrictions were afterwards imposed by local authorities. Opposition has still to be met by tramway companies, and permission to serve the public can only be obtained after months or years of fighting, and the expenditure of large sums of money. Of course, it would never do to let railway and tramway companies do just what they liked with the Metropolis, but it is equally certain that Parliament is too unwieldy a body to deal properly with the problem, which, moreover, it does not understand at all. We have no doubt that the London County Council would cheerfully undertake to regulate the whole traffic of the Metropolis, but it is not likely to be asked. The motley assemblage of municipalities and councils to which the local government of London and Greater London is entrusted cannot possibly deal with any comprehensive scheme for the whole of the area involved, and, besides, separate local authorities are proverbially jealous of each other. We have, therefore, to look elsewhere for some tribunal capable of dealing satisfactorily with London locomotion as a whole. The Royal Commission recently appointed to inquire into the question will probably lead to the establishment of the central authority for which London has waited so long, and with such astounding apathy.

It is tolerably certain that the appointment of this Commission was directly due to the unusual energy evidenced by various companies interested in railway and tramway

schemes, of which we gave a general outline in our issue of March 15, 1902. Recognising the futility of ordinary methods in the face of so great a profusion of projects, the Government wisely decided to turn the whole question over to the Commission now constituted. Briefly stated, the terms of the reference are:—1. To suggest means for the improvement of means of locomotion and transport in London—(a) by the development and inter-connexion of railways and tramways; (b) by encouraging other forms of mechanical locomotion; (c) by the better organisation and regulation of street traffic. 2. To report upon the desirability of establishing a central authority to which all railway and tramway schemes should be referred, and the powers which it would be advisable to confer on such a body. Several underground railway Bills before Parliament have been set aside pending the Report of the new Commission, but four others have been allowed to proceed. There are also various undertakings in progress, the construction of which has already been authorised. Therefore, the improvement of locomotion will not be altogether at a standstill, even during the sitting of the Commission.

Those who are interested in details will find full particulars in Mr. Stanford's new map of Metropolitan railways, tramways, and miscellaneous improvements projected for the Session 1903. As in previous issues, this useful publication shows existing railways and tramways, and also those proposed and sanctioned. Among the most important railway schemes are:—the Baker-street and Waterloo Railway, the new lines of the Central London Railway, the Charing Cross, Euston, and Hampstead Railway, the City and Crystal Palace Railway, the City and North-East Suburban Electric Railway, the new lines of the City and South London Railway, the Clapham Junction and Marble Arch Railway, the Great Northern Piccadilly Railway, and the North-West London Railway. Beyond these, the electrification of the Metropolitan District line, and the widening of the London, Brighton, and South Coast system between Victoria and Croydon, and the enlargement of



Victoria Station, are developments of the utmost value to Londoners. In the more central districts of the Metropolis tramway schemes are chiefly intended to connect and to extend existing lines. For instance, Islington will be connected with Gray's Inn-road, and a short line will run on from Islington to Smithfield; Theobald's-road will be connected with the Strand, and it is proposed that the line shall be finally extended along the Embankment and across Westminster Bridge, to effect a junction with the southern system. It is also proposed to continue the Hampstead-road tramway down to Oxford-street, and a new line is projected to run from the Marble Arch to Cricklewood. The most noteworthy event in connexion with the Metropolitan tramway system is the application of electricity to some existing lines in the southern district, and it is believed that this important improvement will be practically realised during the course of a few months. There are various new lines in course of construction in outlying regions, among such being the following:—Plumstead to Erith, Plumstead to Bexley Heath, Woolwich to Eltham, Greenwich to Shooter's Hill, Poplar to Greenwich, Camberwell to Dulwich Park, Hammersmith to Willesden, Hammersmith to Putney, Hammersmith to Richmond, Hammersmith to Acton Vale, Tooting to Wimbledon and Kingston, and Tooting to Wandsworth. The Hampton Court electric tramway is now on the point of completion, and will probably be open for traffic before Easter. The great want of London is additional communication between north and south, and it is satisfactory to notice that several additional connexions of the kind are projected. Taking these in order from east to west, we have:—London County Council tramway through the Blackwall Tunnel, the Rotherhithe Tunnel from Limehouse Basin to Southwark Park, two additional railway subways at London Bridge, while others are provided by the City and Crystal Palace Railway, the Baker-street and Waterloo Railway, the London County Council tramways over Westminster and Vauxhall Bridges, the Clapham Junction and Marble Arch Railway, and two others at Putney and Hammersmith Bridges by the London United Tramways.

From this hasty glance at the schemes proposed, it is clear that traffic facilities are by no means overlooked as a source of possible revenue, but the danger is that the chaotic and fragmentary nature of our Metropolitan communications will become still more confused if private companies are allowed to add new lines just where money can be made for the time being. A railway and tramway map of London at the present moment is a maze of bewildering curves, generally suggesting the longest and most inconvenient routes from place to place, and evidencing above all the want of a directing hand. The time is therefore most opportune for the labour of such a Commission as that which has now been appointed by Parliament. The first sitting of this Commission took place on March 13, when Sir Herbert Jekyll, of the Board of Trade, was examined. According to the evidence of this witness, the Board of Trade, recognising the hindrances in the way of development owing to conflict of authority, would welcome the formation of a separate and final authority to deal with tramway and other schemes for improving the means of

locomotion in London. Sir Herbert thought that the existing Light Railway Commission might conveniently undertake the work, but this suggestion is open to criticism. In any event, the new body should have power to initiate schemes on its own account, as well as to consider those prepared by other people, and in our opinion it would be well if final reference to Parliament could be avoided. Parliamentary sanction merely adds unnecessary cost and infinite delay without any corresponding advantage, and if the new authority were properly constituted, all necessary powers might be delegated to it with benefit to all concerned. The evidence of Colonel Yorke, R.E., also representing the Board of Trade, was generally in favour of comprehensive treatment by a public body, in the manner adopted in New York and Paris. We have more than once made reference to the work accomplished in both these cities, as well as in Boston, and it must be admitted that things have been undertaken in all these places in a thoroughly businesslike manner. Colonel Yorke has lately paid a visit to the United States for the purpose of inquiring into the construction and equipment of steam railroads, surface and underground tramways, elevated railways, and inter-urban electric railways. His Report on these undertakings has now been issued by the Board of Trade, and contains much interesting information. Having examined the surface lines and tramways in a great many American cities, Colonel Yorke comes to the conclusion that the use of timber for supporting the rails makes a much quieter track than the English method of laying the rails direct upon concrete. Clearly the experiment is worth trying of placing a wooden stringer to act as a cushion between the rail and the concrete, with the object of deadening the unnecessary noise sometimes evident on our tramway lines. Elevated railways are not advocated in the Report, and the popularity of these ungainly structures appears to be somewhat on the wane even in the United States. We find that the latest system for relieving the congestion of traffic in large American cities is to adopt the subway system, as in New York and Boston. The procedure there followed is worthy of attention in this country. In each place a Rapid Transit Commission was appointed, in one case by the State of New York, and in the other by the State of Massachusetts, to study local conditions and to formulate schemes for dealing with traffic in a thoroughly comprehensive manner. As a consequence, the problem of urban communications was faced in a proper way, the Commissions ascertained exactly what they wanted, arranged all routes along which means of transport were required, and settled all structural and financial details before allowing anything to be commenced. Colonel Yorke considers that these cities have set a valuable object-lesson to London, and, as in his evidence before the Royal Commission, he advocates the appointment of a tribunal to deal with the congestion of London streets before it is too late.

People who live in London know pretty well what is wanted to improve matters. Every railway should have double the present accommodation; a vast network of deep-level, properly ventilated electric railways, or shallow electric subways should be established, with ample facility for intercommunication, so that any part of the

Metropolis might be reached with a minimum expenditure of time; rapidly moving electric tramcars should run along all the main thoroughfares, and the plague of omnibuses ought to be abolished with a strong hand. It is often said that tramways cannot possibly be allowed in the more central districts, but if they were so allowed they could not create half the obstruction caused by the innumerable hordes of omnibuses which are now allowed to crawl and loiter in every street, and even in the centre of the city itself. Glasgow is a fairly busy city, where the tramway is ubiquitous and the omnibus is not seen. Why London could not endure what Glasgow rejoices in we do not know.

But beyond the provision of more railways and tramways, the Londoner knows very well that far more intelligent regulation of ordinary street traffic is urgently required. Slowly-moving vehicles wander at their own sweet will all over the streets just as they please, and no one in authority has a word to say. It is no uncommon thing to see quite a collection of light vehicles going at a foot-pace behind some dawdling omnibus or heavily-laden van, and only waiting for the opportunity of escape. It would be perfectly easy for the police to make regulations that would relegate slow traffic to certain parts of the road, where crawling vehicles would only obstruct each other, and that would prevent omnibuses from stopping except at clearly-defined points, and only to stop then for a sufficient time to take up passengers actually ready to get in or out. It is preposterous that the police should allow conductors to remain at street corners touting for custom, causing serious inconvenience to passengers, and hindrance to traffic. Another absurdity is that the costly widening at Hyde Park Corner is absolutely boycotted by omnibuses proceeding to Victoria. These vehicles insist on pushing their way into the Knightsbridge traffic as far as St. George's Hospital, and the curious spectacle is presented of a magnificent area densely packed on one side and practically deserted on the other. Here, again, there is clearly room for the display of some police intelligence. At present the additional road space is of no use whatever. Then, again, the loading and unloading of merchandise in busy streets at the most busy time of the day causes a tremendous obstruction. This admitted evil could be greatly modified without the expenditure of a penny, if the police authorities were thoroughly alive to their duties. If business premises are not provided with entrances in side streets, their occupiers should be compelled to receive and despatch goods at hours when obstruction will not be caused to the rest of the world.

Of course, it is one thing to know what would relieve the congestion of London traffic, and quite another to obtain the desired remedy. However, the present is a hopeful time, and the appointment of the Royal Commission to consider the great traffic problem is one of the most important events of the present reign.

#### NOTES.

The Association of Municipal Corporations. The presidential address of Sir Albert Rollit at the meeting of the Association of Municipal Corporations was militant in reference to municipal trading. He complained of the "parrot cry" of those who



were opposed to increasing the municipal indebtedness, and of his critics only looking on one side of things. These appear somewhat unfortunate similes for the President to have used in a Party speech, in which he carefully avoided any mention of the real principles involved in the issue now before the country. We summarised the figures showing the profits which these Corporations return on a capital of 121 millions in our issue of March 7, and we would refer those who are interested in the subject, to the Parliamentary Return on these undertakings recently published. On an occasion such as the annual meeting of such an Association we cannot but regret that this important subject was not handled by the President in a more statesmanlike manner, and with less vituperative partisanship such as may be useful in Parliamentary candidature, but hardly inspires confidence when used in a cause in which serious economic and commercial issues are involved, and at a time when those using it are seeking increased confidence at the hands of the community.

**THE Departmental Committee on Highways** which was promised some time ago by the President of the Local Government Board has now been appointed. A Departmental Committee, it may be pointed out, is to all intents and purposes the same as a Royal Commission, though it has some technical differences. The members of the new Committee are a sensible and fairly experienced body of men, and one may reasonably hope that the Report of the Committee may lead to some useful legislation. They can hardly fail, for example, to recommend the codification of the numerous Acts relating to highways. We hope, also, that they will urge the desirability in rural districts of giving the County Councils the sole control of the highways, simplification of the law and practice in regard to the widening of highways and other administrative matters is also desirable. Many changes such as we have indicated could be passed with next to no opposition, but we do not think that there is any probability that the Committee will recommend the system of State roads, since the tendency of modern legislation in regard to the country districts is to increase the authority of the County Councils. We have seen this in the Education Act of last session, and it is not likely that the Local Government Board will take charge of even a few highways in the kingdom.

**THE Rating of Machinery Bill** has again, for the seventh time, passed a second reading in the House of Commons, but there does not appear much prospect of its becoming law, and what is really in the nature of a legislative farce will be repeated. This Bill has, in fact, no chance of success unless it be made a Government measure; but when a measure has been so often approved by the House of Commons, it should obviously be taken up by the Government. If machinery is not in itself to be rated, it seems somewhat of an absurdity that it should be taken into consideration as enhancing the value of the building, which after all is only another mode of rating the machinery itself. Of

course, the Bill is opposed by many sections of the community, because there is no denying the fact that it must tend to diminish the rateable value of a large number of buildings. This being the case, it is obviously a measure which should either be taken out of the hands of a private promoter by the Government, or they should oppose it absolutely as being undesirable.

**THE litigation** that has recently arisen in connexion with the Brighton and Hove drainage scheme is an example of the uncertain state of the law and procedure in relation to Local Government. The drainage of Brighton and the adjoining district was, in 1870, vested by Act of Parliament in a Sewers Board, and carried out by a system of intercepting sewers running along the sea front. At that time this district comprised the three parishes of Brighton, Hove, and Telescombe. This Act, however, provided that if any Local Authority should thereafter be constituted "for any district in which any part of the sewers authorised would be situate," having powers over the drainage and to levy rates, they should have powers also to participate in the benefits and liabilities of the Act. A new drainage authority and new district of Hove was created by Act of Parliament in 1873, but in 1893 the County Councils of East and West Sussex, by an Order made under the Local Government Act, 1888, transferred the parish of Aldrington—a large parish to the west of Hove—from the Steyning Union and added it to Hove. The Sewers Commissioners have contested the right of the district thus added to participate in the intercepting system of sewers, which they allege, in view of the enormous increase in the population of Brighton and Hove, is already barely adequate for the demands placed upon it, but the decision of the Court of Appeal is adverse to their contention, and the sewage of this vast area has now to be all dealt with over one system. No doubt the terms of the Act of 1870 were drawn too wide, and have admitted districts to come in which were never contemplated; but to us it appears hardly satisfactory that sanitary districts can be completely changed by orders under the Local Government Acts. In the present case, had an Act of Parliament been necessary, the authorities would have had further opportunity of considering the effect it was likely to have on existing Acts, and to have protected themselves, but the less formal orders may bring about results quite out of the contemplation of the parties interested, and do not afford the same opportunities for consideration.

**THE new wiring rules** which have just been issued by the Institution of Electrical Engineers amplify the old rules considerably, and taken as a whole they are as good as any hitherto published in this country. The insulation resistance test, which we criticised formerly, is altered for the better, but although the importance of measuring the insulation resistance between the conductors is recognised, no attempt is made to differentiate between high pressure and low pressure supply. The insulation resistance ought to increase as the square of the pressure of supply, and so the rule as it stands

at present has no scientific basis, and is most inequitable. A lengthy table is given concerning cables, but we were sorry to see that the maximum currents were calculated by empirical formulae. It would have been much better merely to give the currents which experience has proved suitable for the various sizes. A note to the table states that the figures given in some cases are not those that will be found by calculation, but are the sizes adopted by the Cable Makers' Association so as to avoid multiplicity of odd sizes. We pointed this out when the Cable Makers published their table some years ago, and this belated explanation seems rather extraordinary. A note is added to Rule 70 which relates to dynamos and motors stating that all shunt circuits should be broken in a particular manner. This is misleading, as the best practice with shunt motors is never to break the shunt circuit at all, but to have it always in series either with the armature or with the armature and part of the starting resistance. The old rule about sparking in switches is given, although a perusal of the paper by Messrs. Russell and Paterson, which was published in the *Journal* last year, will show that it might have been improved. We wonder how many of the switches at Glasgow and Hackney would stand the test of breaking a circuit with an overload of 50 per cent. in volts and amperes. The Glasgow Corporation rule is a far more satisfactory one. We are glad that the possibility of getting shocks has at last received official recognition, and a great deal is said about the importance of earthing conduits, etc. If the rules we have criticised were altered so as to put them on a more scientific basis, and those which merely state obvious facts were omitted, it would be a great improvement.

**At a Court of the Governors**, held last week in Grosvenor House, a resolution was carried by which the Governors agreed to consider the removal of the hospital to a larger site, and a committee was appointed to inquire into all the questions involved, and to treat with intending purchasers of the existing site and buildings. It was stated at the meeting that whereas four adjoining houses could be bought for 50,000*l.*, an offer of from 350,000*l.* to 375,000*l.* had been made for the freehold portion, being one-third of the present site, and that during the last thirty-five years nearly 200,000*l.* had been expended in equipping the hospital with modern requirements, without any increase of the number of beds (351), though much more space is needed for its continued efficient administration. The hospital was originally founded in 1733, by some of the Governors of Westminster Hospital, who leased Lord Lanesborough's "country-house" and converted it into an infirmary for sixty lame and sick patients. To the old house of red brick, which faced Hyde Park, I. Ware added two wings—as shown in his print of 1733. At the Foundling Hospital is preserved Wilson's painting, 1746, of the former building, which is depicted also in the two views of Hyde Park Corner, presented by Decimus Burton's niece, Miss E. J. Wood, to the national collection. To the hospital, as rebuilt by W. Wilkins, R.A., in 1828-30, an upper story in 1859 and a new wing in 1868 were added by Arthur E.



Mee; and then, in 1896, was added a suite of rooms which comprises the nurses' day-rooms, the large (east) operating-theatre as re-modelled, the new west theatre, and offices, &c.; after Mr. H. Percy Adams's plans and designs. The new south wing overlooks the site of the Turf Tavern and Tattersall's, now absorbed in Grosvenor-terrace. It is estimated that in the event of non-removal a sum of nearly 200,000l. should be forthcoming to enable the governors to make the best use of the present site, of the four houses in St. George's-place, and the space now occupied by the medical school.

#### Water Purification by Ozone.

MANY years ago it was proposed to purify water for public supplies by means of ozone, but until recently nothing was done to realise the idea in a practical manner. Now, however, a complete plant for the purification of water in this way has been installed in Wiesbaden. For years past, the source of water supply has been the Taunus springs, but the growing requirements of the city made it necessary to look for additional means of supply. This has been provided by wells sunk in the valley of the Rhine, and yielding surface water of very indifferent quality. The new method of purification adopted is said to be extremely satisfactory, giving an effluent perfectly suitable for drinking purposes. The plant consists of three main parts: engines and dynamos, ozonisers, and sterilising towers. In the first, current is generated for the ozonisers, pumps, and auxiliary machinery; in the second, ozone is generated and mixed with air; and in the third, water trickles down fine gravel in the interior of the towers, meeting a current of ozonised air, which destroys all pathogenic bacteria and nearly all harmless varieties. The installation in question is only of moderate capacity, having a maximum output of 66,000 gallons an hour, but it is interesting as the first practical application of a process hitherto used only in the laboratory.

#### Aluminium Sulphate for Fireproofing.

A PAPER on the "Use of Fireproofing Materials as Applied to Wood" was recently read by Dr. Sadtler before a joint meeting of the four New York chemical organisations. Dr. Sadtler recommends the use of aluminium sulphate for impregnating timber instead of the ammonium sulphate or other ammonium salts at present most largely used. He also advocates the use of the Ferrell method of impregnation, which renders preliminary steaming and subjection to a vacuum unnecessary, and consequently enables the impregnation to be accomplished without bruising the timber and diminishing its strength. The United States Navy makes an allowance for 30 per cent. loss in strength for timber subjected to impregnation with a fireproofing salt by the methods hitherto in vogue, but, according to Dr. Sadtler, no such allowance is necessary when the Ferrell method is employed. The advantages of aluminium sulphate as a fireproofing salt are (1) resistance to fire of timber impregnated with it is greater than that of timber impregnated with ammonium salts; (2) under influence of great heat a residue of

aluminium oxide is left in the wood, and as this aluminium oxide occupies nearly three times the volume of the original aluminium sulphate, and is a non-conductor of heat, it causes the air-spaces and cells of the wood to become filled, and increases its protecting and fire-resisting power; (3) no efflorescence appears on the surface of wood impregnated with it; and (4) it is not poisonous.

#### Condition of Wycombe Rural District.

DR. E. PETRONELL MANBY has made a Report to the Local Government Board on the prevalence of diphtheria in the Risborough Registration Sub-district. This sub-district forms about the northern third of the Wycombe Rural District, in the county of Buckinghamshire. The Report brings before us a sketch of the usual state of things to be found in rural districts where there has been an outbreak of disease. The houses are often damp, and the adjoining ground not paved. Water supply is generally obtained from shallow wells in the chalk, but in the higher parts of the district the only supply for all purposes is in most instances derived from rain water, stored in underground tanks. Wells and tanks, with hardly an exception, have wooden flap-covert flush with the ground, often defective, and surface washings cannot fail to pass into the water. Some houses are without water supply of any kind, the tenants having to beg and carry water from sources a considerable distance away. Excrement disposal is effected principally by means of privy pits, generally wooden huts, often only simple holes in the ground. "I found in many otherwise fairly satisfactory premises a dilapidated privy, with a pit foul in the extreme." Refuse and excrement removal at Wendover is to some extent undertaken by the District Council, but only about 160 out of 475 houses are so treated. The Report concludes with the recommendations that the Rural District Council should require a permanent supply of water to such houses in their district as have not such a supply within a reasonable distance; that the purity of existing water supplies should be investigated; that dwellings which are in an insanitary condition should be placed in proper repair; and that the Council should give immediate attention to the privy pits in their district, "many of which are a source of grave nuisance, and cannot fail to be injurious to health."

#### A Curious Dam.

A MASONRY dam of singular design is to be found in the neighbourhood of Hyderabad, India. The structure constitutes a large arch, which itself consists of twenty-one smaller arches, transmitting water pressure to solid masonry buttresses. The dam, which was built about the year 1800 as a religious offering, is approximately half a mile in length, and the arches range from 70 ft. to 147 ft. in length of span, the largest arch being at the centre of the dam. The walls are vertical on both faces, the downstream face being stepped out so as to attain the maximum thickness of 8 ft. 6 in., within a few feet of the top. A waste weir is provided at one end of the dam, but during heavy rains, when the lake is full, water falls over the crest, thus adding greatly to the natural beauty of the scene. The water impounded is known as the Meer Allum Lake, and serves to supply the city

#### The Old Barbican, Sandwich.

MR. JENNINGS, of Canterbury, who was recently appointed diocesan architect, has drawn up a Report upon the condition of the Barbican, by the David's gate, in the town wall of Sandwich. Under his advice the Mayor and Councillors have decided to preserve the structure by renewing the roof timbers and tiling, and the weather boarding, to clear away some 2 ft. of cement from off the flanking tower of the gate, and to pull down a comparatively modern lean-to building from against the outer side of the gate so as to reveal the at present concealed wall and enhance the appearance of the tower. Edward IV. fortified the town against attacks by the French with a wall, strengthened by bastions, and surrounded it with a fosse; portions of the walls yet remain, and until 1784 five of the gates were entire. The high road from Deal enters the town by the site of the New Gate in the southern wall which has been partly rased and converted into a public walk. Two other of the gates are preserved in the northern wall, facing the site of Stonhose, or Stonar. One of these is the Fisher's Gate, at the end of Fisher's-street, opening on to the ancient ferry across the river Wantsum; the other, standing about 80 yards westwards, is the Bridge, or David's Gate, distinguished by its Barbican and the Custom House. The quay separates the Barbican from the stone bridge which was built, in pursuance of an Act of 1755, to replace the drawbridge, giving access to the Thanet side of the river and the road to Ebbsfleet, and thence by Pegwell Bay to Ramsgate.

#### The Haymarket Galleries.

WE may couple Mr. Maclean's and Messrs. Tooth & Sons Spring exhibitions under one paragraph, not only in respect of their proximity and identity of date, but because on this occasion they seem both to have depended rather on pictures of the Barbizon School, the same pamphlet on the artists of the school having been handed to visitors in both exhibitions. The artists of this school, however, are not represented in so important a manner as one was led to expect. Some of the Corots, for instance, in Messrs. Tooth's Gallery are only very slight sketches, and the works by Harpignies are only small ones, though one of them, "Coup de Vent" (67) is a very fine one. "Le Ragueur" (24) is a fine example of Diaz; and in the small room is an exceedingly finely painted head of a woman by Bouguereau, far preferable to his large picture in the other room. The small room contains also two admirable works by Verboeckhoven (5) and Vollon (13). Mr. Maclean has secured for the centre-piece of his exhibition a Corot of the first water—"L'Etang de Mortefontaine" (23), which represents the finest poetic element in this artist's works; also a nude figure-study by Corot—"Les Conseils de l'Amour" (29); a curiosity, but not otherwise very attractive. There are one or two rather poor examples of



Diaz, and an exceedingly fine forest landscape by Jacque, so much in the style of Diaz that it might almost pass for his.

At the small gallery of Messrs. Van Wisselingh, in Brook-street, there is a remarkable collection on view of flower and fruit paintings by M. Fantin-Latour, along with a number of small landscapes by M. Harpignies. These latter, of course, are not among the prominent productions of the great French landscape-painter; they are sketches and impressions, or studies for larger works; but among them are small landscapes of great beauty; "Souvenir de Meudon," for instance (24). The "Vue prise à Beaulieu" (30) is either a study for or a repetition of a large picture which was in the Salon a year or two since. But the notable quality of the small exhibition lies in M. Fantin-Latour's flower and fruit studies, a line of art in which this artist occupies the highest rank; and this is, we believe, the first time that a number of his works of this class have been collectively exhibited. They are all so fine that it is difficult to particularise, but we may mention especially "Roses" (2); "The Flowers of Middle Summer" (12); "Chrysanthemums" (17); and a small painting of a bunch of grapes laid on a white dish, which, in its way, is one of the most perfect examples of the art of painting that we have ever seen.

#### THE ARCHITECTURAL ASSOCIATION.

The usual fortnightly meeting of the Architectural Association was held on Friday last week in the Meeting-room of the Royal Institute of British Architects, No. 9, Conduit-street, Regent-street, W., Mr. H. T. Hare, President, in the chair.

The minutes of last meeting having been read and confirmed, and some nominations having been read, it was announced that Mr. S. D. Adshead had been reinstated as a member.

On the motion of Mr. H. P. G. Maule, hon. secretary, a vote of thanks was accorded to Messrs. Romaine-Walker and Besant for kindly conducting a party of members over the church at Farm-street and the Duke of Marlborough's house at Curzon-street on the 7th inst.\*

#### New Premises Fund.

The Chairman announced the following further donations to the New Premises Fund, *i.e.*, Messrs. Thomas Blashill, 10l. 10s.; Sidney R. J. Smith, 5l.; T. C. Agutter, 3l. 3s.; and W. G. R. Bousfield, 2l. 2s.

A vote of thanks was accorded to the donors.

#### The late Professor Roger Smith.

The Chairman said he wished to propose a vote of condolence to the family of the late Professor Roger Smith. The deceased gentleman had been intimately connected with the Association, and many of the members had been through his classes at University College. The Association therefore must feel much more than an ordinary sense of the loss which the profession had sustained in Professor Roger Smith's death, and he was quite sure the expression of condolence would be a sincere one.

The motion was agreed to in silence.

#### The House List.

The Chairman then read the following House List for next session:—

President.—Mr. Henry T. Hare.  
Vice-Presidents.—Messrs. R. S. Balfour and Arnold Mitchell.

Committee (ten to be elected).—Messrs. L. Ambler, G. B. Carvill, Walter Cave, F. Dare Clapham, E. Gay Dawber, F. C. Eden, D. T. Fyfe, J. S. Gibson, E. L. Lutyens, John Murray, D. B. Niven, H. Passmore, W. A. Pite, A. N.

\* See our issue for the 14th inst., page 293, for an account of the visit.

Prentice, W. Howard Seth-Smith, Sidney R. J. Smith, A. Brunwell Thomas, R. H. Weymouth, A. Needham Wilson, W. W. Wimperis.

Hon. Treasurer.—Mr. Francis Hooper. Hon. Librarian.—Mr. J. MacLaren Ross. Hon. Secretaries.—Messrs. H. P. G. Maule and Henry Tanner, jun.

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#### Ancient and Modern Town Houses.

Mr. W. H. White then read the following paper on "Ancient and Modern Town Houses; or, the Evolution of Domestic Architecture in London":—

This title is perhaps too comprehensive for a short paper, and it should therefore be mentioned at once that only certain phases of the subject can be considered within its limits. Between its two headings, however, one sees in dim perspective much that is interesting in the gradual development of that class of buildings which, from the earliest grouping of houses for mutual protection down to such a vast aggregation of dwellings forming our modern London, has always been the nucleus from which, and around which, all other buildings have grown.

Once the walls of a fortified town were built, the ever-increasing number of inhabitants must have led up to the problem of getting as much accommodation in a limited space as possible, and limitation of space occurred in very early times, the result being that streets were narrow—mere alleys in most cases—and the picturesque timbered and plastered overhanging stories which were built down to the time of the Great Fire added to the difficulties of properly lighting the houses, and also of access of air.

There is an interesting book entitled, "The Evolution of the English House," by S. O. Addy, and there are four volumes upon "Domestic Architecture" by Turner and Parker, which trace the development of the house to the sixteenth century. Without dipping further, therefore, into the ancient history of town houses (although much that is interesting could be written thereon), we may take as sufficiently "ancient" the houses that were built in the seventeenth century, and then trace the problems that an architect had to solve in old days and has now to solve in these bustling times.

Starting from Wren and the impetus given to the development of the town house by the Great Fire of 1666, it may be noted that from that time to the middle of the eighteenth century there does not appear to have been any radical change in the type of plans adopted for the various classes of houses. By "classes" is here meant the small-sized town house, the middle-sized (both in terraces), and the town mansion.

Of the first and second types there are few examples extant earlier than the eighteenth century, and of the mansions also, owing to the numerous alterations which have taken place, not many remain as first designed.

But, dating from the middle of the eighteenth century, we have innumerable examples of these types, and upon examining them in detail, we shall find the same faults recurring in each, and, let us hope, the elimination of these faults to a great extent in present-day work.

It appears to have been the rule to have spent whatever time and thought was given to the planning of houses, until quite recent times, to the ground and first floors—the basements and upper floors being fearful and wonderful. It was all for "my lord and my lady," and let the serving men and women shift for themselves. "Live, and be thankful," was thought good enough for their motto, and they accepted the situation.

The reception-rooms having been planned, the bedrooms and children's and servants' apartments had but little attention bestowed upon them, and were more often than not badly lighted, badly arranged, and, to use a paradox, low in height. It is extraordinary why the early builders could have ever willingly burrowed down into the earth and increased their difficulties as to lighting and draining to such an extent.

No special scheme of house building appears to have been laid down prior to Wren's time, and his plan for rebuilding London after the Fire was not carried out according to his ideas. Yet he and Hooke, who had also made a plan, and who, owing to their appreciation of it,

had been appointed Surveyor to the City by the Corporation, we are informed, were much overworked in setting out the rebuilding schemes.

In 1668 Pepys describes a fire in Minchinalane—a detached house "not yet quite finished, and the benefit of brick was well seen, for it burnt all inward and fell down within itself, so no fear of doing more hurt."

Apparently, also, the jerry builder was to the fore in the rebuilding, as our friend Pepys tells us: "I hear (1668) that there is fallen down a new house, not quite finished, in Lumberd-street, and that there have been several so, they making use of bad mortar and bricks."

From this time almost to the end of the seventeenth century no building schemes of any note can now be followed with advantage, so many alterations having taken place.

Wren must have had so much to do, in his official capacity, upon St. Paul's and in designing sixty City churches, with a few other trifles, that we can scarcely trace his influence or that of any other architect in the ordinary terrace-house plan, although the traditions of his school of work can be seen in numerous instances. It is on record that he built a mansion for himself in Great Russell-street, but Elmes states that in 1823 "its noble front with majestic cantilever cornice was taken down by a speculating builder and common Act of Parliament fronts run up for four houses in its stead."

In the eighteenth century a vast quantity of houses were erected in London, and most of the principal residential squares and streets were laid out or rebuilt, with the exception of portions of Belgravia and practically the whole of South Kensington, this being nineteenth-century work.

Devonshire-square, City, was laid out between 1620 to 1670, but rebuilt later.

Finsbury-square was laid out by the younger Dance in 1777, and was the first public place in London lighted by gas.

Finsbury-circus was built in 1814; its glories have departed, and huge blocks of offices have taken the place of most of the fine old terrace houses.

Bloomsbury-square was laid out in the seventeenth century, but rebuilt during the eighteenth and nineteenth centuries.

Grosvenor-square, although laid out in 1695 by Kent, has been rebuilt to a great extent, and was "the last square lighted by gas."

Cavendish-square was commenced in 1717 and 1718, but building was then checked by the bursting of the South Sea Bubble, and this square remained in an unfinished state for many years. James of Greenwich was the architect of the two fine houses still in existence on the north side, which are excellent examples of Wren's school.

The Brothers Adam built the Adelphi in 1768, some houses in Mansfield-street in 1768, a mansion in St. James's-square in 1772, and one in Grosvenor-square in 1773, Portland-place in 1778, a terrace of houses in Fitzroy-square in 1790-1794, and as these are stone-fronted they appear to have seen that their favourite "stucco" was not all that could be desired.

Portman-square was begun in 1764, but was not finished until twenty years afterwards, and was then described as "on the outskirts of the town, approached on one side by a road, unlit, unpaved, and inaccessible by carriages."

This brief list of dates gives us a rough outline of the history of the laying-out of some of the principal squares and terraces of houses built during the eighteenth century.

It is a matter for reflection to trace in the evolution of town houses how the trend of fashion has moved westward—and here it may be interesting to note that in most towns the fashionable quarters are in the west, and "fashion" for centuries past in London has ever moved westward.

We are told that "the first emigration of the London merchants (who used to live over their shops) westward was about the middle of the eighteenth century, and only those who had secured large fortunes and possessed reputations beyond the shadow of a doubt ventured as far as Hatton Garden."

We may now consider the work done in the nineteenth century to meet this westward movement, and soon discover that the speculation was again to the fore.

\* "London, Past and Present." By Wheatley and Cunningham.

† See article in *The Builder* on the Adelphi.



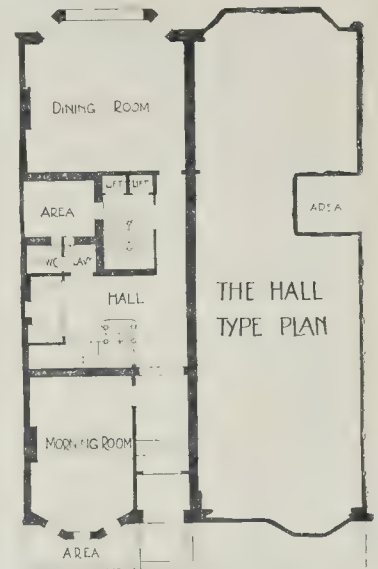
ROBERT ADAM ARCHT. 1772

A HOUSE IN ST JAMES SQUARE S.W.

2

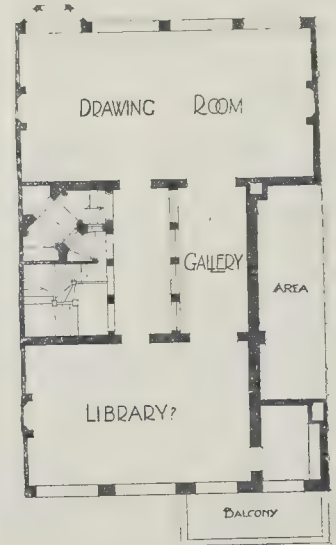
A HOUSE IN CADOGAN GARDENS S.W.

6



A HOUSE IN QUEEN'S GATE S.W. 4

A HOUSE IN QUEEN'S GATE S.W.

4<sup>A</sup>



Regent-street and Regent's Park were laid out by John Nash from about 1812 to 1820.

Belgrave-square was built in 1825 from designs by George Basevi, and Eaton-square by Cubitt in 1827—"Cubitt built" being (long afterwards) a sufficient guarantee for well-built houses. This term is used advisedly, as, alas! there is much to be deplored architecturally.

From that date to the work done upon the Grosvenor, Cadogan, and Queen's Gate Estates (dating from about 1880), there is not much to interest us.

A very large amount of rebuilding has taken place upon these estates during the past twenty years, and fortunately a great deal of it has been done by some of our leading men, and here can be seen the work which must go down to future generations as some of the best town house work done during the latter part of the nineteenth century.

There is a considerable variety in the plans and elevations, and the development shows the reaction from the Portland-place and Harley-street terrace type. There is, no doubt, much that is charming in some of the new work done upon these estates, but whether the endless variety and "inconsequence" of many of the designs has not been produced at too great a sacrifice of dignity is a very moot question. This restlessness seems to be characteristic of the age, and it is interesting to speculate as to what would now be done in the designing of a row of terrace houses or a good "square," say by Mr. Norman Shaw, judging from the gradual development of his work from "Craigslist," with its infinite variety and charm, and the dignity and reserve shown in his final masterpiece, "Chesters."

In the corner house in Queen's Gate, also by Mr. Norman Shaw, although we are told it was given a cue as to what was desired by the owner, yet it is well worth noting that after a long series of buildings thoroughly English in feeling, yet entirely fresh in grouping, and with detail all his own—we find him at the close of his professional career reverting to severer forms and detail, allowing scale and proportion to take the place of picturesque, and really going back to the time when English architecture ceased to be a living style—viz., the early Georges.

Until that time there had been a gradual development, a real following-on of design, and adapted to the requirements of the age. Since that time we have been ringing the changes on the Greek revival, the Gothic revival, and, latterly, rushing to the Continent and coming back with sketch books filled with innumerable "bits" to be grafted on to the next new work. But it is most interesting to see (as is apparent in so much that has been done during the past ten years) that the tendency is to return to our vernacular; to pick up the threads and to carry on the traditions of our own work, and surely it is worth while that our students should pause and study this reaction before struggling to invent new forms. By the way, does this not often mean amorphous lumps of brick and stone with conventional orange trees growing over the fronts of buildings and bearing fruit in the most extraordinary manner? This, however, is not a paper on "Architectural Styles," but the foregoing remarks are the outcome of studying the elevations of the houses we have been reviewing, and it need not be assumed they are suggested with a view of checking individuality or variety of detail, for it may be noticed that although "style" has been kept in the Queen's Gate house by Mr. Shaw, individuality is also impressed upon the design—internally more than externally, perhaps.

These thoughts take us back to the works of the Brothers Adam, who, while adopting the characteristics of the vernacular style, impressed an individuality and refinement of detail on their work which does not appear to have been attained by any architect since.

Examine the illustrations of their work and the skill in the "design" of their plans, the symmetry, proportion, and refinement of detail in their decorations, and remember that they could and did treat their decorations architecturally; each reception-room, hall, and staircase being separately studied and treated—walls, ceilings, floors, chimney-pieces, windows, doors, and even the window and door fittings and the furniture were designed in the same style and scale as the house, and with the same delicacy of detail.

The fenestration in the work of the Brothers

Adam was designed to show the relative importance of the rooms, but (with the exception of the drawing-room floor) the windows in many cases were too small to properly light and ventilate the rooms; it is curious they failed to realise the great defect which a centrepiece between two windows produced as regards the effective lighting of a long room end on to the front (see fig. 1).

This applies to their London town houses of the ordinary terrace type. The best work of the Brothers Adam can be seen in their detached mansions, where their skill in the grouping of finisettes of apartments and for producing grand vistas and effects can be seen to most advantage.

The question of fenestration, formerly the keynote to the design and proportion of house fronts, seems in much of the work now being done to be relegated to the background, if not indeed, forgotten in the craze for novelty of arrangement regardless of the position or needs of the rooms.

The lower rooms, although requiring large windows in proportion to their size (particularly in narrow streets) are frequently under-lighted, whilst the upper floors are over-windowed, and the desire for variety is allowed to dominate the whole character of the front. This criticism applies to town house architecture, not blocks of flats, where each floor is almost of the same importance.

The Brothers Adam were individualists and, to a very great extent, the characteristics of their work died with them, to be revived, so far as internal decorations are concerned, a century after their great work was ended. In the house, No. 25, Portland-place, said to have been built by Robert Adam for his own occupation, we have a good specimen of their work.

The work of John Nash had none of their refinement of detail, although certain qualities of his work, viz., breadth of effect, grouping and balance, are well worth studying.

Had the terraces of houses in Regent's Park which he erected (Cornwall-terrace was designed by Decimus Burton, but the same feeling exists) been faced with stone instead of stucco, the effect now would impress us in quite a different manner. Indeed, a walk round Regent's Park might convince the sceptical that breadth of effect may yet be obtained with a considerable amount of variety, and there is an element of repose and dignity about these terraces sadly lacking in the work now in general vogue; but this must not be confounded with the deadly monotony of the rows upon rows of stuccoed monstrosities of the Cromwell-road type: "Stuccoed and usually also porticoed, and bearing a gloomy likeness to an array of family vaults awaiting their occupants," as Mrs. Cook in "Highways and Byways in London" recently said.

Until some of our prominent estate owners make the opportunity, by dealing with blocks of houses at a time, instead of solitary slips, there appears little chance of any change from the kaleidoscopic effects in our streets which our present lack of system and scheme produces.

On the Grosvenor and Cadogan Estates, although much good work has been done, yet designs "jostle" each other.

Mr. H. H. Statham's excellent book on "Modern Architecture" contains much valuable criticism and useful advice upon this subject.

In dealing with recent work it is difficult to differentiate between the characteristics of the plans of various architects, and it would be necessary to devote a special paragraph to the work of each man to bring out these points, but a study of the plans which have been published shows that in later years much has been done to give greater individuality to the plans of even ordinary terrace houses than was formerly the case; but a writer has truly said that, "except in the minority of instances, town houses are not built by the men who inhabit them, and, in rarer cases still, it is where ground values and questions of light and air do not entirely over-rule the æsthetic influences of architecture itself." Indeed, most of the best modern work is that which has been done by architects for special clients to meet the latter's particular requirements; further, the site and its surroundings in many cases dictate the general laying-out of the plan.

Aspect must also be considered as far as possible, even in smoky, murky London.

In a magazine article upon Mr. Norman Shaw's work, published a few years ago, there is this statement:—"Planning of the modern London house does not count, as there it becomes, from the mere nature of things, a

scientific problem of reduction; but the two examples—a terrace house' and a 'semi-detached house'—in Queen's Gate (by Mr. Shaw) show the art of planning in quite a remarkable degree."

Planning is, perhaps, not quite so interesting to students as designing the elevations, and yet the importance of the plan cannot be over-rated, and the art or science of planning, as shown in the works of the best masters, is a very different thing indeed from that which comes from less able hands, and most certainly does "count."

Having received instructions to build a house in London—say, upon the site of an old one—the architect should study as far as possible the client's mode of living, his "hobby," and the accommodation he requires, and must not forget that "cost" will enter largely into the question and enhance his difficulties. Further difficulties may then present themselves in the shape of Acts of Parliament and L.C.C. by-laws, and neighbours' rights ("vested interests"), if neglected by the architect, will probably land him and his client into sad trouble and worry.

In building upon a large estate other difficulties may be presented. The owner's and his surveyor's views require special attention, and the popular cry against the ground landlords naturally makes them desire to meet their tenants' views as far as possible in some instances, and otherwise sometimes, and therefore compromises have to be made, and the architect's hands are by no means unfettered.

We will now consider the planning of town houses more in detail, and it may be as well to mention that the detached town mansion is not dealt with in this paper. It is in itself a sufficient subject for a very interesting discussion, but general principles can scarcely be laid down when conditions and requirements are so varied.

As a matter of interest, some illustrations of such houses are shown upon the screens.

In the modern town house of the terrace type, whether the frontage be 20 or 30 ft., the problem is much the same; that is, the same number of rooms—in a given locality—will be asked for, the keynote being the relation of the hall and staircase to the rooms.

Of the "Adam" type, the two examples exhibited show very well the charm of their work and their faults, judged by present-day requirements, and as indicating how much hinges upon a small point, it will be observed (fig. 1) that the sanitary block is in both cases at the extreme end of the ground and first floors and approached only through some of the principal rooms. Upon examination of the Cadogan Estate (fig. 2), Queen's Gate (figs. 3 and 4), and Harley-street plans (fig. 5), now exhibited, it will be seen that modern ideas as to the position of the sanitary block have completely changed the type of plan.

Most people want to enter their rooms direct from the hall or corridors, and that the rooms be not "passage" rooms from one part of the building to another.

There is a tendency (upon restricted sites) to omit the morning room and to enlarge the hall and make it more like a room; there is no doubt a considerable charm in this type of plan and, where the staircase is well treated and is not allowed to take up too much room, the hall becomes a useful lounge. A good fireplace is essential if it is to be so used, and well-arranged radiators materially add to the warmth and comfort of the house.

If a staircase from the basement to the outer hall can be obtained, the inner hall is less liable to disturbance by the entrance of servants. Such a plan often permits of side lighting from an area which is most desirable, but usually the space given up to the area is not sufficient—the air is stagnant, and very little light is obtained, the result being again unsatisfactory. If "pairs" of houses can be built the areas become double in size so far as light and air go, and this is a great gain to both houses. Examples are shown with and without.

The usual "Adam" staircase is too lighted, and although in many cases this has been effectively treated, the great defect is a gloomy hall. This can in some cases be avoided, and in the Harley-street house (No. 8) a window has been introduced upon each half-landing in addition to a good lantern-light—thus flooding the hall and staircase with

\* The subject of "Town Houses" was ably treated in a very philosophical paper by Professor Kerr (vide Royal Institute of British Architects' Transactions, 1894).



A PAIR OF NEW HOUSES IN QUEEN ANNE ST. W. A PAIR OF NEW HOUSES IN WIMPOLE ST. W.

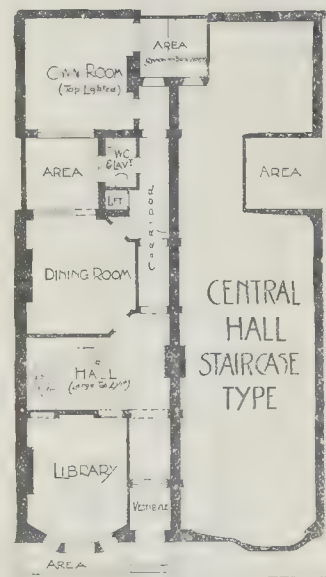


Fig. 6.

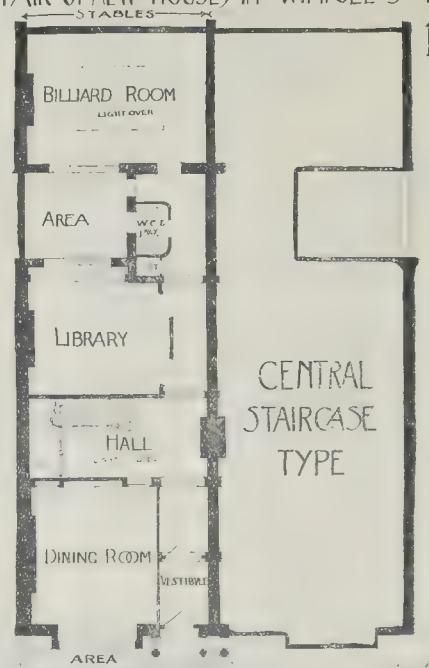


Fig. 7.

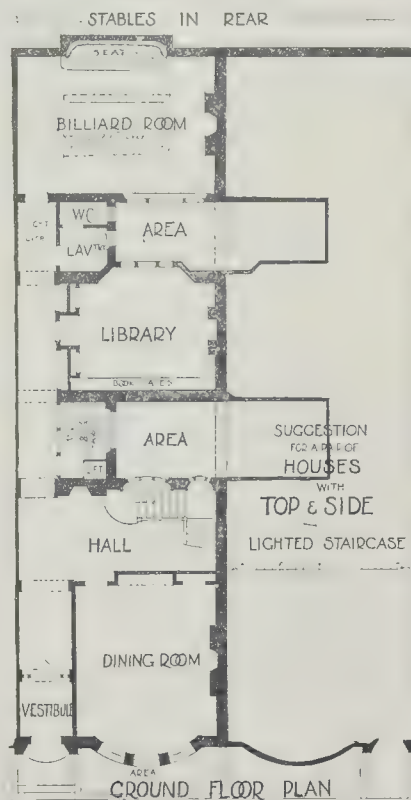


Fig. 8.

light and giving ample ventilation, which is not to be obtained by the merely top-lighted staircase. This is a simple solution of the problem, and might be more often adopted with advantage. It breaks up the long shadows cast by the upper flights of stairs and landings, and gives a sense of brightness and airiness which has proved attractive. There is another determinant as to the position of the staircase, and that is the planning of the drawing-room, e.g., first floor. If double or connected drawing-rooms are required the staircase cannot be taken up between the rooms in the ordinary 20 ft. to 30 ft. frontage; if, however, connected rooms be not required, and the site is sufficiently deep, a central staircase, lighted either from the top, or from an area, or from both can be obtained, and the examples of this type shown are worth studying. A second staircase should, wherever possible, be provided—in the smaller houses, of course, it is not possible—and its substitute, although sometimes practicable, is expensive—it is a small passenger-lift. But unless this can be worked by electricity, and arranged to be used without a special attendant, it is not of much use.

Whilst dealing with the position of the staircases the relation of same to the kitchen is of great importance. In some of the old plans the service appears to have been almost lost sight of, and the labour to the servants must have been immense, and would not be tolerated by the present-day domestic servant.

The diagrams—which have been prepared from published plans or works actually carried out—in most cases show therefore that the position of the hall and staircase settles the general lines of the plan, although capable of much variety in detail, according to the skill of the planner and the possibilities of the site.

In the smaller sized house it is not always possible to have a central or even an important staircase, but a well-designed one adds to the character of the house, and the very ordinary straight flight may be varied by reversing the bottom steps—vide example—and thus, by a little contriving, a position is secured for a fire-



place, and the ordinary "passage" effect is avoided.

The rooms upon the ground floor usually required are a good dining-room (and remember that 15 ft. in width is the minimum for comfort), a library and morning or own room, and a billiard-room is now more often asked for than formerly. If space be limited upon the ground floor, a billiard room can often be devised in the basement; but in such cases a staircase separate from the servants' stairs should be arranged so that access can be obtained without passing through the servants' rooms.

The gentlemen's water-closet and lavatory should be upon the ground floor, and well screened.

Passing to the drawing-room floor, we have to decide whether there are to be two drawing-rooms or a single drawing-room and boudoir, with perhaps a guest's bedroom. For the ordinary house a large drawing-room, with smaller back drawing-room, with large doors between and a small boudoir, is a very useful arrangement. If possible a water-closet and lavatory should be provided upon this floor, if a well-screened position can be discovered. If a guest's bedroom be planned upon this floor, a dressing-room and bathroom and water-closet are very desirable, and unless space prevents should be arranged.

The second floor is usually given up to the heads of the family and ordinary requirements demand a good bedroom with dressing-room (large enough to use as an extra bedroom), bathroom and water-closet, and one or two smaller bedrooms.

The principal staircase can sometimes with advantage terminate on this floor, and the back staircase become the staircase to the upper floors; but it should in such a case be well arranged and of more importance than the ordinary back stair. The drawback to this plan is that it becomes common to the family and servants. A skilful planner can often solve this difficulty, however.

The third floor usually follows the arrangement of the second floor. If there are children to arrange for, then special planning is required, and the accommodation should consist of a large dayroom, two or three bedrooms, bathroom, water-closet, nursery pantry with sink, small larder, linen store, and plenty of cupboard accommodation—and a lift in this case saves much labour.

On the fourth floor the servants' bedrooms, boxroom, cistern-room, and, if possible, isolation-room, should be arranged, with easy access to the roof and from thence to adjoining roofs in case of fire.

Descending to the basement, let us first glance at the plans of some old houses and compare them with those of recent date, and try and discern the reasons for the development. It is a mystery that with the drainage arrangements which existed (or the lack of them) to recent times the death rate of London has been so low. It was until quite recently a common occurrence for the drainage to go into loosely-formed brick channels, very close to the underside of the basement floors and leading to cesspools constructed right under the houses; and in dealing with old houses close search should always be made for open jointed pipes laid in brick drains and cesspools disused, but full of foul matter.

As previously mentioned, it appears as if no careful study were made of the planning of the basement in the old houses—masses of brickwork, long dark passages and recesses abound, windows were absurdly small; it seems almost impossible that servants could have lived under such conditions; the very defects of planning increased the staff required to do the work of the house, for dark rooms and passages are almost synonymous with dirty rooms and passages.

Many of the old examples show that the position sometimes selected for the kitchen was about as far from the dining-room as possible, and lifts were not then in use.

The water-closets in the plan shown in a well-known book lead out of the men-servants' bedrooms, and in many of the Harley-street houses as originally planned the water-closets were against the party-wall and without a ray of light, and no outside ventilation was possible. These defects, together with the old open-jointed drains and cesspools, were, indeed, strange and awful combinations. The examples are typical of hundreds of such cases which existed until quite recent years, and, indeed, are not yet extinct.

The difficulties of the older architects were increased by the necessity of providing laundries and bakehouses, which were often placed in the basement. Steam laundries and bakeries have helped to solve these difficulties, and we are able to concentrate and centralise the work and service of the basement to a very great extent. No part of the house will pay better for able planning than the basement.

It will not be necessary to describe in detail the rooms required in the basement, but only to insist that their proper relation to each other and to the upper rooms is of the utmost importance for the economical working of the house.

It was time that the old order gave place to the new, and that the comfort and welfare of the servants be taken into consideration, for without such consideration the comfort of the owners and occupiers must certainly be lessened, and an abnormal staff of servants will be required to do the housework.

The problem of how to adapt old houses such as are here indicated—to bring them, in the words of the house agents, "modernised up to date"—is one often presented to the architect.

By studying carefully how to concentrate the service, by rearranging the rooms, by enlarging the window openings, obtaining borrowed lights and glazed doors wherever possible, many of these old basements can be made light, easy to work, and perfectly healthy; but it is not a task to be entered upon lightly, and will often call for more skill and patience than the average man cares to bestow upon the matter. These exercises are, however, of very great use to the house planner, as from the very defects one learns what to avoid in planning new work.

There are numerous small points that go towards the proper equipment of even an ordinary-sized town house; amongst them may be mentioned: Plenty of cupboard accommodation and good linen stores—but see that these are in suitable positions.

A carefully arranged dinner and service lift from the basement to the top floor, if possible, and large enough for coals and ordinary luggage, should be arranged. The well of the back staircase is a good position, but this sometimes is farther from the dining-room than is desirable.

Telephones or speaking-tubes from each floor to the basement save much labour.

Hot and cold water services upon each bedroom floor, and at least two bathrooms, are required in a well-arranged house of the class we are considering.

The careful arrangement of the electric lighting to control and to avoid waste must be studied, and the architect is the proper person to arrange these matters, which should be thought of when the plans are being made to avoid trouble and annoyance afterwards.

The Public Health by-laws must not be forgotten, and the proper arrangement and disposition of the bathrooms, water-closets, housemaid's sinks, &c., if not well considered in planning, lead to trouble and waste of money to an alarming extent.

No doubt all these considerations have added greatly to the difficulties of modern house planning, but by dint of much patience and persistent labour the various offices can be properly and correctly placed and—although we may envy our brothers of the craft who in earlier times had practically solved their problems when the ground and first-floor plans were made—we of this day must face our difficulties and take our pleasure in solving them. We must not be content with a thing that "will do," nor relax our efforts until we feel we have arrived at that happy compromise, the best that can be done "under the circumstances of the case." When the plans are all carefully drawn out, then is the time to study in detail the position and size of doors, fireplaces, and windows, to throw light into the dark corners, to provide a proper place for everything, and therefore leave no chance for a thing to be out of its place.

"The little more, and how much it is—the little less and what worlds away!"—Browning.

The architect should be his own severest critic, and should not rest so long as he can see there is a point which can be improved.

The examination of the plans published in our excellent professional journals show often enough that this is not done, and very imperfectly and badly arranged houses are still being planned and unfortunately built!

Our young architects should make use of the many advantages these illustrations offer them by way of examples, and when real practical work comes they should first carefully consider what has been done before committing themselves to working drawings, which may not be the best solution of the problem.

Finally, if we are to arrive at dignified and comfortable houses, "cranky" notions and mere eccentricity—which is commonly called "originality," must be set aside.

Most people require houses to live in. We should therefore strive to concentrate the work of the house to make it, as far as possible, bright, cheerful, and well arranged and well constructed. Give every opportunity to let such sunshine as we are blessed with enter the house wherever possible, and by so doing you will add greatly to the health and comfort of its occupants.

Professor Beresford Pite, in proposing a hearty vote of thanks to Mr. White for his carefully prepared paper, and for his interesting collection of diagrams, said the lecturer had given them a very able review of the development of house building in London. The house in which that meeting was being held (No. 9, Conduit-street) belonged originally, he believed, to a nobleman, and perhaps someone could tell them when it was acquired by the Architectural Union Co. At all events, it was of the interesting late Adam period, and in it were remains of some very delightful features. The old brick houses that followed the Great Fire, of which a few were still left, were very interesting, and they helped one to form a clear idea of what the brothers Adam did—how they got quite away from the large, bulky, freedom of Wren's school and imported what was really an artificial delicacy of form with the aid of Italian workmen and mysterious compounds—gums and shellacs mixed in with their plaster and kept a dead secret, and the curious refinements which they applied to the fronts of their houses—decorations which we see at the Adelphi, and that seem to be scarcely appropriate, or those very extraordinary flat pilasters, of which there were types in Portland-place, with the party wall probably finding its centre in the middle of one of them, if not in the middle of the pediment. From that flat, refined method, Nash seemed to have revolted, for there was much depth of effect in grouping and piling up of colonnades seen in his work in Regent-street, which was evidently a protest against the over-refinement of the Adam method. Meanwhile, of course, without the assistance of the Adams, houses began springing up for the smaller professional men, such as architects and doctors, in Bloomsbury, Guilford-street, Gower-street, &c., before they were disfigured by work done at the expiration of leases—before the addition of sanitary blocks behind and bay windows in front. There was much in the Bloomsbury district that was very simple and interesting, which seemed to represent the current tradition apart from the special work of the Adams and Nash. With regard to Mr. White's criticism of the plans of the large houses, we could hardly criticise them at the present day. Each one of those plans represented the mode of life of the time, just as our plans represented the mode of life of our time. Those suites of rooms with only one water-closet in each suite were intended solely for one person, for the members of those large houses were parcelled out into suites. As to the servants or attendants, he supposed that few architects had to do with clients who, nowadays, were troubled with too many servants, but those large houses in the West End referred to by Mr. White, were built so as to accommodate the servants the owner brought up from the country in the season. It was nothing for the servants to carry the food a little distance, and domestic ideas governed the whole plan. He supposed the day would come when the kitchen would be on the ground floor, and we shall live by the aid of a speaking tube and so forth; or as people were being crowded more into small spaces, large houses will cease to be built, and people will live in flats and would have no spare accommodation at all. There was a great deal of practical common-sense in Mr. White's paper. As to the internal effect of light in a room, if they carefully judged the effect of the light from their windows by observation rather than from plans they would be amazed sometimes by the way one or two windows would light a room—they would never imagine, for instance, that



certain rooms could be properly lighted by the windows provided. A little careful observation as to how that was achieved would help them to obtain valuable facts. He knew a very long room which had windows only at the two ends, but it was beautifully lighted and some tapestries in it could be seen quite admirably. Each end of the room was a shallow curve, and the windows came right down to the floor and very nearly up to the ceiling. The effect was most unexpected and hardly to be believed, but by noting such effects one knew that they could be produced. As to halls in London houses, he hoped the fashion would soon pass away, for in a London house the hall was a great mistake. There was no real comfort in a hall unless it was of ample size. The hall in a country house was generally the largest room of the house, and it should be large enough for the principal rooms on the ground floor to open on to it. One felt a sense of ease in getting into a house with a plain and straightforward plan, and with an ample entrance and easy access to the staircase behind. He did not like a complicated plan for a town house, for he liked to go into a house and know where he was going. The needless dodging about in some modern London houses was a little trying, and he hoped that architects would improve on that before long. Another point in connexion with the staircase was the great desirability of breaking it into two flights, so as to prevent the spread of fire should an outbreak occur. If the staircase went right up the house from ground floor to top without any break a shaft was provided, and fire had an easy means of reaching the top of the house. Mr. White had indicated some of the advantages of breaking the flight of the staircase, and there was this additional one of affording a possible escape to the inmates when the lower part of the house was on fire: the staircase would not burn throughout, and the risk was divided by the staircase. Architects ought to dismiss from their minds the "terrors" of Building Acts, ground leases, and vested interests. They had to be faced, and were not a very serious part of one's existence, and they did not affect the fundamentals of planning—the means the architect had of meeting the client's wishes and of being simple in plan. Upon the architect's house-planning much more depended than they thought. We were apt to look down upon our grandfathers and their habits, but we judged them by the houses in which they lived, by the way in which their houses were arranged, and we liked those stately houses, with their classical reminiscences. A century hence would people be saying as much for our houses? Would they, instead of talking, as we talk, of the good old Adam period, refer to the awkward, crooked period, when every one wanted a house as crooked as it could be got?

Mr. Max Clarke seconded the vote of thanks. He said he lived in a house in Queen-square built about 1613, and he could emphasise the fact that in those days, as in these, there were speculative builders. The lease showed that, and before the house was finished the builder was in a state of bankruptcy. There was an old house in Great Ormond-street, next door to the Working Men's College, which was at present uninhabited, and, he believed, was unfortunately to be pulled down, and he called attention to it because it was well worth a visit.

Mr. T. H. Watson said the subject was a most interesting one. Unfortunately, the house was that part of the architect's work which was most subject to destructive influences. There were not only age and decay, but the environment, which caused a house to get out of date, and become unusable sooner than most other buildings. Again, there were fashion and taste, which gave rise to a difficulty, for unless the architect were a very strong man he had to subordinate his own taste to the more or less fancied taste of the employer, who insisted, for instance, on having certain windows low when the architect thought they ought to be high. As to Mr. Norman Shaw, he had traversed an enormous field in his accomplished work, and it could not be expected that other architects with their more modest abilities should be able to do that—at any rate with the skillfulness that had attended his efforts. He thought, therefore, that they should ask themselves on what part of their work they could best concentrate their efforts, selecting that part which would have some chance of enduring. In two of the plans by Robert Adam which he saw, there was the same mind at work, the same leading up to

the general treatment of the house, but one house was less interesting than the other. In one there were not two rooms which were precisely the same; in the other there were four which were repetitions. The element of charm and variety in the first seemed to be lacking in the second, and probably the first was a later effort. This style of house had changed a good deal because people had changed their habits in the matter of surrounding themselves with ornaments and works of art. The painter, for instance, did not favour pilasters, because he wanted a plain wall surface for his pictures, and the architect had to ask where he was to assert himself. On the outside of the house he was more free, and if he wanted to put in his best work, and where it would be most appreciated, he would concentrate his work about the doorway and in the hall and the staircase, for there he would have an opportunity to do permanent work which would mark his individuality. But in living-rooms, where people spend so much of their time, the occupants got tired of seeing the same thing constantly before them, and it was a mistake to put in such marked treatment as one could do in another part of the house. He knew a club in London (and it could be better done in a club than in a private house) where the internal decorations were in a permanent form of faience. Every one was charmed with it at first, and they thought they would like it always, but it was found that the mind tired and wanted variety. In those parts of a house where people live constantly it was desirable that decorative work should be so done that it could be readily changed. Doors might be of mahogany, and they might last for two hundred years and always be agreeable, but it was not necessary to have the walls and everything else carried out quite architecturally if we were to submit to the change of taste and fashion—changes which occurred more frequently now than they did a few years ago.

Mr. H. G. Collins said that many of them would remember the valuable work Mr. White did in the early days of the Discussion Section, and the paper they had heard seemed to be an outcome of the training Mr. White seemed to have got there. One would have liked Mr. White to have described some of the charming early Georgian houses—houses like one he knew in Davis-street. The members of the Association who recently visited the Duke of Marlborough's house would bear out Mr. White's remarks about the domestic parts of a house. Mr. White made a good deal of the importance of the kitchen in a house, and no doubt he was right, especially in view of the servant trouble. Mr. White rightly advised two staircases in these houses—or, rather, a staircase and a lift which the ordinary occupants of the house could work. Where were those lifts to be obtained? Their upkeep, too, was sometimes very costly.

Mr. Henry Lovegrove said he had an intimate acquaintance with a large number of old houses in by-streets. He often went into some old houses in Norton Folgate, which had some remarkable detail, but he had looked in vain for one thing, *i.e.*, a room large enough for the social functions which Dickens and Thackeray described. It was a puzzle to understand how these small rooms accommodated the people. The entrance doorway was often very nice, but the front room was exceedingly small, and often badly lighted. The back room was small with an angle fireplace and a large cupboard, with another inadequate window. In the basement were the kitchen and a number of offices of an exceedingly incomplete character, according to modern ideas, and the sanitary arrangements were very bad. There was something very pleasing, however, about these houses, though it surprised one to see an inch partition going across a room, now used as a factory, cutting through mouldings and details. There was one thing about these houses which struck one, *i.e.*, the fine staircase, which, however, was not always beautiful. The handrails and balusters were often very massive for the size of the house. As to basements, how were they to be avoided in the centre of London? He was in conversation recently with a house agent who told him that houses with basements in his part of London did not let because servants did not like them. Servants wanted so much nowadays that architects would soon have to provide accommodation for them in which they could practice the piano and violin and store bicycles. Mr. White said that architecture ceased to be a living style in the early

Georges, but they used to be taught that it ceased to be a living style at the Reformation.

Mr. Francis Hooper said that the charm of the country house lay in its being spread over as wide an area as possible, and with as much space in every part as could be afforded, whereas in a town house everything had to be restricted, and every attempt made to acquire the greatest amount of light possible in a building which was lighted, probably, only from the back and front. He wished to remind the members, in speaking of lighting, of an extremely valuable paper by Mr. Aston Webb on "Fenestration," in which a good many hints and illustrations were given of things to avoid and things to take advantage of. In his experience it seemed that people of a certain standing did not live in such large houses as similar people did a century ago. At all events, patrons like those who engaged the brothers Adam to build town houses seemed to have less money to spend than was the case in the Adam period. Everything now was a tighter fit, and whereas the houses in Bloomsbury to which reference had been made had spacious staircases, those erected to-day in Kensington with about the same rentals had narrow staircases and generally were more restricted. Probably the explanation was the greater cost of land and also the greater desire for privacy; labour-saving needs, too, helped to cut up a plan and make difficulties which Adam never had to trouble about. As to the kaleidoscopic aspect of our streets to which Mr. White had referred, we all knew what that meant—the effect of a gabled house next to a house with a long, straight parapet. We went into districts which had been planned on "a big lay out," and could feel a sense of relief even though we lost a certain amount of individual interest. Many present knew that the Ecclesiastical Commissioners had arranged at Knightsbridge that some hundreds of feet of frontage should be carried out on a comprehensive design in regard to the elevation. They would all watch with interest the result of Mr. Carré's undertaking in this matter, and, if it were successful, possibly it would lead to other schemes on similar lines. As to sanitation, it seems strange that our forefathers were able to live with such extremely bad arrangements. While they lived on in spite of most primitive sanitary arrangements, we have outbreaks of diphtheria as soon as a soil-pipe has a pinhole in it. Our forefathers lived over cesspools with no drainage system at all, and perhaps that was possible because a septic tank was accidentally formed which removed some of the danger. Water-closets used to be put inside houses without external ventilation, and pipes went through the house in a very haphazard way, and discharged into the cesspools of buildists of no great antiquity.

Mr. James Boyton said, as to basements, it was all a matter of environment as to the needs of a neighbourhood. Land was too expensive in Harley-street, for instance, for kitchens on the ground floor. Mr. White had given considerable attention to the domestic difficulties of the present day, and had provided very habitable, desirable, and convenient basements to his houses. Architects, no doubt, labour under more difficulties than did the brothers Adam, and present-day architects did not have the chance of designing the side of a street—he did not know that it would be altogether for the good of the profession if they did. In the days of the brothers Adam there was less competition than there is now. As a vendor of houses, he appreciated their difficulties in dealing with modern conditions. There was, first of all, the ground-rent, which was so much greater than in the days of the Adams; then the cost of building was very much greater; and all that affected the architecture, of course. But even the brothers Adam had to face difficulties of cost, as was to be inferred from the fact that they put a beautiful ceiling in the front drawing-room of a house and a plain one in the back room; while in the next house they had the beautiful ceiling in the back room, but not in the front. One thing he had noticed lately was that in our narrow streets architects were putting on the top floor of buildings massive cornices, and he did not think they should put such a mass of masonry in such a position. He could not understand their putting such cornices in narrow streets, and using in domestic architecture cornices that might be found on St. Peter's at Rome.

Mr. John Murray said the time had arrived when public authorities in London should lay



down some regulations with regard to the horizontal lines of the architecture in our streets. He was very pleased to hear that there was a commencement of the kind being made at Knightsbridge, and he hoped it would lead to a new era in regard to the architecture of the streets in London. If that were the result, it would give architects another chance of exhibiting their skill in the designing of London houses.

Dr. A. F. Voelcker said that, to a medical man, the question of house design must have a certain amount of practical interest. For the well-being of the community, it was very essential that there should be a plentiful supply of light and air into modern houses. He had been interested in hearing of the attention paid to the requirements of modern families. A medical man in Harley-street referred to his ground floor as "the shop," and he lived over his "shop," as a rule, the basement serving as the kitchen and administrative part of the house. Then there were the social rooms and the nurseries to be arranged for; and as to nurseries, it was important that children should not have more running up and down stairs than was necessary, and food for them should be kept in a room apart from the dwelling rooms and independent of the basement. The supply of bathroom was also an important point. He could testify to the admirable thought Mr. White showed in his arrangements for the servants; too often such arrangements, often deficient in light and air, were a disgrace.

The Chairman, in putting the vote of thanks, said the subject was of great importance, especially to architects practising in London. One of the difficulties in the design of houses in London was, from the architectural view, the fact that they were dealt with separately. He thought there was a good deal to be said in favour of dealing with blocks rather than single houses. Single houses gave the opportunity for a good deal of individuality, and variety was given to a street that way; but there was a great deal more dignity in streets or terraces which had been treated as blocks, such as Regent-street and Portland-place, &c. As to the Knightsbridge scheme, it was more interesting than might have been gathered from what had been said, for the buildings were not all being erected by one architect. Every house in the scheme would have its own architect, but there was, for the whole scheme, a consulting architect, who was to exercise some sort of control over the designs, so that there might be a governing influence in them all. The study of old London houses dating from the early part of the eighteenth century was one which might be followed with a good deal of advantage. Mr. White had criticised very severely some of the practical arrangements of these houses, and with great justice, from the modern point of view; but there was a great deal to be learnt from these houses, for all that. There was a dignity in the way they were planned and arranged which one did not often find in the ordinary modern house. Two houses by Adam, plans of which were shown, were excellently arranged from the reception point of view; the arrangements were much more complete, and there was much greater variety than one often met with in a modern house. There was one point which he did not think had been mentioned; one of the charms about the houses was the variety in the shape and arrangements of the rooms: one rarely found two rooms alike, and that was one of the points Adam used to pride himself upon; and in order, to get this variety he introduced rooms in shapes which were to a great extent new at the time. The circular and oval rooms were particularly interesting and beautiful in many of these houses. He had had the pleasure to deal with a house of the Adam period, and the effect of the circular dining-room, with a circular table in it, was very good. As to the distance of the kitchen from the dining-room in some of these old houses, that must have entailed a great deal of extra labour, but the designers of those houses were not perhaps so stupid as it might appear at first sight. In the ordinary terrace house in London one of the difficulties, rarely properly met, was the smell of cooking all over the house; and probably the principal reason why the kitchens were arranged, in these old houses, so far from the dining-rooms was in order to keep the smell of cooking from spreading over the whole of the house. He thought that Mr. Norman Shaw's houses were quite the best examples of modern street architecture,

both as regards internal arrangements and architectural treatment. A house in Queen's Gate, which looked so extremely simple and plain on the outside, had some of the most effective planning he had ever seen. Another point of interest in Mr. Shaw's houses was the way he varied the levels in some floors, and made his plan interesting in that way. Their thanks were due to Mr. White for the trouble he had taken in the preparation of his paper and diagrams, and also, he understood, to Mr. White's assistants, who had entered very heartily into the preparation of the diagrams, &c., for the occasion.

The vote of thanks having been heartily agreed to,

Mr. White, in reply, said the subject was too large to be dealt with in one evening, except in a cursory way; but the idea of meeting and discussing a subject was in order to give one another ideas to carry away, and especially so that the young members might, if they chose, know the lines upon which to follow up the subject. He quite agreed with Professor Pite that studying the actual effects of windows in a house was the best way to ascertain whether the windows they planned and designed would really answer their purpose. As to cesspools near or under old houses, unless it was that those cesspools became septic tanks, he did not understand how the people lived. It must at any rate have been a case of the survival of the fittest.

The Chairman said that the next meeting will be held on April 3, when a paper will be read by Mr. Banister Fletcher on "Palladio."

The meeting then terminated.

#### THE ARCHITECTURAL ASSOCIATION SPRING VISITS:

##### IV.—TOTTERTOWN FIELDS ESTATE.

On the 21st inst. the Architectural Association visited the Tottertown Fields Estate at Tooting, which is now being laid out by the London County Council under Part III. of the Housing Act.

Every care has been taken by the Superintending Architect, Mr. W. E. Riley, and his assistants, Messrs. R. Robertson, W. Hynam, A. M. Philips, and E. S. Collins to make the visit a complete success. Various plans had been posted up, and Mr. Riley himself having first given a most interesting description of the estate, conducted the party round, explaining by the way many points of constructional interest.

The estate of 38½ acres was purchased some three years ago at a cost of 44,500l., and, in order to secure adequate financial equilibrium, it was considered necessary to erect thirty-two cottages per acre, giving an average of 221 people per acre, or 8,536 persons on the whole estate. It is an interesting comparison to note that at Bournville there are about eight cottages to the acre, while at Port Sunlight there are about half that number. It may, however, be said at once that all appearance of overcrowding has been avoided on the Council's estate by the skilful planning of the cottages and the lay out of the estate generally, while the nature of the site, which has a two-way fall, lends its aid to this effect.

The estate is being developed in three large sections, and at the present time the first section, comprising about a quarter of the estate, is approaching completion, and every credit should be given to the authorities for the fact that scarcely a tree will be destroyed, and special arrangements have been made with the adjoining owner for the preservation of a fine row of elms just over the boundary.

The cottages are divided into four classes, with various minor differences in each class, and are made up as follows:—

First Class.—One hundred and thirteen cottages, consisting of five rooms and a scullery each.

Second Class.—Three hundred and fifty-three cottages, consisting of (a) four rooms and a kitchen, and (b) three rooms and a kitchen each.

Third Class.—Six hundred and fifty-three cottages, consisting of three rooms and a scullery each.

Fourth Class.—One hundred and four cottage flats, consisting of two rooms and a kitchen on the ground floor, and three rooms and a scullery on the first floor.

Rents will vary from 12s. in the first class to 6s. in the fourth. In the actual areas of the

rooms, there is not a great difference between the classes as regards bedrooms; but, in the fourth class, some of the living rooms are only 130 square feet, as against 150 square feet in the first class and 158 square feet in the second, and 144 square feet in the third.

The roads on the first two sections have been laid out, the contract having been executed by Mr. Coxhead. Messrs. C. B. Roberts & Co., of Redhill, are the contractors for the building work. The question of the adequate healthy housing of the working classes is, perhaps, one of the hardest problems of the present day, and, as this is the first scheme of the cottage nature carried out by the County Council, it presents innumerable points of interest, not only to the architect, but also to the student of sociology. The financial aspect is the base from which the scheme must be first viewed, and but a slight consideration of this shows that we are at once face to face with the bedrock of building, for the high price of land in suitable situations reduces the amount available for sound building, with any financial return, to the lowest possible limit. Unlike Port Sunlight or Bournville, there is no end to serve but the most economical housing of the poorest classes of the community in such a manner that the maximum amount of fresh air and sunlight can be obtained, while still keeping the whole scheme upon a perfectly sound commercial basis. The rapid improvement in quick and cheap transit now offered by means of electric cars has supplied a key which bids fair to open up the long-sought remedy for "the pale looks and sunken faces," and the lowered standard of physique which has become so patently apparent in our great cities.

Face to face, then, with this bedrock it is a matter for congratulation that the economic difficulties have not eliminated the expression of a fine feeling for the architectural possibilities of the case, and, simple as the external treatment is, it is in no way commonplace and is in marked contrast to the ordinary buildings of this type.

The cottages are in terraces, and owing to the broken nature of the ground a good deal of variety is imparted to their outlines, and the monotony of level rows of similar fronts is thus naturally avoided. The materials externally are London stocks, and by the plentiful use of "fired" or highly-coloured headers a distinctly rich tone of colour and surface has been obtained which is in pleasing contrast to the rough cast with which the walls are covered above the first-floor level. The eaves are finished square by lathing and plastering, the rafters feet, giving a workmanlike finish which has also the economic value of minimising the yearly outlay on painting. The roofs are covered with Delabole slates. The use of salt-glazed bricks to the entrances, cheerful colours for the paint and various other small matters of detail, all assist to impress on the mind that no point has been overlooked to combine efficiency and economy with effect.

As regards planning, the most striking feature is the entire absence of the "back addition." The cottages are square back front, and thus sun and air have full play on both sides; and in the fourth class the open yard, common to four families, is clear and unfettered of all obstructions, and to avoid friction among the tenants, has been paved throughout. The closets are so planned that, though entered from an external lobby, they do not break the square line of the back elevation. Internally, all finishings are of the plainest description—the simple fire-brick stoves, with iron removable grids, being perhaps particularly neat and workmanlike. It is much to be regretted that the management have insisted on grained and varnished woodwork, which always has a common and cheap appearance, and seems particularly inappropriate when compared with the rest of the work.

One fact must have been borne in upon all members, and that is, that all rooms, no matter how small, are bright, light, and cheerful looking, and to one who knows well many of the dark and wretched slums of London, the visit was indeed a pleasure.

In the present age of rapid change it is impossible to say whether the financial aspect is absolutely sound, but that schemes of this sort will improve the lowered standard of national health, there can surely be no doubt, and on this ground alone great credit is due to all those concerned in the undertaking.

Tea was provided by Mr. Riley, and a vote of thanks to him and his assistant archi-



fects for their kindness and trouble was proposed by Mr. Louis Ambler, and most cordially agreed to by the members, to whom the visit was an unqualified success.

#### THE LIGHTNING RESEARCH COMMITTEE.\*

THE Committee formed two years ago by the Royal Institute of British Architects and the Surveyors' Institution to investigate the action of lightning strokes on buildings, with a view to the improvement of current methods of protection, have circulated among their observers a summary of cases recorded for the Committee of buildings struck by lightning and damaged during the year 1902.

At the beginning of the year the Committee considered that the previous year's observations had given them all the data needed as regards non-protected buildings, and they decided to confine their attention for the future to cases where buildings were struck and injured in spite of the provision of lightning-rods for their protection. Out of sixty cases recorded for the Committee in 1902 no fewer than twelve were of buildings fitted with some form of lightning-conductor. Considering the numerical ratio of protected to non-protected buildings, and allowing for the fact that protected structures are usually in some of their parts in more exposed positions than the non-protected the proportion must be considered extremely unequal.

In face of some recent disasters brought to the notice of the Committee, it is not surprising that dissatisfaction is felt with the system recommended by the Lightning Rod Conference of 1882. Last year the Committee's observers sent in reports of sixteen protected buildings struck by lightning—some slightly, others very seriously injured, or entirely destroyed in parts. Details of these will be given in the final report of the Committee, together with comments thereon. An interesting case may be quoted. It is that of a large country house in Sussex, erected some twenty-eight years ago, and till recently without any form of protection. In 1901, a church in the immediate neighbourhood having been struck, the owner of the house for greater security, decided to have lightning-rods put up. An elaborate system was installed, and completed in March, 1902, nearly every portion of the building having its own final and conductor. During the storm season of last year, the house was twice struck—on June 17 and on August 8. On each occasion, besides other injuries, a chimney stack was damaged, the brickwork being split up and the cappings, stones dislodged and hurled about in all directions. The lightning-rods on the damaged chimneys were torn from their supports and much bent.

Other protected buildings recently struck, of which reports have been received, include All Saints' Church, Boyne Hill, Maidenhead; St. Andrew's Church, Mark's Tey, Essex; New St. Pancras Church, Marylebone-road; Swanscombe Church, Kent; St. Botolph's Church, Aldgate; St. Michael's Church, Highgate; Devaer Island Lighthouse, Argyllshire; South Foreland Lighthouse; factory chimney, Nelson, Lancs.; Cavendish Laboratory, Cambridge; Tiffin's School, Kingston-on-Thames; Ainsworth Mill, Lancaster.

All these cases are being carefully studied by the Committee. They hope to be in a position to report on the whole question of lightning protection at the end of the present year, and to offer some suggestions for more efficiently guarding buildings. Meanwhile they desire the continued co-operation of observers in this important inquiry, it being necessary that they should be supplied with as complete details as possible of "protected" buildings, to enable them to arrive at the causes of failure of the means of protection adopted.

The Committee are contributing an exhibit to the LXIX Section of the International Fire Prevention Exhibition to be held at Earl's Court this year, and invite the loan of objects of interest appertaining to the subject for the purpose of adding to their collection. Any one in possession of relics of lightning disasters, and willing to lend them, is requested to communicate with the Secretary to the Committee, at 9, Conduit-street.

The Committee is constituted as follows:—Mr. John Slater, Chairman; Sir Oliver Lodge,

\* From the *Journal of the Royal Institute of British Architects* for March 21.

D.Sc., LL.D., F.R.S.; Major-General E. R. Festing, C.B., F.R.S., Director of Science Museum, Victoria and Albert Museum; Messrs. J. Gavey, M.Inst.C.E., Engineer-in-Chief, General Post Office; W. P. Goulding, F.R.G.S., F.S.I.; W. N. Shaw, F.R.S.; H. Heathcote Statham; A. R. Stenning, F.S.I.; Arthur Vernon, President of the Surveyors' Institution; Killingworth Hedges, M.Inst.C.E., Hon. Secretary.

#### CARPENTERS' HALL LECTURES:

NILE DAM, ASSOUAN, AND EGYPTIAN IRRIGATION.

THE last of the present series of the Carpenters' Company's lectures on matters connected with building was given at Carpenters' Hall, London-wall, on Thursday evening last week, when Mr. Maurice Fitzmaurice, C.M.G., Engineer to the London County Council and late Chief Engineer Nile Dam, delivered a lecture before a crowded audience on "Nile Dam, Assouan, and Egyptian Irrigation."

Before the lecturer was called upon by the Chairman (Mr. Walter Smith, Master of the Company), Mr. Joseph Preston expressed regret, on behalf of the Court, that the lecture for the previous Thursday ("Canterbury Cathedral," by Professor T. Roger Smith) had to be abandoned in consequence of the death of the lecturer. He had known the deceased gentleman for many years and to know him was to love him.

In the course of an interesting lecture, which was illustrated by a large number of lantern slides, Mr. Fitzmaurice referred to the early irrigation of Egypt. From Cairo to Assouan, he said, the inhabited and cultivated part of Egypt is not more than about ten miles wide, and in many places it is only about a mile, and at Assouan it is nil, as the desert comes down to each side of the river. The Egypt therefore to be considered was a narrow strip of cultivated land on each side of the Nile. Egypt was essentially an agricultural country, but there was no rain, and the only water obtainable was from the river. Between high Nile and low Nile the level of the water at Assouan rises about 23 ft., and the discharge of the river was twenty-five times greater at high Nile than at low Nile. In the beginning of May the river is about at its lowest, and its maximum height is about the beginning of September, when the water begins to fall again. During August, September, and October, the water brings down a large amount of rich mud, which was very useful for agricultural purposes. Before the Nile was guided and harnessed as it is to-day, its waters used to spread over the whole valley to the hills on each side, and after a few months the water gradually drained off the land, and the river returned to its proper channel. By that arrangement only one crop was obtained every year. The objection to this was that the water remained longer on the ground than was necessary for growing crops, and that about every ten years the river rose up to the level of the villages and swept everything away.

The lecturer then described the early engineering attempts to change this state of affairs—engineering works constructed before 2000 B.C. In modern times it gradually dawned on the people that they were leaving rich lands without any crops for eight months of the year because water could not be brought on to it, and yet three crops were obtained when water was either pumped on to the land or brought on by gravitation by means of canals. It was difficult to get the water on to the land by canals, as if they were taken directly off the river the water was not high enough to get on to the land during times of low Nile; and to obviate this difficulty weirs were built across the river to raise its level artificially by causing the water to back up and form a kind of large pond above the weir. Canals were then started from this pond, which were able to bring the water on to the level of the land below the weir, or high enough to reduce the amount of pumping necessary. These works were commenced in 1833, but it was not until the British occupation of Egypt that British engineers took the works in hand and sufficiently strengthened them to enable them to do their work. The whole of lower Egypt is now under perennial irrigation, being supplied by six canals taking off the river just above the weir or barrage. The canals are twice the size of the Thames in mean flood, and the barrages are enormous structures consisting of two brick-arched

viaducts—one across the Rosetta, and one across the Damietta branch of the Nile—having altogether 132 arches of 76 ft. span. Each arch can be closed with iron shutters, and during very dry summer seasons all the arches are closed and all the water is sent down the canals and not a drop down the river.

It having been proposed to put a great part of upper Egypt under perennial irrigation, another barrage had just been built at Assouat about halfway between Cairo and Assouan to allow canals to bring water from a high level on to the land between Assouat and Cairo. This weir would raise the water level but give no additional water, and it was to supply this extra water that the reservoir at Assouan had been constructed. It was estimated that the amount of silt the Nile brought down during the month of August was 60 million tons, as well as large quantities in September and October, and no attempt was made to store this water. The storage began, therefore, in November, and for two or three months the excess of water was abstracted at Assouan and stored in the reservoir, and this water was added to the flow of the river as it was wanted in the early summer months.

The lecturer then described the work of constructing the reservoir. Sir Wm. Willcocks, working under Sir William Garstin, designed a masonry dam to cross the Nile, but the dam would have raised the level of the water 80 ft. above the ordinary level, and would have submerged the island of Philæ and the ruins of its fine temple. The dam was lowered, therefore, so as to raise the level of water only 50 ft. The Egyptian Government consulted Sir Benjamin Baker on all points connected with the work. In February, 1898, the final contract was signed, and Messrs. John Aird & Co. undertook the construction of the work. The ironwork and sluices was a sub-contract with Messrs. Ransome & Rapier, of Ipswich. All workmen had to be imported, except a few boatmen. Houses had to be built, and arrangements for feeding the men made before they could be brought to the site of the works. Within six months, a large European village, with about a dozen shops and a large restaurant, was built on the east bank. On the higher ground was a hospital, with separate buildings for Europeans and natives, and wards for infectious cases. Adjoining the hospital, houses for three doctors and quarters for nurses were built. Every attention was paid to the sanitary arrangements, and, though the population around the dam, directly employed on or connected with it, was nearly 15,000 persons there was never any serious epidemic. For the supply of water to the houses and to the boilers and masonry, a reservoir tank was cut out of the rock on the east side of the river, at a sufficiently high level to give a good water pressure all over the works; and this tank was supplied by steam pumps fixed in the flow of the river. Mains were laid over the works, with services to all houses, &c., and connexions all along the dam. Food, timber, coal, cement, &c., had to be brought from long distances; the one thing which was obtained on the spot was granite—the only granite in Egypt, which enabled them to get a good foundation, though at a great deal more trouble than was anticipated owing to the rotten character of the upper layers of the granite. All stone for building was quarried within a short distance of the dam—from the same quarries from which the obelisks and granite monuments were obtained thousands of years ago.

The lecturer then described the construction of the dam (the length of which is 6,500 ft. and greatest height 130 ft.) and the provision of the 180 sluices (140 of which are 22 ft. high and 6 ft. 6 in. wide, the remaining forty being half this size) which are constructed through it at different levels. Each sluice can be closed by a steel door weighing about 7 tons, and these doors, when the Nile is in flood, are pulled up and the sluices fully opened. In November they are gradually closed, and the water-level in the reservoir begins to rise. In the beginning of March the reservoir is full, and only the upper sluices remain open; and it is kept full until the middle of May, the flow of the river passing through the open upper sluices. In May the sluices are gradually opened again, and the water in the reservoir is added to the river during that month and June and the early part of July. By the beginning of July all the sluices were open, the reservoir was empty, and everything



was ready for the Nile flood again. The amount of water stored in the reservoir was 1,000 million tons. In excavating to the solid rock for the foundations, the bed of the river had to be laid dry by building temporary dams, and these had to be constructed during the six months that the Nile was low, the excavations made, and the masonry built. During the six months of low Nile the water was confined to four well-defined channels, separated from each other by masses of granite, and the great difficulty was to get in the foundations in these channels, for even at low-water the depth was about 30 ft. The lecturer described how the difficulties were overcome, and how rapidly the masonry of the dam at the large eastern channel was built when the solid rock had been reached. In one month (June, 1900) 60,000 cubic yards of masonry were laid, and work to the value of 150,000l. was completed in thirty days.

Having referred to the great heat which prevailed during the greater part of the time the work was in progress, the lecturer said that, in addition to the dam, a long canal, with a ladder of four locks, was cut through the granite hill on the west side of the river, so as to allow ships to get from the lower river into the upper, and another work was the underpinning of a great part of the temple of Philæ. All works in connexion with the dam were completed one year before the contract time, at a cost of 2,500,000l.

A hearty vote of thanks to the lecturer brought the proceedings to a close.

[For a full illustrated account of the recent interesting and important works which have been carried out, see our issue for September 20, 1902.]

#### AUTOMOBILE EXHIBITION, AGRICULTURAL HALL.

IF proof were required of the increasing interest taken by all classes of the public in the motor vehicle industry it would be found in the excellent show at the Agricultural Hall. Not only is the whole of the available space taken up, but the hall is well filled by the public. As might naturally be expected, the bulk of the exhibits relate to various types of what may be termed pleasure cars, and to accessories, but there is a very good representation of vehicles intended for the public service and for business purposes. With regard to the former class, it may be remarked that the foreign element is particularly strong, several exhibitors showing well-known cars, such as the Panhard, Germain, Darracq, and Decauville. The most notable British makers represented are the Motor Manufacturing Co., the Maudslays Motor Co., and the Humber, Ariel, and Swift companies. Among new cars exhibited two are worthy of special notice, the "Holcar" and the "Horbick." The first of these embodies many new and important advances in mechanical design, and, although the example on view is intended for private use, the principles are in every way suitable for application to vehicles of all classes. The engine is of admirable design; all parts are so placed as to be readily accessible for examination and adjustment, and it is said that vibration is practically absent during running; but we had no opportunity of exercising judgement on this point. There are four independent diagonal cylinders; speed is controlled by a special automatic governing device, subject to variation at the will of the driver. The cooler consists of two series of small copper pipes, and circulation is assisted by means of a small centrifugal pump, distributing cooling water equally to all four cylinders. Other features of novelty are to be found in the friction clutch, which can also be used as a brake; the transmission gear, permitting the car to be started, stopped, moved forward or backward at slow or full speed by the aid of one handle; the band brake, which acts equally well in either direction; and the adjustable steering pillar, which is pivoted in such a manner that it may be swung out of the way, or instantly fixed at the most convenient angle for the driver. One other detail in this collection of ingenious devices is the new exhaust silencer, the idea embodied being the reverse form of a wind instrument. The "chassis" in question will well repay careful examination. The second new car has a two-cylinder motor, running at 900 revolutions per minute; the transmission gear includes an ordinary clutch and change-

speed gear to the rear axle; the brakes are of the internal expanding type with metal surfaces, and the frame is of brazed tubes. This is a well-finished example of construction, which has distinctly meritorious features.

Turning to heavier types of vehicles, the following may be mentioned:—The "Wallis" motor, with trailer, for heavy haulage; the "Hagen" petrol lorry, for loads of from two to three tons, with trailer and an ingenious form of transmission gear; the "Stirling" omnibus, with accommodation for twelve to twenty-four passengers; the "Stoewer" electric omnibus for fourteen passengers, and capable of running seventy miles on one charge; Fodens' standard size steam waggon, with and without tipping arrangement; the "Brightmore" steam waggon to carry five to six tons, all the machinery being arranged on a frame carried by the front axle, which forms a two-wheel tractor suitable for waggons, omnibuses, field guns, &c.; the "Lancashire" brewer's dray and trailer, suitable for a combined load of 7 tons; the "Coulthard" standard steam waggon; Mann's steam waggon with two speed, designed to carry 4 tons; the "Straker" standard 5-ton and 7-ton steam waggon; the latter capable of drawing, with trailer, a total load of 10 tons; and other vehicles of similar types made by Messrs. Savage, Warfield, Laurie & Marner, and the Yorkshire Waggon Co. In the Arcade there is a particularly businesslike little traction engine, termed the "Little Giant" steam motor, geared for three or six miles an hour, weighing under 3 tons, so being within the limit imposed by the Motor Cars Act, and capable of drawing a load of 3-6 tons. Altogether, it must be admitted that the heavier vehicles exhibited reflect much credit upon those who are concerned in this department of the motor industry. Among tyres shown, the Collier twin tyre should be mentioned, this having taken first place in the recent 4,000 miles "reliability" trial, and the Parsons non-skid tyre attachment is also worthy of examination. Several well-known firms show examples of gas and oil engines, and Messrs. Ransomes, Sims, & Jefferies have on exhibition a serviceable motor-driven lawnmower. Taking it all round, this is a most successful exhibition, and one that well deserves a visit.

#### ARCHÆOLOGICAL SOCIETIES.

BRITISH ARCHÆOLOGICAL ASSOCIATION.—A meeting was held on March 18, Mr. C. H. Cornillon, V.P. in the chair. The following objects were exhibited:—Photographs of a pewter paten of the date 1636, belonging to the church of Cuckfield, Sussex, by Mr. A. Oliver (this paten is described by the Vicar, the Rev. Canon Cooper, in the "Sussex Archæological Collections"); an old newspaper, the *World*, of the year 1788, by Dr. Winstone; some curiosities from Rome and Greece, by Mr. Scott, including coins and a toy model of a Roman lamp, such as were sometimes found in the graves of children; and a Nuremberg token of the fifteenth century, &c. Mr. Nichols exhibited, through Mr. Gould, a portion of a bone dug out of the Chislehurst cutting, which, with many others, was found about 2 ft. below the surface in the immediate neighbourhood of flint flakes and fire stones. The bone had been submitted to the examination of Professor Woodward, who considered it to be part of the humerus of a ruminant, possibly a small red deer, but it was too imperfect in condition to enable him to say more. Bones of the red deer and of the roebuck and horns of the latter were found in the Chislehurst caves many years ago by Mr. Holt of Bromley. A paper was read by Mr. A. Denton Cheney on Postling Church, Kent.—Postling is a small village of some 88 inhabitants (according to the last census) situated midway between two ancient highways about a mile apart leading to the city of Canterbury; that on the west being the old Roman stone street from Portus Lemanus (the modern village of Lympne) that on the east running through the Elham valley with its old world villages of Lympne, Elham and Barham. Although Postling has at all times been a small and insignificant village, it possesses a history which presents several problems of much interest to the archæologist, particularly with reference to its ecclesiastical edifices. Domesday Book represents Postling as possessing two "ecclesiola," a word denoting small "chapels," as it is described by Mr. Larking in his work, "The

Domesday Book in Kent"; or "churches of insignificant size," as it is translated by Hasted and Ireland. There are only two other places in Kent in which the term "ecclesiola" is used in the place of the more important "ecclesia," one being Polton, an exceedingly small manor near Dover, which, like Postling, eventually became the property of St. Radigund's Abbey, hard by; the other being Dartford, where, at the time of the survey, there was an "ecclesia" belonging to the bishop, and three "ecclesiola," which may either have been small chapels of ease dependent upon the mother church or chapels attached to the manors of more or less independent status. It is probable that one of the two small churches at Postling belonged to the chief manor, which, after the Conquest, formed part of the possessions of Hugo de Montfort, and the other to the manor of Honewood or Honywood, the residence of the family of the same name. There is a strong local tradition that one of these small churches stood in the field at the top of the vicarage garden, close to the north side of the hedge. The church of Postling is a small plain Early English edifice, consisting of nave, chancel, and western tower, and is probably of the twelfth or early thirteenth century. In the north wall of the chancel is the original stone tablet recording the dedication of the church on 19, Kal September, on the day of St. Ensebius, Confessor. It is worthy of remark that the church is dedicated to "St. Mary, Mother of God;" but although in 1500 A.D. there were in England no fewer than 1,938 churches dedicated to "St. Mary" or to "St. Mary the Virgin," besides others with double dedications, Postling is the only church, so far as the author is aware, dedicated to "St. Mary, Mother of God." In 1260 the church was presented to the Canons of St. Radigund's Abbey, some three miles from Dover, of which considerable remains exist, since which date it has been known as the church of St. Mary and St. Radigund. An old tomb at the eastern end of the chancel is supposed to be the resting place of Wm. Mersche, Canon of St. Radigunds and Vicar of Postling, 1432. On the walls of the nave may still be traced considerable portions of mural decorations; and of the three bells two are of pre-Reformation date, with beautifully executed lettering around their bases. The church possesses also a curious two-handed piece of plate described as a chalice, dated 1751-2, and said to be the only one in Kent. It is not used in Divine service, and was probably a christening cup. Of special interest to the antiquary and ecclesiologist are the remains of two structures, originally of great size and beauty, which must have been the dominant features of the church in pre-Reformation times. They stood, one across the whole width of the nave, immediately outside the chancel, and the other, of similar type, inside the chancel, about midway between the east window and the chancel arch. The first was undoubtedly the rood-beam; that in the chancel, probably, supported a shrine or reliquary, which possibly contained a relic of St. Radigund. The remains of both structures still evidence beautiful carving, colouring, and gilding. In the discussion following the paper, Mrs. Collier, Mr. Gould, Mr. Patrick, the Chairman, and others took part.

SURREY ARCHÆOLOGICAL SOCIETY.—The annual meeting of the Surrey Archæological Society was held at Guildford on Saturday, when some particulars were given of the excavations which have been continued during the year at the Cistercian Abbey at Waverley, near Farnham. Lord Middleton, who presided, said the task, when completed, would form the biggest and most important piece of archæological work ever done in Surrey. The Society of Antiquaries have just made a further grant towards the work, which is being carried out under the personal supervision of the Rev. T. S. Cooper and Mr. Henry Horn-castle. The most interesting discovery of the year is a second Guest House of the same date as the later portion of the lay infirmary. The dimensions are nearly 44 ft. by 21 ft., and the buttress bases and those of the central pillars are in excellent preservation. The building is to the west of the church and almost adjoins on to it, the entrance being on the south side, connected with a large courtyard, having an important western gateway. The Society voted thanks to Mr. Rupert D. Anderson for allowing the excavations to take place, and granted a further sum towards the work.



## Illustrations.

## SOME EXHIBITS AT THE ARTS AND CRAFTS.—III.

**W**E give this week some further illustrations of work shown at the Arts and Crafts Exhibition.

The following are the catalogue descriptions of the work, with the reference numbers on our plate added:—

No. 1. Needlework decoration for an overmantel by Mary J. Newill, assisted by Violet and Evelyn Holden.

No. 2. Ebony and pearl mirror frame by S. H. Barnsley.

Nos. 3 and 4. Illuminations by Florence Kingsford.

The needlework panel represents "Gareth and Lanyon," the subject being treated in a decorative way for an overmantel. The ebony and pearl mirror frame by Mr. S. H. Barnsley (which we saw also at the recent Turin Exhibition) is one of the best pieces of furniture in the exhibition; both in regard to material, design, and execution, it is equal to the best periods of English furniture. The illuminations by Miss Florence Kingsford illustrate No. 3, a passage in the Book of Genesis, and No. 4, one from the "Song of Songs." The illustration of the moment of Eve taking the forbidden fruit (No. 3) is not only fine in a decorative sense, but impressive in its symbolical treatment—the action of the animals indicating the first dawn of savage nature in the brute creation, following on the first sin of mankind.

## COMPETITIVE DESIGN FOR A CHURCH.

We publish this illustration merely as an example of a very interesting study in church design. The manner in which the buttresses are treated, as circular turrets, gives a partially castellated appearance which is all the more effective from its contrast with the rich effect of the open-work tracery of the parapet.

The design is the joint work of Mr. F. C. Eden and Mr. Williams, the authors also of a picturesque piece of church design published in our issue of February 7.

## THE ROYAL VILLA AND GOLF PAVILION, COQ-SUR-MER.

The little watering-place of Coq-sur-Mer, some eight or ten miles from Ostend, has been taken under the special care of his Majesty the King of the Belgians, who has spared no effort to make the place attractive. Besides his own villa and the golf pavilion, the King has laid down golf links, and has formed a paved motor-car track from near Ostend. Local bricks of small size, six courses to the foot, of many varied colours are employed, and local tiles for the roofs. M. Fichat et Frères, of Brussels, are the contractors for these buildings, and the architect is Mr. Arnold Mitchell.

## ST. SAVIOUR'S AND ST. OLAVE'S GIRLS' SCHOOL.

This school, in the New Kent-road, was opened a few days ago. The architect is Mr. W. Campbell Jones.

The plan in the corner of the plate sufficiently explains the design, except that we should have liked to have seen a compass added to show the aspect of the classrooms, a point upon which very much of the comfort and suitability of a classroom depends.

## BOOKS RECEIVED.

THE CONSTRUCTION OF ROADS, PATHS, AND SEA DEFENCES. By Frank Latham, C.E. (The Sanitary Publishing Co. 7s. 6d.)

COLONIAL AND CAMP SANITATION. By G. Vivian Foote, M.D., F.R.C.P. (Longmans, Green, & Co. 2s.)

THE HOUSING HANDBOOK. By W. Thompson (National Housing Reform Council.)

SCHOOL, DUNFERMLINE.—On the 16th inst. Mr. Thomas Shaw, M.P., formally opened a new school which has been erected by Dunfermline Burgh School Board in the Pittencrieff district of the burgh. The school has been erected from plans prepared by Mr. D. Barclay, of Messrs. H. & D. Barclay, Glasgow. Accommodation is provided for 640 pupils, and the cost will be about 8,000l.

## THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, Lord Monckswell, Chairman, presiding.

**Loans.**—On the recommendation of the Finance Committee, it was agreed to lend Leatham Borough Council 4,300l. for street works, &c.; Poplar Borough Council 18,520l. for sewerage works; Bermondsey Borough Council 2,284l. for provision of shelter; and Stepney Union Guardians 1,500l. for the erection and furnishing of casual wards.

**A New Asylum.**—The Asylums Committee reported as follows:—

"The number of lunatics for whom the county is responsible to find accommodation was on January 1, 1903, 16,961 (7,159 males and 9,802 females). The number of beds now provided in the London asylums is 16,379 (calculating on normal accommodation), 1,400 being in temporary buildings. There is therefore at the present moment considerable deficiency of accommodation after allowing for some 108 patients who have been transferred since the fire at the Colney Hatch Asylum to the Metropolitan Asylums Board's asylums. The average annual increase of lunatics in the County of London, since 1895, is 527, but with regard to the last five years is 376, an estimated yearly increase of 550 may therefore be taken as a reasonably approximate figure to be expected, in which case, in four years, additional accommodation for between two and three thousand patients is required without taking into consideration the putting out of use of the temporary buildings. With regard to these latter the Commissioners in Lunacy are urging us to take steps to effect a discontinuance of their use at the earliest possible moment. . . . With the object of saving time, we propose to build on the Horton estate a replica of the Heath and Horton Asylums, with such modifications as have been found desirable in the working of these asylums. The Commissioners in Lunacy concur in this proposal and are prepared to at once recommend the Home Secretary to approve the plans.

We are proposing to appoint Mr. G. T. Hine, who designed the Heath and Horton Asylums, as architect of the new asylum. He is prepared to make all the necessary drawings, embodying therein any alterations on points of detail which the Committee may desire, and to perform all the duties of an architect in connexion therewith, exclusive of all engineering matters—comprising heating, water supply, electric lighting, cooking and laundry machinery, together with telephones, bells, fire alarms, clocks, &c., for a lump sum of 10,000l.

The sum of 450,150l. has been granted by the Council for the erection of the Horton Asylum, but it is probable that this will be considerably exceeded in the cost of the superstructure. We have thought it desirable in framing our estimate to take the cost of the Horton Asylum as the basis of the estimate. We have increased the provision for roads and fencing, and also added to the estimate the cost of electric light wiring and laundry and kitchen plant. The commission to the architect will also be higher. The approximate total estimated cost of the asylum is 569,500l., made up as follows:—

Foundations .....	£55,710
Superstructure .....	320,800
Water and gas mains .....	2,200
Roads .....	10,000
Fencing .....	6,000
Airing court, shelter and tar-paving .....	6,930
Boilers and heating system .....	25,400
Laundry machinery .....	6,000
Kitchen and baking plant .....	4,000
Electric lighting and water supply (inside asylum) .....	11,000
Fire hose and fittings .....	800
Internal decoration .....	6,500
Farm buildings .....	15,000
Architect and quantity surveyors .....	13,000
Clerk of works, extras and contingencies .....	13,600
Equipment of asylum .....	490,000
Additional work to Central station .....	55,000
New well, &c. ....	10,000
	8,500
	£569,500

We have submitted this approximate estimate to the Finance Committee, but in view of the fact that it is not arrived at by a quantitative survey, that Committee is not prepared to recommend the Council to approve it as the total estimate. Under Standing Order 270 therefore we ask the Council to approve an estimate for part of the work only, viz. the following items:—Foundations, 55,710l.; roads, 10,000l.; central station for supply of electric current (additions), 10,000l.; sinking well, 8,500l.; architect and quantity surveyors, 13,000l.—which we understand the Finance Committee is now prepared to submit to the Council. We recommend:—(a) That the Council, in accordance with Section 239 of the Lunacy Act, 1890, do authorise the Asylums Committee to proceed with the erection of a new asylum on the Horton estate. (b) That the estimate of 97,210l. being part of the total estimated cost, submitted by the Finance Committee be ap-

proved. (c) That an expenditure up to 97,210l. be authorised for the following works in connexion with the erection of such asylum, viz. foundations, 55,710l.; roads, 10,000l.; architect and quantity surveyors, 13,000l.; additions to central station for the supply of electric current, 10,000l.; sinking well, 8,500l.

Mr. J. Howell Williams thought that the Council would do well to consider the matter carefully before committing themselves to what would mean a great increase in the rates. He did not think the expenditure was necessary, for there were many patients in the Council's asylums who ought not to be there. He moved that the recommendation be referred back for further consideration to see if some other method could be adopted of dealing with a large number of the lunatics.

Dr. Fletcher Little seconded the amendment.

Mr. Cousins observed that his fear was that the work would be given out to the Works Department, for, judging by Horton Asylum, if that was the case it would be almost akin to misappropriation of public money.

Mr. Dickinson did not think a proper case had been made out for erecting the new asylum on precisely the same lines as Horton Asylum. He considered that a great number of these harmless lunatics could be perfectly well cared for at a much smaller expenditure than was the case when they built these great palaces for lunatics.

Mr. Beachcroft expressed the hope that the Council would proceed economically. He was astonished to learn that it cost 207l. per head to house lunatics, and he felt the villa plan must be more economical than the block system.

Dr. Cooper believed that no building they could erect for the treatment of lunatics could be cheaper than those now being built.

After further discussion, the amendment was rejected.

Mr. E. White then moved a further amendment to the effect that the Committee should consider the construction of an asylum of the villa type as leading to economy and rapidity of construction.

Mr. Dodson seconded the amendment, which, on a division, was defeated by 52 votes to 28.

The Committee's recommendation to proceed with the erection of the asylum was carried.

On the question of the expenditure, which included the remuneration to the architect,

Mr. Phillimore moved to refer the matter back, in order to reconsider the appointment of Mr. Hine. Mr. Hine was the architect of Horton Asylum, and the plans of that building were the property of the Council, and not the architect. Mr. Hine did not appear to be anxious to carry out another asylum for the Council, and he had told them that if he did it would have to be at an increased price. There were three reasons given for appointing Mr. Hine, viz. that the appointment of any one else would lead to delay; that Mr. Hine had the ear of the Lunacy Commissioners—a most vicious argument; and that Mr. Hine was not such a crank as other architects. If architects were so "cranky," let the Council use the plans they had, and get their own architect to supervise the work and carry out the details.

Mr. Beachcroft seconded.

Mr. E. White said the Council ought not to allow themselves to be dictated to by the Lunacy Commissioners as to what architect should be appointed.

Mr. Hubbard, Chairman of the Asylums Committee, said that Mr. Hine should be the architect. He believed that another architect was called in by the Commissioners to advise on Mr. Hine's plans.

The amendment having been lost (33 voting for it and 38 against),

Mr. White moved that Mr. Hine be paid 7,000l. instead of 10,000l. Being asked to pay the same sum for a repetition of the same work was not treating the Council fairly.

A Councillor asked for an authoritative statement as to the ownership of the plans. It was absurd to pay 10,000l. for old plans.

Another Councillor said that the building owner was always the owner of the plans.

Mr. Hubbard said the Solicitor stated that in his judgment the plans belonged to the Council; for all that, he thought the Council ought to agree to recommendation c.

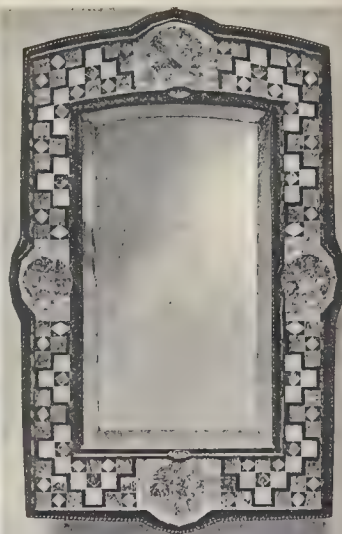
The further consideration of the matter was then adjourned until next week.

The Council adjourned at 7.45 p.m.

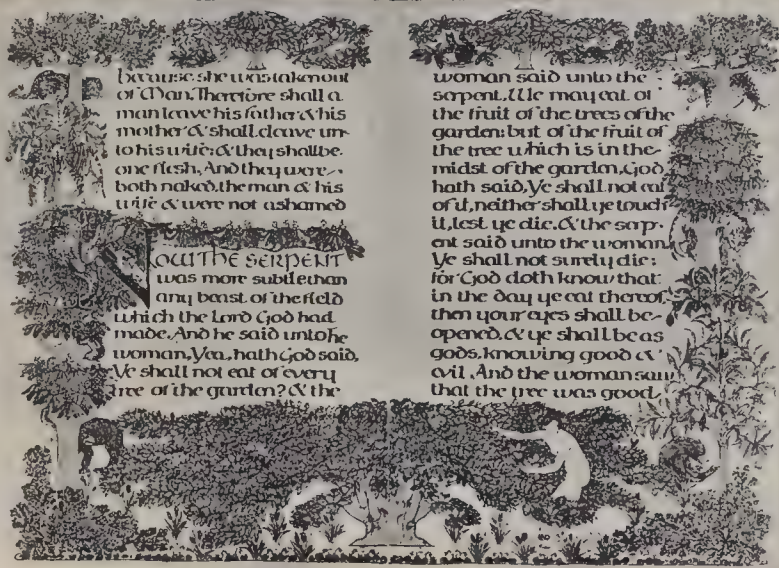




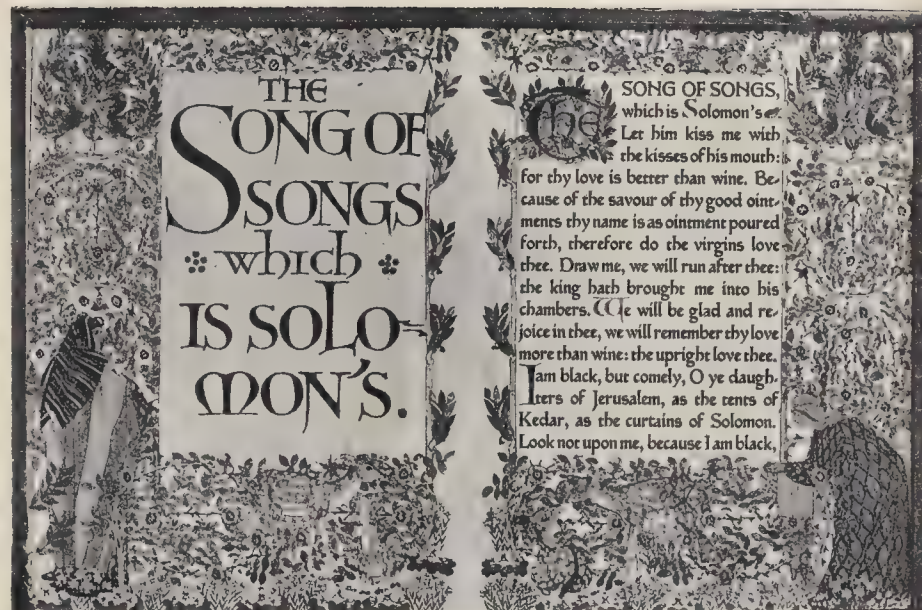
1.



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3.



4.









COMPETITIVE DESIGN FOR ST PETERS CHURCH, SHARROW—By Mr F C EDEN

NO PHOTOGRAPHIC COPY. BY S. KASHGARD, N. STREET, LONDON. BY F. C.







# THE ROYAL VILLA AND GOLF PAVILION AND THE COQSWEIMER OSTEND

FOR HIS MAJESTY

THE KING OF THE BELGIANS

SIR JOHN MITCHELL



PLAN OF VILLA



PLAN OF PAVILION

VIEW OF VILLA  
FROM THE DAVES



SEA FRONT  
OF VILLA



THE PAVILION  
FROM THE DAVES



THE PAVILION  
FROM THE GOLF COURSE



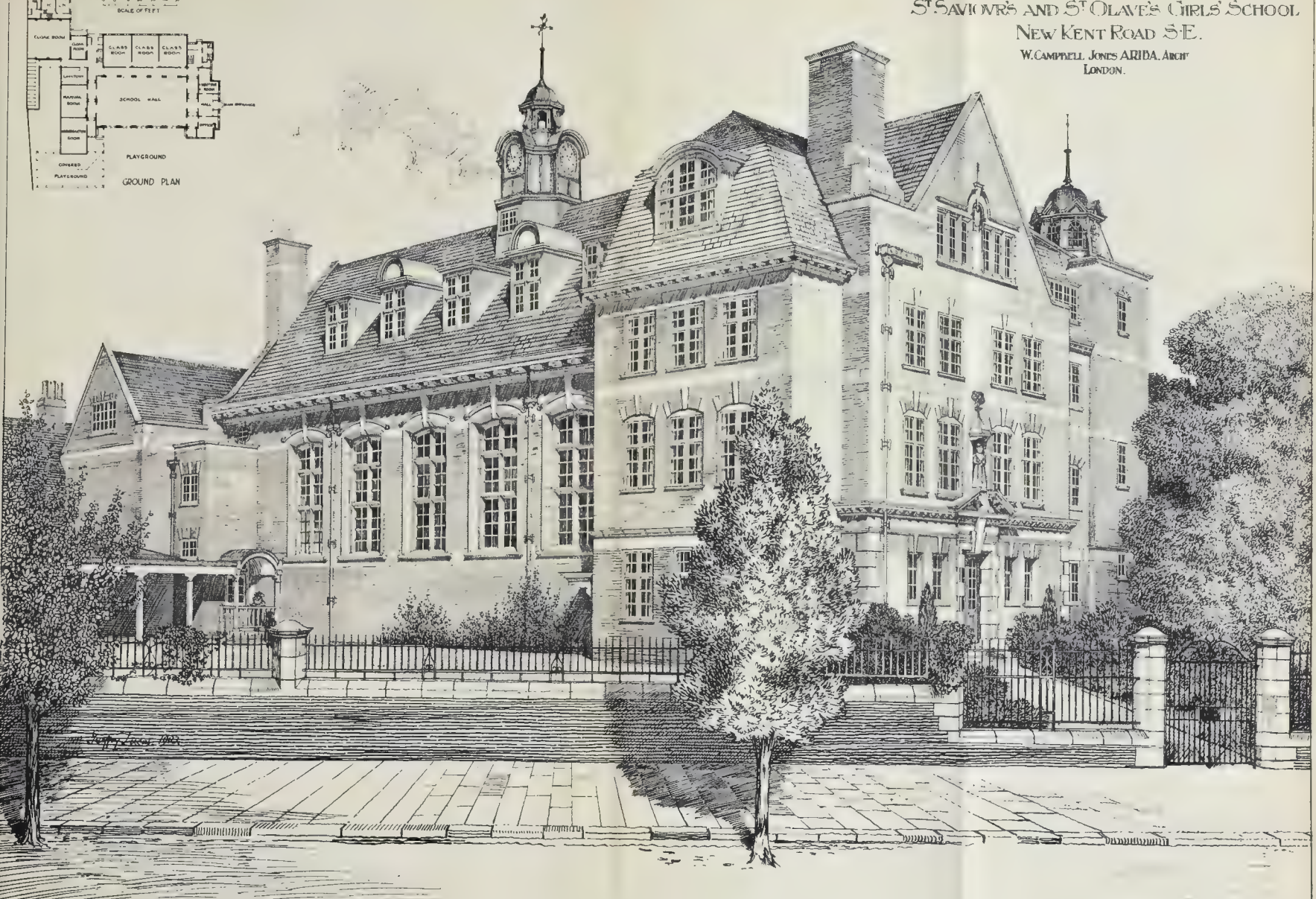






# ST SAVIOUR'S AND ST OLAVE'S GIRLS' SCHOOL NEW KENT ROAD S.E.

W. CAMPBELL JONES ARCHT  
LONDON.









COMPETITIONS.

**SHEPHERD'S HALL, CHORLEY.**—A Shepherds' Hall is to be built by the Chorley lodges, costing 3,000l. A site has been purchased at the corner of Clifford-street and Chapel-street, close to the station. Plans have been selected after competition, the premium of 10l. having been won by Mr. Dyson, of Horwich, out of twenty-two competitors. The building will be Gothic in style. The basement will be composed of shops, and over this will be a billiard-room, recreation-rooms, and an assembly-room, with secretary's office and pay-boxes.

**PUBLIC LIBRARY, KETTERING.**—The premiums in this competition have been awarded as follows:—1. Messrs. Goddard & Co., Leicester. 2. Messrs. Sutton & Gregory, Nottingham. 3. Messrs. Sudbury & Prior, Ilkeston.

APPLICATIONS UNDER THE LONDON BUILDING ACT, 1894.

The London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses:—

Lines of Frontage and Projections.

**Lewisham.**—Four detached houses on the east side of Brockley-rise, Lewisham, southward of Lowther-hill (Mr. J. W. Brooker for Mr. A. J. Clock).—Consent.

**Fulham.**—Eight houses, with shops, on the eastern side of Fulham-road, Fulham, to abut also upon Munster-road (Mr. A. H. B. Ellis).—Consent.

**Hammersmith.**—Two houses with shops on the north side of Uxbridge-road, Hammersmith, to abut also upon Blomfield-road (Messrs. Richardson & White for Mr. G. F. Jones).—Consent.

**Hampstead.**—Enclosures to the portico in front of No. 4, Merton-road, Hampstead (Messrs. T. Allen & Son for Mr. F. E. Holt).—Consent.

**Kennington.**—A one-story building in Vauxhall Park, South Lambeth-road, Kennington (Mr. H. C. J. Edwards for the Council of the Metropolitan Borough of Lambeth).—Consent.

**Lewisham.**—A house on the east side of Shorndean-street, Lewisham, to abut upon Sangley-lane (Messrs. H. & G. Taylor).—Consent.

**Chelsea.**—Iron and glass shelters at the Chelsea Palace of Varieties, abutting upon King's-road and Sydney-street, Chelsea (Messrs. Wyllson & Long).—Consent.

**Clapham.**—A wooden bay-window, with balustrade over, in front of Chase Lodge, No. 27, North-side, Clapham Common, Clapham (Mr. S. Pocock).—Consent.

**Hampstead.**—An iron and glass porch in front of No. 93, Cantfield-gardens, Hampstead (Mr. J. D. Scott for Mr. A. J. Benjamin).—Consent.

**Lewisham.**—A one-story addition to Inglemount, Inglenere-road, Forest Hill, Lewisham, to abut upon Bampton-road (Mr. W. H. Gritten for Mr. E. Bowen).—Consent.

**Lambeth, North.**—An addition to St. Thomas's Hospital, Lambeth Palace-road, to abut also upon Westminster Bridge (Mr. P. Curry for the Governors of the Hospital).—Refused.

**Hammersmith.**—The retention of blocks Nos. 1 and 2, and the erection of blocks Nos. 3 and 4, of residential flats on the north-east side of Paddenswick-road, Hammersmith, northward of The Old Thatched House public-house (Mr. J. P. Flew, jun.).—Refused.

Width of Way.

**Strand.**—An addition to the Savoy Hotel, on the west side of Savoy-buildings and on the north side of Somerset-street, Strand, between the Savoy Theatre and the steps leading to Savoy-buildings (Mr. T. E. Colcott for the Savoy Hotel Co., Ltd.).—Consent.

Width of Way and Lines of Frontage.

**Woolwich.**—Five houses, with shops, on the south side of High-street, Eltham, to abut upon Park-place (Messrs. Kennard Brothers for Mr. C. F. Barratt and themselves).—Consent.

**Strand.**—The retention of two showcases in front of No. 6, Shaftesbury-avenue, Piccadilly, abutting upon Great Windmill-street (Mr. J. B. Pinchbeck for Mr. G. A. Milward).—Refused.

Line of Frontage and Artisans' Dwellings.

**Stepney.**—Dwellings on the south side of Redman's-road, Stepney (Mr. A. Davis).—Consent.

**Stepney.**—Dwelling-houses, to be inhabited by persons of the working class, and proposed to be erected, not abutting upon a street, on a site on the south side of Redman's-road, Stepney (Mr. A. Davis).—Consent.

Width of Way, Deviation from Certified Plans and Projections.

**Marylebone, West.**—The re-erection, with a projecting oriel window in Duke-street, of the Lord Olive public-house, No. 22, Duke-street, Man-

chester-square, St. Marylebone, abutting upon Edward's-mews (Mr. H. H. Fuller for Mr. J. Smith).—Consent.

Formation of Streets.

**Wandsworth.**—That an order be issued to Mr. W. N. Dunn, sanctioning the formation or laying-out of new streets for carriage traffic upon the Norfolk House Estate, Streatham High-road, and in connexion therewith the widening of Mount Ephraim-lane and Mount Ephraim-road (Messrs. C. E. & A. B. Cree).—Consent.

**Wandsworth.**—That an order be issued to Mr. F. Newman, sanctioning the formation or laying-out of new streets for carriage traffic upon the Wimbledon Park Estate, Merton-road and Lavenham-road, Wandsworth, and in connexion therewith the widening of a portion of Merton-road (for Mrs. Lane).—Consent.

**Fulham.**—That an order be issued to Mr. W. Cave sanctioning the formation or laying out of a new street for carriage traffic to lead from Farm-lane to Halford-road, Fulham.—Consent.

Dwelling-house on Low-lying Land.

**Lambeth, North.**—A dwelling-house on low-lying land situated at No. 23, New-cut, Lambeth (Messrs. Flood & King for Mr. H. Ruscoe).—Consent.

\* \* \* The recommendations marked † are contrary to the views of the Local Authorities.

The Student's Column.

BUILDERS' TOOLS AND THEIR USES.

CHAPTER 8.

Thatchers' Tools.

THE following appliances are used by the Thatcher:—

- |                            |                     |
|----------------------------|---------------------|
| 1. Stable Fork.            | 5. Bill-hook Knife. |
| 2. Thatcher's Fork.        | 6. Mittens.         |
| 3. Thatcher's Rake.        | 7. Needle.          |
| 4. Thatcher's Eaves Knife. | 8. Leather Gaiters. |
|                            | 9. Gritstone.       |

Thatching consists of layers of straw, about 15 in. thick, tied down to laths with withes of straw or with string. Rye straw or wheat straw is the best, and will last fifteen or twenty years; oat straw lasts only half that time. Thatch is an excellent non-conductor of heat, and consequently buildings thus roofed are both cooler in summer and warmer in winter than others, and it is the best covering for a dairy. But thatch is highly combustible, and as it harbours vermin and is soon damaged, it is not an economical material, though the first cost is small. A load of straw will cover 1½ squares of roofing, or 150 ft. super. A square will take 3½ cwt. of wheat straw. A good thatcher will lay 1½ squares a day.

The straw is laid on the laths in small bundles, called "hellams," until it attains a thickness of 12 in. to 16 in., and is fastened to the rafters with young twigs and tar cording. Subsequent coatings, about every twelve years, are 4 in. to 6 in. thick. Before the straw is put on it is spread out and wetted, which makes it lie close and enables the stalks to be more easily drawn out parallel. It is sometimes wetted again during combing. Each row of "hellams" is secured to the rafters with a young tough twig, named a "ledger," about 4 ft. long and 1 in. diameter. Each row of "hellams" is also fixed to the row underneath it with three split twigs termed spars, about 1 ft. long. They are pointed at both ends, soaked in water to make them pliable, and are then doubled in two, before which the thatcher gives them a couple of twists. This twist imparts to the spar a splintery surface, and enables it to grip when driven into the straw.

A good pitch is 45 deg., or, as it is technically

styled, a "true pitch." If the pitch is less, the rain will not run off freely, and if a greater pitch than 45 deg. is adopted the straw is found to slip down from its fastenings.

Fig. 128 shows a section of a thatched roof.

The tools and appliances are:—

A Common Stable Fork is used to toss the straw up together on the ground when it is wetted, preparatory to its being made into bundles for use.

The Thatcher's Fork is a branch of some tough kind of wood made to form a fork, as shown in fig. 129. The joint of the two branches is generally strengthened by a cord to keep it from splitting when used. A loop is passed over the two ends to keep them close. This tool is for carrying the straw from the heap where it has been wetted and prepared up to the thatcher on the roof, where it is to be laid.

The Thatcher's Rake should have a handle, of ash or some tough wood, in which there is a bend to keep the thatcher's hand from contact with the straw, and so save his knuckles. The rake is wanted to comb the straw straight and smooth after it is laid (fig. 130).

The Thatcher's Eaves Knife is similar to a reap-hook, except that it is larger and not curved so quickly. It is employed to cut and trim the straw to a straight line at the eaves of the roof.

Bill-hook Knife.—The thatcher also requires a knife, shaped something like a bill-hook, to point the twigs used for securing the straw.

Mittens, or half gloves, of stout leather are worn to protect the hands when driving in the smaller twigs, called spars.

A Needle, about 21 in. long by ¾ in. broad, is required to thread the rope yarn over the "hellams" to hold them down to the rafters and thatch underneath.

Leather Gaiters.—A pair of these is wanted, to come up above the knees, to protect them and the shins when kneeling on the rafters.

Gritstone.—A hard gritstone is necessary to sharpen the knives.

Correspondence.

A NEW SYSTEM OF JUDGING COMPETITIONS.

SIR,—In the interests of the architectural profession, especially competing architects, I should be obliged if you would make public the following state of things in a recent open competition for new Baptist church, Wavertree, Liverpool.

The conditions contained the following clauses:—  
"1. A professional assessor will be appointed to adjudge the plans and advise the committee in their selection.

2. The committee have decided to make the competition an open one, and which will be regarded strictly in accordance with professional etiquette."

Since the designs were sent in the drawings have been hung, and a printed circular has been sent to persons interested in the building of this place of worship. The following is a copy of the circular:—

"THE PROPOSED NEW BAPTIST CHAPEL, WAVERTREE.

18A, South Castle-street, Liverpool, March 11, 1903.

DEAR FRIEND,—It is my pleasure to inform you that a very interesting series of architectural designs, for the erection of a new baptist chapel at Wavertree, is now on exhibition in one of the spacious rooms of the Art Gallery, specially granted by the Corporation for the purpose. The designs are numerous and of great variety, contributed by leading architects from all parts of the country, and therefore form an unusually excellent collection. The exhibition will be open for fourteen days from Friday, 13th inst., until Friday, 27th, inclusive, and I am pleased to extend to you and your friends a very hearty

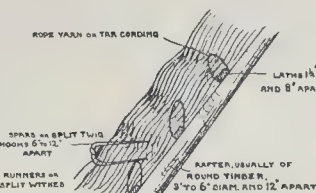


FIG. 128



FIG. 129

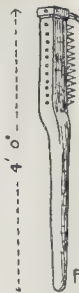


FIG. 130

Illustrations to Student's Column.



invitation to visit the exhibition and inspect the designs during this time. (No charge made for admission.) Gallery open to a.m. to 5 p.m. each day.

*It is, however, requested that you will give the Committee the benefit of your judgment in the selection of the best design, and, if possible, to select the design for that purpose, with your name and address.*

I remain, on behalf of the Easington Committee,  
Yours faithfully,  
EDWIN ROGERS, Hon. Secretary."

I visited the exhibition, and was asked by one in charge to sign my name and record my opinion as to the best design. Of course I declined to do this. However, I took the opportunity of seeing what many laymen had written, which was an opinion practically come to by simply walking round and examining. I should think, forty sets of designs in a very short time. As there were no instructions in the conditions of competition as to the finishing of the drawings, many are highly-coloured and showy perspectives sent to catch the eye.

One set of drawings I noticed was recorded as the best, and to show how erroneous this system of taking a public vote is, besides this being very easily misused, I might mention that this plan has galleries where the congregation would look into each other's faces. Although there is plenty of land to avoid this, the organ-loft is approached by a staircase placed in the deacons' vestry.

Another design, also recorded as the best, has an area in the centre of the building so small that it would be practically useless for light. The kitchen is approached only through the school hall, &c.

I think it is quite time this sort of thing was stopped.

FAIR PLAY.

#### PROPOSED QUANTITY SURVEYORS' ASSOCIATION.

SIR,—I am of the same opinion as other correspondents, that the Surveyors' Institution meets every requirement, and quantity surveyors are not, I think, increasing as a separate profession.

My reason for stating this is the growing tendency with architects to have a partner or managing clerk who can prepare quantities.

Then of what use will rules be, as if one man is found to be willing to give the architect one third of the commission, another will be found to offer one half, or to accept the job at so much per day.

The terms offered by public bodies are absurd—ros, per cent.—if the fees are at a higher rate, there has probably been a liberal extraction of corks by the committee at the expense of the surveyor.

My advice to the surveyors is leave the question of starting a society, and let those who are not members of the Surveyors' Institution at once qualify for membership.

The whole question of quantity-taking, and the liability for the due payment of fees, is a very unsatisfactory condition, and as it does not concern me I can write as I have.

IN VICTA.

#### A QUESTION OF QUANTITIES.

SIR,—Having read the letter of "A Builder," p. 312, I am of opinion that the surveyor should deduct the p.c. amounts only. It does not concern him what profit the builder put on, as the builder had to take all risks for a lump sum. The builder was prepared to execute the work or to pay the amounts, and he should not suffer because the architect chose to alter the arrangements.

HENRY LOVINGROVE.

#### THE VACANT SURVEYOR'S DISTRICT OF SYDENHAM.

SIR,—I am surprised to see that this district is to be divided. The western portion is estimated to produce 1,000l. per annum, and the eastern portion 600l. At present, through the boom caused by the extensive building schemes of Mr. Corbett, M.P., the districts of Lewisham, Eltham, and Sydenham have increased enormously the fees in those districts during the last year or two; but when this work is completed, I am of opinion that the one district will produce on the average about 400l. and the other about 200l., as there is very little building besides the speculators'.

OBSERVER.

#### TWO NEW FLOORS: "EUBROELITH" AND "PAPYROLITH."

SIR,—I have been shown samples of these two new floors, which appear to possess many excellent properties, and such as would make them invaluable for hospitals, workrooms, &c.

I shall be greatly obliged if you and your readers will inform me, through your excellent journal, where these floors can be seen in or near London.

Have they been in use long, and are they known to possess any disadvantage? Would they wear well in a bathroom, where damp would be present?

"ENQUIRER."

\*\* The address of the company which manufactures "Papyrolith" is Dashwood House, Broad-street, E.C.—ED.

\* The italics are our own.—ED.

#### OBITUARY.

MR. PEARCE.—We regret to announce the death on the 9th inst. in his sixtieth year, of Mr. John Bond Pearce, of No. 15, Upper King-street, Norwich, architect and surveyor. Mr. Pearce, a native of South Walsham, served his apprenticeship in the late Mr. Morant, since Borough Engineer—in succession—to the Corporations of Norwich and Leeds, and had during many years an extensive practice at Norwich, where for a long period he was Architect and Surveyor to the Board of Guardians, and local agent to the Royal Insurance Co. He was elected a Fellow of the Royal Institute of British Architects in 1879. Amongst his chief architectural works we may cite the Town Hall on the Quay at Yarmouth, opened by his present Majesty on June 1, 1883, which was erected at a cost of 30,000l., and comprises a central hall 80 ft. by 24 ft., a court for quarter-sessions on the first floor, an assembly-room with a capacity for 1,000 persons, and measuring 100 ft. by 40 ft. over the offices, and a tower 110 ft. high. Mr. Pearce was also employed as architect for the following buildings and works:—The Agricultural Hall, at the end of Prince of Wales-road, Norwich (1882), which contains an assembly-room with a capacity for 1,000 persons, and a principal hall, 147 ft. by 98 ft., fitted with movable and improving machinery having three galleries, with lifting machinery for hoisting the exhibits; the Empire Theatre and Grand Hotel, for the Norwich Grand Hotel and Empire Theatre Co., for which his plans and designs were approved in December, 1893; an extensive enlargement on the site, in part, of the old Castle ditch, of Messrs. Johnson, Burton & Theobald's premises in Castle-street, Norwich, constructed of St. Bee's red-stone and brick, and designed after the Renaissance manner; restoration of the late thirteenth-century parish church of St. Paul at Thuxton, near Hingham, Norfolk; the Hanser-house Hotel at Mundesley, Norfolk, opened in July, 1899; alterations and improvements in the buildings in Museum-court for the Norwich Union Guardians; the parochial hall, in St. Stephen's-square, Norwich; and the enlargement and alterations of the workhouse, for the Aylsham Guardians, and the additional blocks for the infirmary. Mr. Pearce was largely employed in the work of church restoration, and building of Board schools in his own and the adjoining counties. In the course of last autumn he was appointed to undertake the restoration of the nave of the parish church of St. Mary, at Burgh, near Aylsham, which presents features of the Early English and Decorated styles.

#### GENERAL BUILDING NEWS.

BUSINESS PREMISES, PERTH.—A block of buildings at the corner of High-street and St. John-street, Perth, having recently changed ownership, the present proprietor has made various alterations thereon. The whole frontage in St. John-street and part of High-street has been altered, the heavy masonry having been removed and replaced with iron and glass. The entrance, which was formerly from St. John-street, has been changed to High-street. The warehouse is lighted by electricity, and will be heated throughout by hot-water heating apparatus. The architects are Messrs. McLaren & Mackay, and the contractors were:—Mason and ironwork, Messrs. Fraser & Morton; joiner and glazier work, Mr. Langlands; electric installation, Messrs. Frew, Watson, & Co.; fitting, Messrs. Beveridge, Glasgow; and painting work, Messrs. Alex. Douglas & Son, Perth.

NEW BUILDINGS IN ABERDEEN.—The Plans Committee of Aberdeen Town Council have sanctioned the following plans:—Four dwelling-houses on the west side of Bynnmuir-place, for Mr. Charles G. Shaw, per Mr. George J. Milne, architect. Dwelling-house on the north side of Riverside-road, for Mr. T. N. Clapperton, restaurateur, per Mr. George J. Milne, architect. The committee had also before them plans of reconstruction of premises on the east side of Market-street at its junction with North Esplanade, for Messrs. Thomas Forbes and William Summers, per Mr. Duncan Rodge, architect.

WORKHOUSE, NOTTINGHAM.—The new workhouse erected at Bagthorpe, which has cost, including the site, furnishing, &c., upwards of a quarter of a million sterling, was opened on the 18th inst. The site embraces sixty-eight acres of land. The plans, accepted after competition, were prepared by Mr. Arthur Marshall, architect, Nottingham, the first contract being let to Messrs. Hodson and Son, and that for the superstructure to Messrs. E. Evans. Accommodation is provided for over six hundred inmates, including 120 able-bodied, 100 infirm, 380 persons of both sexes, and married couples. In addition, the infirmary gives accommodation for 500 patients.

HOTEL, WESTCLIFF, SOUTHEAST.—The Southend justices have granted a provisional licence to Mr. John Jackson, of Forest Gate, for a new hotel at Westcliff-on-Sea. It is estimated that this hotel will take three years to build, and that it will cost, when completed and furnished, 100,000l. The architects are Messrs. Clare & Ross, of Chelmsford. The building will be six stories high, and will contain, among other features, a large swimming-bath, with a Turkish-bath in connexion

with it. Over the swimming-bath will be a recreation-room and winter garden, which can be used for concert. There will also be a ballroom attached to a drawing-room. The bed and sitting rooms will number 120.

BOARD OF GUARDIANS OFFICES, EASINGTON, NORTHUMBERLAND.—The new Board of Guardians offices which have been built at Easington were opened on the 10th inst. The new building is situated on the east side of Easington village, the contractors being Messrs. Atkings, Burrell, & Co., of Newcastle. The design is Italian Renaissance, the outer facings being of Accrington bricks, with stone dressings. The total length of the building is 100 ft. and width 50 ft. The building itself has been erected at a cost of 4,818l. 11s. Messrs. Farthing & Dunn, of Newcastle, were the architects; and the contractors were Messrs. Atkings, Burrell, & Co., of Newcastle.

HIGHER GRADE SCHOOL, BRADFORD.—The foundation stone has just been laid of the new higher-grade board school in Grange-road, Great Horton. The architects, whose plans were accepted in competition, are Messrs. T. C. Hope and Son, and the contractors are:—Messrs. E. E. Brindley, Clayton & Son, Brighat, Bradford; plasterers and concreters, Charles Howroyd & Son; ironfounders, Taylor & Parsons; plumber, S.E. Jackson; slater, James Smithies; painter, T. Woodrow; and heating and ventilating, Ashwell & Nesbitt, Leicester. The estimated cost of the scheme as submitted in competition was 20,807l., and the total amount of the tenders submitted was 28,700l. The accommodation is for 326 boys, 450 girls, 340 infants, 328 juniors mixed, forty defectives and epileptics—making a total of 1,440 children, arranged in three detached blocks. The boys' and girls' school fronts Stratford-road, and the infants' and juniors' school fronts Spencer-road. These blocks are so arranged that the north to south line of the compass runs diagonally to the axis of the buildings, and so insures that every room on every side of the three blocks will get its equal share of direct sunlight. Between these blocks, the central block, 240 ft. long by 70 ft. wide, extending from Egerton-road to a back road. Fronting Egerton-road is the "defectives" block, with separate playgrounds at the rear; then come houses for two curators, with their yards; two dining-rooms for boys and girls, two classrooms for wood and metal working, bath, with swimming-pool; shower-baths, dressing boxes, and gallery round gymnasium, and two rooms for laundry and cookery classes. Both boys' and girls' blocks have central assembly halls 74 ft. by 32 ft. The boys have seven classrooms and the girls nine, each classroom being entered from the central halls. Between these assembly halls there is a suite of offices for the science teaching and drawing arranged to be used by both sexes. Cloakrooms, teachers' rooms, lavatories, entrance, and covered playsheds are provided. The infants' department has a central hall 50 ft. by 32 ft. and six classrooms, and the juniors a central hall 44 ft. by 32 ft. and six classrooms. There are also teachers' rooms, lavatories, and playsheds. The buildings of the three blocks are one story high only, and each department has a playground.

BANK, MINEHEAD.—New bank premises for Messrs. Stuckey & Co. have been erected at Minehead. The new building faces the Parade, and the side abutting on Market House-lane. The architect of the new bank is Messrs. Oatley & Lawrence, of Bristol, and the builders Messrs. H. J. Spiller & Son, of Taunton. The clerk of works has been Mr. A. J. White. The building, which is Classic in style, was commenced in January of last year. The front is built of Ham Hill stone, as is also the side abutting on the other street. The vestibule and all the fittings of the bank are of mahogany, the ceiling is paneled, and the floor is of marble mosaic and Roman terrazzo, and also are the floors of the passages in the basement. On the clerks' side in the bank the floor is of wood blocks, as is also that of the manager's room close by. Connected with the official part of the premises are also book-rooms and lavatories. The manager's house contains large-size dining and drawing-rooms, six bedrooms, kitchen, &c.

NATIONAL GALLERY OF IRELAND.—The additions recently made to this building from the designs and under the superintendence of Mr. Thos. Manly Deane, the surviving partner of the firm of Sir Thos. N. Deane & Son of Dublin, have not only practically doubled the original area of the building, but by the arrangement of dividing the additional space into separate rooms of about 30 ft. square, a much greater wall space is gained. The additions consist of a basement floor for storage and workshops, and two other floors. The front portion of the building facing Merion square contains the entrance hall, and is otherwise devoted to the Milltown Library—a large room which will serve as the Board-room—the directors'-room, secretaries'-room, and other administrative offices. The rear portion of the new buildings—which are built parallel with the old gallery, with a court-yard between—contains the additional gallery space, and consists of seven rooms on the first floor, and seven rooms on the second floor; six of the rooms on the



ground floor being octagonal on plan. This form, owing to the rooms being side-lighted, was suggested by the Director, Sir Walter Armstrong, and the effect is most pleasing and successful; all the rooms on the upper floor are top-lighted. The new galleries communicate with the old at both ends on each floor. Externally, the new work has only one elevation of importance, viz., on the east, towards Merion-square, the others being perfectly plain walls built of black calc. limestone. But on the east the building is faced with granite ashlar and Portland-stone dressings. The architect had a difficult problem in dealing with this front, for he was bound to follow the horizontal lines of the old gallery, and was limited vertically between the existing entrance and the wall of an adjoining garden, which limitation prevented the portico through which the building is entered from being placed centrally. The portico, which forms the lower story, has four columns with square blocks or rustications on the shafts, with architrave and cornice over, and the upper floor has an arcade of three arches on festooned columns. This arcade was originally designed as an open loggia, but such was considered undesirable, and the arches are now filled, having on the first floor square-headed windows, and on the second floor three circular windows concentric with the arches over the columns. The main cornice of the building is a continuation of that on the old gallery. The contractors for the work have been Messrs. Michael Made & Son, of Great Brunswick-street, Dublin. The entire cost of the work, exclusive of clerk of works' salary and architect's fees, has been £8,066. 10s., a sum well within the contemplated cost. The heating of the buildings, which includes the rearrangement of the old system, has been carried out by Messrs. Boyd & Son, of Paisley, at the cost of \$161, which sum is included in above total. The test block flooring of the ground floor, which has been done by Messrs. Geary & Walker. The carved walnut trimmings of the doors between the gallery rooms have been executed by Signor Carlo Cambi, of Siena.

## FOREIGN.

FRANCE.—There had been some talk of rebuilding the Conservatoire de Music at Paris on the site of the barracks of Nouvelle France, Faubourg Poissonnière; but the Government has now decided to erect the new building near the Porte Maillot, on a part of the site of the fortifications which will shortly be demolished. The plans have been prepared by M. Blavette, Architect to the Department of Fine Arts; and the new Conservatoire will include a front block dedicated to public departments—library, museum, &c. The other portion, looking on a large courtyard with gardens, will be reserved for the students and for the purposes of instruction. At the back of the site will be a concert hall to seat 1,200 persons.—M. Leprieux (architect) completed recently, in collaboration with M. Calbet (painter), the decoration of the iron curtain for the Comédie Française, which will be shortly fixed. It shows an elaborate border enclosing a painting of a scene taken from the Park at Versailles, but occupied by figures of the muses before the altar of Tradition. Above, a winged genius unfolds a scroll bearing the words: "Præteriti fides, spes futuri."—The Municipality of Creil have decided on the demolition of the old collegiate church of St. Evremont; but it is probable that, in accordance with the wishes of the Archaeological Society of the Oise Department, the capitals and sculpture will be preserved and placed in the museum of Beauvais.—A monument to the memory of Taine is to be erected in his native town, Vouziers.—In the Allées de Tournay, at Bordeaux, the works have been commenced for the erection of a monument to Gambetta, after a model left by Dalou, who did not live to complete the work.—M. Louzier, architect in charge of the Monuments Historiques in the department of Yonne, has been commissioned to carry out the restoration of the tower of the church of St. Lazare, at Auxerre, an erection of the fifteenth century.—A subscription has been opened to provide for the repair of the Hospital of Tonnerre, founded in 1293 by Marguerite de Bourgoyne, and which is one of the finest specimens of the civil architecture of the thirteenth century. This building, which is classed among the Monuments Historiques, contains also numerous important works of art.—The necessary works are to be undertaken for the prolongation of the Ourcq Canal, at an estimated cost of 35 million francs.—A new hospital occupying 8 hectares of land and including ten pavilions, is to be erected at Caen.—The Municipality of Wisous has decided on the demolition of the quaint old church, which is in a dilapidated condition. Portions of the building, which is decorated with some curious paintings, date from the twelfth century.—M. Moyaux, Inspecteur-Général des Bâtimens Civils, has been elected a corresponding member of the Institute of British Architects.—The Municipal Council of Paris has decided that the Metropolitan railway line No. 4 shall pass by way of the Place and Boulevard St. Michel, instead of taking a line which will compel the destruction of the part of the Institut building.—The Conseil d'Etat has accepted the collection of objects of Eastern Art

left by the late M. d'Ennery, and they will be placed in a house in the Bois de Boulogne to be called the "Musée d'Ennery."—M. Moncel has executed, for the foyer of the Paris Opera-house, a bust of Mdm. Alboni. A monument to Gounod is to be erected in the Rotonde de l'Opéra, near the monument to Charles Garnier. It was modelled by the late M. Falguère, and shows a seated portrait statue of the composer, above which is a statue representing the genius of music.—The Académie des Beaux-Arts has adjudged the Achille Leclerc prize in architecture to M. René Brasseur, pupil of M. Scellier de Glisors and M. Deyrasse.—The jury in the competition opened by the Municipality of Coulommiers for a design for a municipal theatre, has selected for execution the design by MM. Duval and Robida.—The death is announced, at the age of seventy-one, of M. Elie Massenet, who had a reputation for his studies on pre-historic epochs, and who has left a collection of objects of interest to the Museum of St. Germain-en-Laye.

INDIA.—The Government of India propose to adopt a 60 lb. rail section as a standard for light 5 ft. 6 in. gauge State railways.—Large British infantry barracks are to be erected at Maymyo in Burma.—The foreign export trade in teak timber declined last year by a little over 13,000 tons. This is attributed to smaller supplies having come from the forests owing to an unfavourable floating season.—The Imperial Library, Metcalf Hall, Calcutta, has recently been opened by the Viceroy, and is regarded as an important public institution by the European population.—The Delhi art exhibition has been closed.—The Government cantonment at Bannu is to be improved and extended, the money having now been granted.

TEAK PROSPECTS IN NORTHERN SIAM.—Mr. Consul Beckett's report on the trade and commerce of the district of Chiangrai for the year 1901 did not reach the British Foreign Office until January of this year, and can hardly be regarded, therefore, as up-to-date. It has now been issued as a Parliamentary paper, and, as being the latest information available, is of interest and value. Dealing with the condition and prospects of the teak trade, the report indicates that the value of Salween teak, as entered at the Kado duty station, rose from 75,733 l. in 1900 to 188,037 l. in 1901, which constitutes a record, and represents an increase of 125 per cent. over and above the average of the preceding four years. In other words, the output for 1901 was more than double that of the average. That this satisfactory result should be attained in face of serious geographical and other difficulties connected with teak operations on the Salween side, even more than on the Menam side, must be regarded as a tribute to British enterprise and energy. The arrivals at Paknamphu duty station of Menam-floated timber in 1901 comprised 64,170 logs, a total which was well above the average of the preceding ten years, and nearly approached the figures for 1893 (75,000 logs), which held the record until 1900. Timber despatched from Paknamphu during the season of 1901, i.e., May to November, amounted to 62,000 odd logs, of which nearly 70 per cent. belonged to British firms. The stock of logs, drift or rafted, remaining in the main rivers, Meping and Mewang, amounted to some 77,000 logs, whilst in the Me Yom and Me Nan the number must also have been considerable. It was anticipated, therefore, that the arrivals at Paknamphu during 1902, whilst hardly attaining the standard either of 1900 or 1901, would, provided the rains were good, reach, if not exceed, the average of previous years. Mr. Consul Beckett gives the following explanation of certain changes in forest administration: "An event which caused not a little commotion in timber circles during the year was the withdrawal of Mr. Slade, the Conservator of Forests from the post of Director of the Siamese Forest Department, which he had held since 1896. By the Conservator's efforts, backed by the goodwill and assistance of the British Consular authorities and of the British timber companies, order and system on fixed principles had been slowly but surely evolved out of the former existing conditions, in which neither order nor system nor fixed principles played a part. Loosely-worded leases, obtained from the local chiefs for ready cash, were exchanged for stringent leases granted by the Minister of the Interior at Bangkok containing severe restrictions, which rendered timber operations increasingly difficult and less remunerative. A small nucleus of a Forest Department was formed with European officers. But it soon became apparent that to carry out this new forest policy and enforce the terms of the new leases equally on all engaged in the timber trade in Northern Siam, irrespective of nationality and jurisdiction, the powers held by the Conservator in his relations with the Bangkok Government and the staff of forest officers and subordinate officials at his disposal were very far from adequate. In fact it was found that the system, which had been created largely at the expense of the British firms, who being the largest holders of ready cash had no cause to regret the continuance of the old system, could not be effectively carried out with the materials at the Conservator's command. Efficiency and equality of treatment demanded that the number of European forest officers should be increased two or threefold, that Siamese assistants should be attached to each officer to be trained in forest work, and that the Conservator, as the chief

of the department, should be vested with full powers similar to those enjoyed by the chiefs of other Government departments in Bangkok. Seeing that the forest revenues reaped since the inauguration of a Forest Department had vastly increased to the benefit of the hereditary chiefs of the Northern States and of the Bangkok Exchequer, who shared in the division of royalties, there could be little opposition to these necessary demands on the score of expense. They were, however, not conceded, and the Conservator feeling himself powerless under present conditions to preserve that standard of purity and efficiency in forest administration which he so much desired, returned to Burma. He had evolved a workable scheme of forest administration out of a mass of conflicting interests and heterogeneous elements; he had been the principal instrument by which, in spite of strong local opposition, the control of the forests had been transferred from the hereditary chief owners to a central authority at Bangkok; and he had simplified the collection of royalties and assured a permanent revenue to the State. It is to be regretted, therefore, that reasonable demands, put forward by him in the interests of his Department as necessary for the completion of his work, were not entertained. By the British timber companies, on whom the brunt of reform fell most heavily, and whose hearty co-operation, though often running counter to their own interests, went far towards enabling such reform to be successfully achieved, the loss of the Conservator, with his knowledge of their needs and appreciation of their difficulties, gained after six years' residence in Siam, will be severely felt."

## MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—Messrs. T. & R. Boote, the encaustic and glazed tile manufacturers, are constructing a London store for their goods at the Midland Railway Goods Depot, Kings-road, St. Pancras.—Mr. W. A. Pile, architect, has removed his offices from 1, Hart-street, Bloomsbury, to 116, Jermyn-street, S.W.—The Institution of Electrical Engineers have removed their library and offices to 92, Victoria-street, S.W., and their new telephone number will be "911 Victoria."—The Atmospheric Steam Heating Co. have removed from Chancery-lane to No. 52, Gray's Inn-road, W.C.

STREET IMPROVEMENT, LEICESTER.—Colonel W. Langton Coke, Local Government Board inspector, sat at the Town Hall, Leicester, on the 17th inst., to conduct an inquiry into an application by the Leicester Town Council to borrow £8,000, for the purposes of street improvement in the Newarikes, Bath-lane, Star-lane, and Millstone-lane. Mr. E. G. Mawbey (Borough Surveyor) and Mr. Allen (borough surveyor's office) were among those present.

BUILDING MATERIAL TRADES' ASSOCIATION, LIVERPOOL.—The second annual meeting of this Association was held on the 16th inst. The President (Mr. John Evans) occupied the chair. The report of the Committee, which was read by the Secretary (Mr. H. D. McAusland) showed an increase both in membership and activity. The Association had during the year dealt with many important matters affecting the interests of the trade. The efforts to unify prices had been extended, and several new lists dealing with goods had been issued to and adopted by the members. The question of builders doing a merchant's trade had been frequently considered, and efforts made with considerable success to confine the trade to hand-side merchants. Amongst other matters which had occupied the Association's activities had been those of railway rates and quarry owners' terms, and the prevention of outside slate merchants, who are on the books of the principal quarries, coming into this district and taking on contracts for supplying and fixing slates in opposition to local practice. The Chairman, in moving the adoption of the report and statement of accounts, called attention to the reference to the disability suffered by merchants in consequence of the inequitable terms upon which they were compelled to do business in consequence of the fact that manufacturers were frequently quoting identical terms to merchants and private inquiries. He emphasised the necessity of pressing for the discontinuance of this practice. He was pleased to see that the trade was suffering much less than usual from insolvency, and felt sure that the co-operation of tradesmen within the Association was largely responsible for the improvement. Mr. Beard seconded the motion, which was carried. The officers and committee were then elected as follows:—President, Mr. James E. Beard; vice-presidents, Messrs. J. Evans and W. H. Brown; treasurer, Mr. Frank Jones; committee, Messrs. Edwards, Dowler, Wilkinson, Parr, Croker, Ashcroft, Rowlands, Walker, and Barlow.

INCORPORATED SOCIETY FOR PROMOTING THE ENLARGEMENT, BUILDING, AND REPAIRING OF CHURCHES AND CHAPELS.—This Society held its usual monthly meeting on the 19th inst. at the Society's House, 7, Dean's-yard, Westminster Abbey, S.W., the Rev. Canon C. F. Norman in the chair. Grants of money were made in aid of the following objects, viz.:—Building new churches at Barry Dock, St. Mary, Glamorgan, 200l. for first portion; Ben Rhydding, near Ilkley, Yorks., 200l.; Hopwood, St. John the Evangelist, near Birch, Lancs., 75s.;



Palmer's Green, St. John, near Southgate, Middlesex, 100l.; and West Ealing, St. James, Middlesex, 75l.; towards rebuilding the church of St. Paul, Skelmersdale, Lancs., 55l.; and towards enlarging or otherwise improving the accommodation in the churches at Lower Guiting, St. Michael, Gloucester, 35l. in lieu of a former grant of 25l.; and Ranworth, St. Helen, Norfolk, 40l. in lieu of a former grant of 30l. A grant was also made from the Mission Building Fund towards building a mission church at Aldrington, near Hove, Sussex, 50l. The following grants were also paid for works completed:—Ilford, St. John, Essex, 150l.; Blyth, St. Mary, Northumberland, 40l.; Claverley, All Saints, Wolverhampton, 30l.; Buckland in Dover, 75l. on account of a grant of 175l.; and Scarborough, St. Saviour, Yorks., 40l. In addition to this the sum of 101l. was paid towards the repairs of twenty-two churches from trust funds held by the Society.

**LONDON STREET IMPROVEMENTS.**—At the invitation of the Camberwell Borough Council a conference, to which nearly all of the Metropolitan Borough Councils sent delegates, met on Thursday last week, at the Camberwell Town Hall, with the view of arriving at an understanding with the London County Council for some uniform and equitable method of dealing with the cost of street improvements carried out to meet the growing needs of the Metropolis. Mr. Goddard Clarke (Mayor of Camberwell) was voted to the chair, and Mr. C. W. Tagg, Town Clerk of Camberwell (who had prepared a mass of statistical information for the use of the delegates) was appointed secretary to the conference. The Chairman, in opening the proceedings, emphasised the fact that they had not assembled there in any spirit of hostility to the County Council. Mr. J. R. Tomkins (Camberwell) moved:—"That the present system whereby the London County Council claims from the Metropolitan Borough Councils varying amounts of contribution for improvements is contrary to the practice which should prevail in the Metropolis." Mr. C. Townley (Islington) seconded. Mr. A. Dickson (Mayor of Deptford) moved, as an amendment, that the words "varying amounts of" be deleted from the motion and that to the words "contribution" there should be added the words "on a varying basis for similar improvements." Mr. A. W. J. Russell (Town Clerk of Paddington) seconded the amendment, which was adopted, and the resolution, as amended, was then agreed to. Mr. Tomkins afterwards moved—"That, having regard to the rapid growth of London and the consequent increase in traffic, and the necessity for some uniform practice to be adopted, this conference do now consider upon what principle it is prepared to recommend that the cost of London improvements should be borne." Mr. W. Urquhart (Paddington), in supporting this proposal, urged that the County Council should be asked to lay down some principle as to what were metropolitical and what were local improvements. The motion was agreed to. Mr. G. W. Irons (Chelsea) then proposed—"That in the opinion of this Conference the cost of any county improvements should be borne by the whole of the County of London." Mr. R. Salisbury (Chelsea) seconded this proposal. Some discussion ensued, and an amendment was moved. The chairman at this point suggested that the conference should be adjourned and a sub-committee appointed to consider the motion and amendment. That course was adopted, and the conference then adjourned until April 23.

**ARTISANS' DWELLINGS, KINGSTOWN, DUBLIN.**—Mr. P. C. Cowen, Chief Engineering Inspector of the Local Government Board, concluded the inquiry on the 10th inst. at the Town Hall, Kingstown, in connexion with a petition from the Kingstown Urban Council, praying for a provisional order to enable them to acquire certain property in Kingstown for the purpose of erecting a number of artisans' dwellings thereon. The amount of the loan applied for was over 60,000l.

**EXTENSION OF WICK HARBOUR WORKS.**—Formal intimation has now been made of the intention of the Wick Harbour Trustees to apply, in the course of the present session, for Parliamentary power to undertake a scheme of harbour extension. The chief features of this undertaking are an extension of the existing south pier for a distance of 200 ft. and the construction of a north breakwater 755 ft. in length. This, when finished, will leave an entrance of 180 ft. wide between the extension of the south pier and the proposed breakwater from the north side. It is likewise intended to erect inner piers and quays from both sides of the river, and to reclaim a large area of ground on the north shore of Wick Bay. Another item in the plan is the construction of a dock for the repair of vessels, at the inner end of the existing north pier, which structure is itself to be widened, and the area in front deepened for the accommodation of fishing vessels. The Parliamentary plans for the new scheme are being prepared by Mr. James Barron, M.Inst.C.E., Aberdeen. The estimated cost of the operation, which will be proceeded with by instalments, is 150,000l.

**LABOURING CLASS DWELLINGS AT ROTHERHAM.**—On the 20th inst. Colonel W. Langton Coke, M.Inst.C.E., one of His Majesty's Local Government Board Inspectors, held a public inquiry at the Town Hall, Rotherham, relative to an application made by the County Borough Council under the provisions of the Rotherham Corporation Act, 1900,

as to the scheme for providing new dwellings for persons of the labouring class. Mr. George Jennings, Borough Surveyor, produced and explained the plans for the new houses under the scheme generally, the site for which is in Lord-street. There were two classes of houses, the rentals being—Class A, 6s. 6d.; for Class B, 6s. per week. To each house there would be separate yard and conveniences, and a special stove-grate arrangement which would heat the bath.

**PRESERVATION.**—On the 21st inst., at the Bear's Paw, Lord-street, Liverpool, a presentation of a silver bowl and an illuminated address was made by the staff and employees of the Liverpool Corporation Electric Supply Department to Mr. A. Bromley Holmes, who on March 1st retired from the position of City Electrical Engineer to take up the new appointment of Consulting Electrical Engineer.

**THE CHAIR OF ARCHITECTURE AT OWENS COLLEGE, MANCHESTER.**—The Joint Committee representing the Manchester City Council, the Owens College, and the Manchester Society of Architects have recommended Professor Stewart H. Capper, M.A. (Edin.), for the appointment as first Professor of Architecture at the coming Manchester University. Professor Capper holds a similar position in the McGill University of Montreal, where he has occupied the Chair of Architecture since 1896. He graduated in first-class classical honours in 1880 in Edinburgh, having previously attended classes at the University of Heidelberg. Professor Capper also holds the Pitt Club Scholarship in Classics. From 1879 to 1884 he acted as private tutor and private secretary in the household of Sir Robert Morier, British Minister at Lisbon and subsequently at Madrid. From 1884 to 1887 Professor Capper studied with M. J. L. Escalé, architect, member of the Institute of Architects, and was admitted by him to the Académie de la Ecole de Beaux Arts. Returning to Scotland in 1887, he entered upon the work of practical architecture, and from 1891 to the time when he was appointed to the Architectural Chair of Montreal, practised his profession in Edinburgh. The new professor is also an Associate of the Royal Institute of British Architects, and has lectured and examined for the Edinburgh University in architecture and for the M.A. degree. It is expected that Professor Capper will return to England and begin the duties connected with the Manchester Chair of Architecture next autumn.—*Manchester Guardian.*

**DOVER MASTER BUILDERS' ASSOCIATION.**—The sixth annual meeting of the Dover Master Builders and Decorators' Association was held at the Eagle Hotel recently. The report of the secretary, which set forth the Association's work during the past twelve months, was read and adopted, as well as the financial statement, and the election of officers was also carried out. Mr. R. W. Paramore was unanimously elected President in the place of Councillor Bromley, who had occupied that position since the formation of the Association in the early part of 1897. The first duty of the newly elected President was to ask Mr. Bromley's acceptance of a tangle with cut glass bottles and electro-plated mounts. The liqueur frame bore a tablet with an engraved inscription setting forth the esteem in which the retiring President was held by his members. The election of officers resulted as follows: Committee, Messrs. W. Bromley, S. Lewis, E. Austin, R. Briseley, G. Munro, J. Parsons, T. Francis, and W. S. Long. Mr. H. S. Caspall was again appointed secretary, and Mr. W. S. Lewis treasurer.

**ROYAL COMMISSION ON LONDON LOCOMOTION.**—At the second sitting of the Royal Commission on London Locomotion on Friday last week at the Caxton Hall, Westminster, Colonel Yorke gave further evidence, and said that he was much impressed with the necessity of road widenings, and he thought it was essential that any body which was entrusted with the authorisation of schemes of London traffic should be invested with powers to order the acquisition of land for road widening, and in some cases to authorise the Local Authority to contribute. In Paris there had been a street widening of a very comprehensive nature. New thoroughfares, wider streets, and subways would be the only thing to decrease the street traffic. Such a scheme as this would be a long and costly one, and would have to be organised. He was aware of how the Corporation remedied the congestion at Snow Hill by the construction of the Holborn Viaduct, and they might remedy the congestion at Ludgate Circus by the construction of a similar viaduct from Fleet-street to Ludgate-pike. A great street improvement undertaken on broad principles was not necessarily a costly matter in the long run, although a great deal of capital might have to be raised in the first instance. He felt that the condition of affairs pointed to the need of a great thoroughfare east to west, and another north to south which would relieve other parts of London.

**MANCHESTER CORPORATION AND FAIR CONTRACTS.**—Sir James Hay presided, on the 20th inst., at the Town Hall, Manchester, over a meeting of the Special Committee appointed to revise the Fair Contracts clause in the Standing Orders of the City Council. The previous Monday the Committee heard the views of representatives of employers and workers. As a result of what was said at that

meeting, an amended clause has been drafted. The clause states that "contractors tendering for, or executing work under, this Council must be paying to the whole of their workpeople (except such as, on account of old age, are employed at a lower rate) the standard rate of wages in the several districts where their workpeople are actually engaged in the execution of work, and must also be observing the hours of labour as well as the aforesaid rate of wages respectively agreed upon between the associations of employers and local organised bodies of workers in the various trades in the several districts where the work is being done. No tender shall be accepted from any firm which prohibits its workpeople from joining trade societies. Should the Council have, in its opinion, reasonable grounds for believing that the above conditions are not being complied with, the contractor shall be required to produce proof (to the satisfaction of the Council) of his compliance with the said conditions. The contractor shall not assign or underlet the contract or any part of it, or sub-contract, except with the consent of the Council, and upon such conditions as it may think fit; but if the tenderer at the time of tendering states in his tender that he desires to employ his work not usually done by him, the Council will consent, provided that the sub-contractor is a person approved by it; the principal contractor shall be responsible, however, for all work done by such sub-contractor, and for its being carried out under the same conditions as if executed by him. The Council will not accept tenders for alterations, which do not affect the principle of the clause, the draft was approved, and will be submitted to the Council for adoption. Mr. Hart, a member of the Committee, was anxious that there should be added to the clause a paragraph setting forth that in cases where the workers were not organised the rate of wages to be paid should be fixed by the Council, as is the case with the London County Council.

**ARBITRATION.**—At the Surveyors' Institution a claim was heard before Mr. Ralph Clutton, sole arbitrator, by Field and others, who are the Ancients of New Inn, against the London County Council in respect of 880 ft. of land of New Inn, off Goddard's Lane, Westminster, which the Council are acquiring for street improvement purposes. Mr. E. Boyle, K.C., and Mr. Norman Craig represented the claimants; Mr. Freeman, K.C., appeared for the Council. Mr. Boyle stated that the land had been let to a firm of builders by the claimants at a nominal rent of 5l. a year. Mr. Freeman raised a question as to the real ownership of the land. Mr. Boyle called Mr. Mumford, solicitor, who said that the land had been used in connexion with New Inn. After a consultation between the parties, Mr. Boyle stated that they had come to an agreement, and asked the arbitrator to award the sum of 750l.

**THE HOLBORN AND STRAND IMPROVEMENT SCHEME.**—At the Westminster High Bailiwick Court, on the 24th inst. before Mr. John Troubeck and a special jury, Mr. Thomas Harris (trading as Pryce & Harris) claimed 19,784l. compensation from the London County Council for the compulsory acquisition of his leasehold interest in the premises 2 and 3, Craven-yard, Drury-lane, required for the purpose of the Holborn and Strand improvement scheme. Mr. Edward Boyle, K.C., appeared for the claimant, and Sir Edward Clarke, K.C., represented the London County Council, whose sealed offer for the property was 9,370l. The claimant's business was that of a milk contractor and dealer in brewers' grains, and he was granted a 30 years' renewal of his lease on the ground that the premises were running with farmers for the supply of milk and with brewers for the collection of their grains. These contracts, it was said, might involve the claimant in fifty or sixty actions at law, but the County Council were willing to allow him a few months' occupation to get over the difficulty. The jury awarded the claimant 14,775l.

#### CAPITAL AND LABOUR.

**LANARKSHIRE PAINTERS' STRIKE.**—The painters' strike, which has lasted since the New Year in Hamilton, Motherwell, Bellshill, Bothwell, and Blantyre, has at last been settled. The dispute was in regard to overtime and the signing of working rules. Under the settlement the men have waived their demand for time-and-half overtime, and accepted time and quarter. The masters, on the other hand, have agreed that working rules should be signed for the year from February to February, instead of from January to January as has hitherto been the case. The building trades generally went out on strike on February 1st. It was slightly better than in the previous month, but



showed little change as compared with a year ago. The returns from Employers' Associations, covering 65 per cent. of the workpeople referred to in the returns, show employment to have been dull or bad, 27 per cent. fair or moderate, and 8 per cent. good. With bricklayers employment continues bad, and is about the same as in the corresponding month of last year. With masons it is good in England, and shows no change as compared with the previous month and a year ago. In Scotland and Ireland it continues dull, and is slightly worse than in the corresponding month of last year. Employment is fair with carpenters, and better than in the previous month and a year ago. The percentage of unemployed members among trade union carpenters and joiners was 50 at the end of February as compared with 65 in January and 62 in February, 1902. Employment is still bad with painters, but shows some improvement as compared with the previous month. It is worse, however, than a year ago, except in Scotland, where it is better. With plasterers it is still dull generally, except in Scotland, where it is fair and better than in the previous month. Plumbers report employment as moderate. The percentage of unemployed members among Trade Union plumbers was 82 at the end of February, as compared with 64 in January, and 55 in February, 1902. Slaters and tiers report that employment continues dull and is slightly worse than a year ago.—*Labour Gazette*.

## LEGAL.

## DAVEY V. MAYOR, &amp;c., OF GRAVESEND.

The hearing of the case of Davey v. The Mayor, &c., of Gravesend, commenced before Mr. Justice Lawrence and a special jury in the King's Bench Division, on the 17th inst.—an action by the plaintiffs, Messrs. F. and D. Davey, builders and contractors of Southend, Essex, against the defendants for 1,500l. alleged to be due to them on a certificate of the Borough Engineer, and also for damages from the defendants on the ground of their having wrongfully terminated a contract whereby plaintiffs were to erect for the defendants certain buildings at Gravesend. Defendants by their defence said they were justified in putting an end to the contract, and they counterclaimed against the plaintiffs for damages for breach of contract.

Mr. Duke, K.C., Mr. Rawlinson, K.C., Mr. Arthur Powell, K.C., and Mr. Bartley-Dennis appeared for the plaintiffs, and Mr. Wedderburn, K.C., Mr. Ribton, and Mr. Colefax for the defendants.

Mr. Duke, in opening the case, said that the plaintiffs had been engaged by the defendants to erect some electric lighting works at Gravesend, and when the works were almost completed and there remained only about 700l. worth of work to be done, and when plaintiffs handed to defendants the certificate of their engineer for 1,500l. defendants stopped plaintiffs from completing their work, and refused payment of the 1,500l. The contract price for the work was 7,000l. Of this 4,000l. only had been paid. At the time that the defendant's engineer gave the certificate for 1,500l., which the defendants refused to honour, plaintiffs had carried out work on the contract exceeding in value 6,000l., and at the time defendants terminated the contract with the plaintiffs there was only about 700l. or 800l. worth of work to be done in order to complete the building. The plaintiffs were builders and contractors in a very large way of business, and they had erected a great many buildings for public authorities. The defendants in the year 1901 obtained Parliamentary powers for the supply of electric lighting for Gravesend, and they proposed to erect a building which would serve the double purpose of providing for a refuse destructor and also for an electric lighting station. The two works were to be carried on in one set of buildings. The Corporation had a plot of land near the canal—a low-lying piece of land—and he (counsel) expected the jury would find before the case was over that the position chosen for the erection of these works had something to do with the conduct of the defendants towards the plaintiffs, because it was difficult in the course of the work—it was a serious difficulty—that the substation of the land on which the foundations had to be constructed was swampy and the flues got flooded; and after the defendants had turned the plaintiffs off the works, they thought fit to alter the original plan and erected a chimney-stack and furnace in another place. The plaintiffs tendered for the work in the usual way on quantities which had been prepared. That was in August, 1901. The contract was signed on November 13, 1901. The contract contained the usual clauses and conditions. It provided that the works were to be under the control of Mr. Trentham, the engineer to the scheme. There was also a provision that in the case of any dispute arising between the contractors and the Corporation during the progress of the work it should be referred to the engineer. There were also provisions that the contractors were not to deviate from the execution of the works under the contract, except on the authority of the engineer, and that if he should be of opinion that improper materials were being used and there was improper workmanship performed, the contractors

would, on his objecting, substitute proper materials and workmanship to his satisfaction, failing which the engineer could employ other persons to execute the work. The contract stipulated that the works were to be completed by the contractors within six months under certain penalties, but power was given to the engineer to extend the time for the completion of the work. Another clause empowered the Corporation to determine the contract if the contractors should go bankrupt or suspend the work, and the amount then already paid by the Corporation to the contractors should be deemed to be the full value of the work executed by the contractors up to that time, and no further sum should be paid by the Corporation to the contractors by virtue of the contract, and all expenses incurred by the Corporation to complete the contract might be deducted from the sum payable to the contractors. After the contract was signed some delay in commencing the work was caused through the Corporation having to get certain sanctions from the Local Government Board; but on November 28 plaintiffs were told that these had been obtained, and they could go on with the work. Between the time of the contract being signed and November 28 the defendants, without any communication to the plaintiffs, varied the position of the chimney-stack, as shown in the plans on which the plaintiffs tendered, and lengthened the flues the plaintiffs had to carry out. Plaintiffs would not have complained of this, but the alteration cost the plaintiffs considerably more than they had bargained for when they tendered. The next thing that happened was this. The plaintiffs had carried out electric lighting works for the Corporation of Southend. The engineer went with one of the plaintiffs firm to look at these works, and he then said that they would not go to the expense of having glazed bricks in the engine-room. Accordingly the plaintiffs did not buy any, but this, as the jury would hear, was one of the reasons that the plaintiffs had been turned off the works.

Mr. Wedderburn: I submit that nothing said verbally by the engineer is evidence against the Corporation. Section 26 of the contract limits the authority of the engineer. The sole contracting parties are the builders and the Corporation. By that clause the contractor is not to vary or deviate from the contract or specification, or execute any extra work whatever unless on the authority of the engineer to be sufficiently shown by any order in writing or any plan or drawing expressly signed by him, or by a subsequent written approval signed or initiated by him. That first says that in order to vary the contract there must be the written or drawing order of the engineer. Notwithstanding that it went on to say that where the variation involved more than 20l. it must go before the Corporation. The builders therefore had notice of the limit of the authority of the engineer. They cannot rely on anything outside that. If they chose to accept the verbal order of the engineer or of a clerk or anybody else, they did it at their own risk. I submit the only variations on which my learned friend can rely, are the variations on the written orders of the engineer or by the Corporation themselves. Therefore, any evidence as to what may be verbally assented to by unauthorised people is not evidence against the Corporation.

Mr. Duke replied that he had not tendered any evidence yet, and was merely opening his case. He should be obliged if his learned friend would allow him to proceed in the way he thought best.

Mr. Wedderburn said he thought it a convenient time to take the objection.

His Lordship: I cannot stop Mr. Duke.

Mr. Duke, continuing, said that the work under the contract proceeded, and in January the plaintiffs got the engineer's certificate for 1,000l., and in February a certificate for 1,500l. both of which amounts the Corporation paid. So matters went on till about the middle of March, when a Mr. Archer came on the scene. Mr. Archer was a builder in Gravesend, and a member of the Corporation, and he was carrying on some works on an adjoining site. He said that bricks called Flettons had been selected to carry out the erection of the chimney stack, which was then about 50 ft. or 60 ft. from the ground. The engineer, as he found that a saving could be effected by constructing the shaft of Flettons instead of picked stock facings as provided for in the contract, had instructed the contractors to use Flettons, as the difference in price would be deducted from the price of the contract. The Corporation afterwards resolved that the shaft should be taken down, and rebuilt with picked stock facings. The Corporation were perfectly right in taking that course so long as the expense did not fall on the contractors. On March 19 the engineer wrote the plaintiffs to take down the chimney shaft and rebuild with the other bricks, and he would grant the plaintiffs one month's extension of time for so doing. Plaintiffs accepted the suggestion, but said it would take longer than a month. Up to this time the plaintiffs had only received 2,500l., and on March 25 they applied for a further certificate for 2,600l. On the same day the engineer wrote a letter to the Town Clerk of Gravesend as follows:—“Will you kindly let me know whether you consider that the builders should have any more money at this juncture? I should say they have carried out some 5,500l. worth of work, and have been paid 2,500l. only.” That was

an extraordinary proceeding, because it was the business of the engineer to administer his office, and to exercise his powers under the contract on such a question. The Town Clerk in his reply did not commit himself. He said that he hesitated interfering in the matter of certificates to the builders, that business being by the contract expressly assigned to the engineer. About a week afterwards the engineer gave the plaintiffs a further certificate for 1,500l.—not for the 2,700l. which, according to his letter to the Town Clerk, should have been given taking into consideration the 300l. for retention money. That left 1,000l. or 1,200l. in the hands of the Corporation, and that was apparently done for some ulterior reason. The plaintiffs got that certificate paid on April 4. Subsequently the engineer wrote to the plaintiffs that he did not see how he could pass any extra payments to them for pulling down and rebuilding the chimney shaft, as it would have had to be pulled down in any case on account of bad work. The jury would be told that there was no bad work in the chimney shaft at all. Plaintiffs wrote to the engineer protesting at only getting a certificate for 1,500l., and saying it was against the conditions of the contract. On April 11 plaintiffs saw the engineer, and he then took up the new position that the mortar used in the inner part of the shaft did not set well, and was bad mortar. This charge was absolutely unwarranted. Then defendants called in a Mr. Crickmay, an engineer, a Mr. Bennett, an architect, and a Mr. Bate, whom they put in charge of the works, Mr. Trentham being, however, still retained to control the works on their behalf. Plaintiffs consulted a Mr. Jas. Thompson, an architect, and plaintiffs arranged to do whatever Mr. Thompson thought they should do. Then another matter arose with regard to the main flue that was constructed at a level below the level of the ground where it received water which had accumulated either from the canal or somewhere else. Plaintiffs were asked to rebuild part of the crown of the flue. In that state of things there being the dispute about the chimney shaft, it was arranged that plaintiffs should make out an account of what they considered they should receive for “extra work and omissions,” and on May 5 Mr. Thompson and the engineer met, and then it was agreed that the plaintiffs should be paid, in addition to the contract price for the carrying out of the work, 25l. extra. In May plaintiffs got another certificate for 1,500l., and subsequently a number of letters of complaint from the engineer about the main flue and the joinery work which had been on the premises some two months. On May 22 the Corporation met and decided that the work should be measured up and taken out of the plaintiffs' hands. This was done. After the engineer knew this he wrote a letter to the plaintiffs which stated in effect that he would not allow the plaintiffs to do any additional work until they (plaintiffs) had remedied the defective work put into the job. The learned counsel said that at the time Mr. Trentham wrote that letter to the plaintiffs he knew perfectly well that the defendants had decided to stop the plaintiffs from doing any more work. On May 30, defendants served the plaintiffs with a formal written notice determining the contract. Plaintiffs had no possibility of going on with the work after that. They were practically stopped from going on with the work since May 22. Defendants had not paid plaintiffs the 1,500l. on the last certificate. The learned counsel in concluding his address said that the Corporation, by their defence, would try to justify their action. He thought that the jury, when they looked at the facts and the bargain between the parties, would come to the conclusion that they failed to justify what they had done.

Mr. Frank Davey, a member of the plaintiffs' firm, was then called and examined by Mr. Arthur Powell, and generally bore out the opening statement of counsel.

Cross-examined by Mr. Wedderburn:

Have the Corporation always been ready to pay you the value of the effective work which you have done, and have they offered to have that ascertained by an independent person?—That I do not know.

Would you be content to be paid the value of the effective work you have done?—I have never done any bad work.

Then clearly you would be content to be paid the value of the work you have done which you say was effective?—Yes.

Would you be willing to have it valued up by a perfectly independent architect and take his figures?—No, certainly not. Mr. Trentham was the man there, and I did everything under his guidance.

Why would you not be content with the judgment of a competent architect and an independent person?—I considered Mr. Trentham a competent and independent man, and the Corporation said I was to carry out his instructions.

The witness, further cross-examined, said he disagreed with the suggestion that the whole difficulty had arisen through his disregarding the contract and listening only to what Mr. Trentham told him. He considered that he was carrying out the contract if he carried out Mr. Trentham's instructions. Mr. Trentham being the agent of the defendants. In his judgment, 700l. worth of work remained to be done on the job on May 30. He was not aware that, according to what was found



by the new contractors, 3,000l. worth of work remained to be done.

The witness was then further cross-examined at length on the details mentioned by Mr. Duke in his opening statement; he formally denying that any bad work was put into the job, and alleging that he and his firm had carried out and performed their obligations under the contract.

Mr. Jas. Thompson an architect, examined by Mr. Bartley Dennis, corroborated the evidence of the last witness as to the satisfactory nature of the plaintiffs' work and of the materials supplied by them and used on the job.

Cross-examined: He saw pit-sand, or ballast, on the works. The new chimney-shaft was built of stock bricks. He had known the plaintiffs eight or nine years. He had not very much to do with them. He thought that the Corporation, to reject the arrangement as to the 25l for extras, had acted very foolishly.

Mr. Wm. Woodward, examined, said he went down to the works and examined them with the last witness and Mr. Davey. He thought the brickwork of the building was remarkably good work, both as to bricks and as to mortar. He had particulars of the defendants' complaint. In his opinion there was not the slightest ground for complaint, and the work of the plaintiffs was such as he should have accepted on behalf of any of his clients. He had never yet carried out a work where there were not variations to be settled at the end of the work.

Cross-examined: He went through all the condemned items at the works.

Mr. John Archer, examined, said he was foreman of the concrete work for the plaintiffs. All Thames ballast was used for the footings of the building. When Mr. Treatham said that no pit ballast was to be used on the work, none was used. The brickwork of the chimney-shaft which was pulled down was extremely good.

Mr. Wedderburn, in opening the case on behalf of the defendants, said the contention of the Corporation had been throughout that the plaintiffs ought to be paid the full value of all the effective work done by them, and they had always been ready and willing to pay for that. The case for the Corporation was, however, that a large amount of the work which the plaintiffs had done was not effective work, and not according to specification, and that for work which was bad work and for work which was never ordered they (defendants) ought not to be called upon to pay. He thought that attitude of the Corporation would commend itself to the jury. It could not be over-looked that in the present case there was a contract by the plaintiffs on the one side and the Corporation on the other. In that contract were put the specific terms as to how the work was to be carried out, and it stipulated that the terms of the contract were not to be departed from except in a particular way. After the contract was signed, the work went on till about March 11, when the attention of the Corporation was called to an important matter, viz., that the chimney-shaft, which they had ordered to be built of a particular class of brick, was, without their being consulted, built of a different class of brick than that specified. The plaintiffs' answer to this was that there had been a variation of the important matter by the defendants' engineer. The engineer, however, had no power to do this. Contracts could not be varied in that way. The general history of the case was this. The contract was signed on November 13, and the plaintiffs knew from the first what the specification was. On March 11 the question of the chimney-shaft was put for the first time raised. The Corporation declined to accept that which they never had contracted to have, and the shaft was taken down by the beginning of April. As soon as it was taken down it was possible to see what the pedestal below was. The defendants' case with regard to that was that on the top of the pedestal there was a stone plinth, and that the brickwork under that was so bad it had to be kept up in one place by a wedge of mortar, at one point 1½ in. thick. The defendants' case was that that was entirely due to bad building. Apart from that the brickwork was not properly "flushed up." After March 11 Mr. Treatham and the Corporation came to loggerheads. The only safe course here to prevent either party being hurt was for the contract to be regarded. When the Corporation and Mr. Treatham (who was apparently only an engineer, and not an architect) had come to loggerheads, Mr. Treatham had suggested that if the Corporation were not contented they had better call in some independent architect. The Town Clerk of Gravesend, desiring to have an absolutely independent person, wrote to the President of the Royal Institute of British Architects and said there was some difficulty about the works at Gravesend, and asking him to nominate somebody. The President of the Institute nominated a Mr. Crickmay. He came down and visited the works and afterwards made his report, which would be handed to the jury. The real issue was whether the jury would believe what they were told by the plaintiffs, or whether they would believe Mr. Crickmay. Mr. Crickmay having made his report, the plaintiffs did not like it, and they called in Mr. Thompson. Mr. Thompson, who was the friend of the plaintiffs, and Mr. Treatham, who was the friend of the Corporation, were to decide

what the Corporation were to accept and what not to accept. Against that the defendants held out. The suggestion that 25l. should be added to the contract price was altogether rejected by Mr. Treatham, and there was no authority for Mr. Treatham to bind the Corporation at all in that matter. From that date the defendants continued to find things not properly done. The flue had been condemned on April 12, and by May 27 nothing had been done to put the flue right. Meanwhile, the joinery was wrong, the mortar was wrong, and various other matters were altogether as they should not be. The result was that the Corporation felt that they could not go on allowing bad work nor work they had not ordered to be executed. The Corporation then made the proposal that the work should be measured up, and that the plaintiffs should be paid and go. The plaintiffs wanted to have all work measured up, good or bad, and the Corporation only wanted to measure up and pay for such work as was properly done according to the contract. Eventually the defendants agreed under Section 40 of the contract, and gave the plaintiffs notice that they had determined the contract. The whole question the jury had to determine was whether the defendants were justified in terminating the contract under that section. The question was whether the plaintiffs had failed to do their duty under the contract. He submitted they had certainly failed, because they had continued to act outside the contract and to execute different work to that ordered. Plaintiffs had failed if their work was bad.

Mr. George R. Crickmay, F.R.I.B.A. and F.S.I., examined by Mr. Rawlinson, said that in April of last year he was appointed by the President of the Royal Institute of British Architects to go down to Gravesend and make a report in this matter. He went down on April 15, and made an examination of the premises. The brickwork for the outside of the flue was not good. He should not have passed it. There should have been solid bricks laid together behind. He had two holes cut in the pedestal of the chimney-shaft. The mortar he took out from the holes he cut was very "short" and very unsatisfactory. It was necessary that the whole of the brickwork should be grouted, or some how made solid. The brickwork was not flushed up, grouted, or made solid. This was a most important matter in a pedestal of that kind. He had made a report on the chimney shaft. Flettons were not the proper bricks to have used, and the brickwork was not properly flushed up. The bricks he found there were hard, rough bricks, but certainly not "picked stocks." He was told they were Erith bricks, and nothing like as good as "picked stocks." They were much cheaper than "picked stocks." He saw some pit sand on the works. It was quite unfit for good work. Stourbridge bricks were the best fire-bricks, but those used were not the best Stourbridge fire-bricks. The specification said "the best fire-bricks," and those used were not the best—that was, in the flue. The boarding on the roof generally was very sappy. The walls were very roughly built, and very badly pointed. He did not think that the plaintiffs had complied with the contract with regard to the work being the best work. If he had been the architect on the work he should have stopped it as soon as he could.

His Lordship: You would not have granted a certificate?

The witness: No, I should not.

Examination continued: Since then he had been down to the works and seen the joinery work. The doors were specified as being Archangel deals. The doors used were made from an inferior deal—he should say a Swede deal. The doors were not framed for mortice locks, which were provided for in the specification. It was the kind of work he should not pass. These were internal doors, but the external doors were made just the same way as far as the framing was concerned. The rash-frames were very rough and a very poor class of joinery.

Cross-examined by Mr. Duke: He knew that the Corporation had had some disagreement with Mr. Treatham. He did not agree with a good many of the opinions expressed by Mr. Treatham. He saw no objection to the site of the flue if there had been a proper foundation.

Mr. Duke: But the specified foundation was put in?—I think it was.

It was a site which was liable to be waterlogged?—It was a site which was waterlogged.

Cross-examination continued: There was no water in the flue when he was there. He did not know that it had been pumped before he got there to get the water out. The place where the flue was now was much better than the place it was in formerly. It was now above the water-mark. If he had been constructing a flue on the site he should have had 18-in. walls and a good foundation. The specified thickness of the walls was 9 in. That was very risky. The principal matters with which his report dealt with were the chimney-shaft and the flue. Mr. Treatham was still in the service of the Corporation. He was the consulting electrical engineer. He never heard from Mr. Treatham that he had ordered "Flettons" instead of "stocks."

Mr. Duke: What do you have a resident engineer on works of this sort for?

His Lordship: In an ordinary case it would be a resident architect.

The witness replied that a resident architect would have examined the work as it proceeded and reported to the employers.

Mr. Duke: What do you have a clerk of the works for?—Exactly for the same thing as I have described. In this case I think Mr. McInnes acted on behalf of the electric work.

Further cross-examined, the witness said that the clerk of the works was not to give orders, but to supervise and report.

Supposing you had got some doors which you considered did not tally with the specification, and you were supervising the work, would you reject the doors or turn out the builder?—I should tell the builder to take away the doors, and if he did not do it I should get some one else to do it.

Take the case where there are a large number of complaints. Have you ever known of such a case as this, where, without demand upon the builder to make good the defects, he has been turned off the work?—No.

It does not strike you as a fair proceeding, does it?—I should certainly give notice to the builder.

Mr. Walter Herring, a quantity surveyor, examined by Mr. Colefax, said that in June, 1901, he was appointed on behalf of the Corporation to prepare the quantities for the work in question. In May, 1902, he was instructed to measure up the work which had been done by the plaintiffs, and on June 18 he went to Gravesend for that purpose. He was accompanied by Mr. Hawker, who measured up also for the new contractors. The witness stated that he estimated that the work done by the plaintiffs at that date apart from any deductions at all amounted to 4,432l. 17s. 10d. The materials on the site were worth 172l. 10s. 3d. From that had to be deducted 410l. 6s. 10d. for the chimney shaft which was pulled down, and 138l. 12s. 9d. for the main flue. There was 168l in respect of bad joinery work and 200l. odd for variations. These deductions amounted altogether to 940l. 9s. 4d. The result of his valuation, and as the plaintiffs had been paid 4,000l., they had been overpaid for what they had done.

The witness stated that in course of measuring up he inspected the work. He noticed the concrete at the base of the chimney. It was not at all good. It was not suitable to support a chimney of that height. He examined the flue, and so far as his examination went, the work in the flue was not at all good. The joinery was rough, and the roof boarding was knotty and sappy.

Cross-examined by Mr. Duke: He thought at the time that the lining wall for the flue was sufficiently thick if 9 in., but he did not think now that it was thick enough.

Further cross-examined, the witness stated that the measurement he made was supposed to be a measurement between the parties.

Did you give notice to the plaintiffs?—I had an interview with Mr. F. Davey and also with Mr. Arnold. I asked if any person was to be sent to measure quantities.

Was any notice sent to the plaintiffs?—No, because they refused to attend.

Was there any notice given by the Corporation for Mr. Davey to be present and see that measurement?—I cannot say.

In the ordinary course notice is given to the parties at the time, and requiring them to attend?—I agree with you.

Did you know that the Corporation were turning the contractors off the work?—I was told that an agreement was being come to that the contractor should abandon the contract.

Mr. Treatham told you that?—Yes. Cross-examination continued.

At the end of May or the beginning of June he found out that the contractor had been turned off the work. According to his valuation, the total cost of the work the plaintiffs had not done in order to complete the contract amounted to 2,662l.

Re-examined: He took out the original quantities. These quantities were priced. The original prices in the quantities included a margin of profit for the contractor. His total bill of quantities came out at 7,093l. 10s. The contract price was 7,094l. On June 16 he went to measure up all the work done, good and bad. He took that at the scheduled prices where they applied.

Mr. William Hawker, a quantity surveyor, of No. 73, Moorgate-street, E.C., and Gravesend, examined, said that in June, 1902, he measured up with the last witness the work done by the plaintiffs. He represented the new contractors. He agreed in all the figures with the last witness. He carefully examined the condemned work and found it very different.

Mr. Charles Fredk. McInnes, resident electrical engineer to the defendant Corporation, examined, said that in April, 1902, he examined the concrete under the boilers. He found it very bad indeed. He stopped the erection of the boilers in consequence. On April 12 he examined the main flue. He found the walls of the flue not upright. The concrete under the pedestal of the chimney shaft had the appearance of not being properly mixed. It was variable—soft in some places and hard in others.

Cross-examined: He was the resident electrical engineer. Mr. Treatham was the consulting engineer to the Cor-



poration. Witness had no technical knowledge of building and no particular knowledge of building construction. He had no particular knowledge whether work was good or had except in regard to work in connexion with his own contracts.

Mr. Edmond John Bennett, A.R.I.B.A., gave evidence as to being appointed by the Corporation in April, 1902, to advise with Mr. Trentham on the works at Gravesend. The witness generally contradicted the evidence of the other witnesses called on behalf of the defendants.

Evidence was also given for the defendants by Mr. Archer, a builder and a member of the defendant Corporation; Mr. Thomas Grant, Borough Surveyor of Gravesend; Mr. John Bate, Kent-road, Gravesend, clerk of works; Mr. Wm. J. Harrison, Town Clerk's assistant; Mr. Meredith Winter Blyth, analyst; and Mr. Arthur Ward King, deputy treasurer, Gravesend.

In the result the jury awarded the plaintiffs £544 damages.

Judgment accordingly.

A stay of execution with the view to an appeal was refused.

#### PARTY-WALL DISPUTE.

THE case of Cave v. Robinson came before Mr. Justice Wright, sitting without a jury, in the King's Bench Division last week. It was an action by the plaintiff, the lessee of No. 54, Broad-street, St. Giles-in-the-Fields, against the defendant, the sub-lessee of the upper floor of these premises, to recover the cost of pulling down and rebuilding the upper part of a party-wall.

It appeared that the London County Council served a "dangerous structure" notice on plaintiff to pull down the party-wall which separated the property from No. 53, and he was compelled to pull down and rebuild the wall at considerable expense, although he only occupied the ground floor of his premises.

Mr. Wright, counsel for the plaintiff, contended that defendant was liable by reason of the decision in the case of *Proudfoot v. Hart* to contribute his share of the expenses of pulling down and rebuilding the party-wall. The wall, he said, was decayed and defective, and owing to No. 53, the adjoining property, being pulled down, it became much worse. Plaintiff only occupied the ground floor, he having sublet the first second, and third floors to defendant on a repairing lease. The pulling down of the ground floor portion of the wall necessarily involved taking down the whole wall. Defendant admitted his liability to pay the cost of pulling down the upper portions of the wall, but not of rebuilding.

Mr. J. M. Theobald, a surveyor, examined, said that the wall was very old. He measured the work, the cost of which was £141.

Cross-examined:

The wall of the adjoining house was very old. The house was over 100 years old.

Mr. A. C. H. Pendlebury, a surveyor, said that there was a vertical crack in the wall which started midway and went up and down both ways and extended to the ground. It was necessary to take the wall down to the ground as it was decayed from old age. The adjoining house supported this, and the pulling down of that certainly made the party-wall give way to some extent. Otherwise the wall would have done for a considerable period.

Mr. Savage, chief clerk to the District Surveyor of St. Giles-in-the-Fields, said that in January he surveyed the party-wall between Nos. 53 and 54, Broad-street. There were a number of cracks, but he did not think that the cracks went into the ground. He could not say if there was anything the matter with the foundation, but he did not consider that pulling down next door had any effect, as the cracks were old.

The defendant gave evidence as to being the tenant of the upper floors. The wall, he said, was in good condition there, although old.

Cross-examined: He had known the crack in question for twenty-seven years.

In the result, his Lordship in giving judgment said the evidence proved that the wall was in a ruinous state of repair, and, in fact, repair was out of the question. He thought that the immediate cause of the whole wall being taken down was the bad condition of the ground floor portion. There would be judgment for the plaintiff, being the amount of his share of the pulling-down expenses up to November 18, 1902, and on the other point of the case judgment for the defendant.

#### ACTION AGAINST THE SEAFORD URBAN DISTRICT COUNCIL.

THE case of Lambe and others v. the Urban District Council of Seaford came before Mr. Justice Kekewich in the Chancery Division last week. It being an action by the plaintiffs, Mr. Robert Lambe and the Seaford West Co., Limited, for a declaration that under the Newhaven and Seaford Sea Defences Act, 1898, and an Agreement dated December 17, 1900, or one of them, the Urban District Council of Seaford was liable to take over, adopt, and maintain a certain public expense the parade of the width of 60 ft. or thereabouts immediately to the landward side of the Sea wall and also the road 60 ft. wide on the landward side

of the parade. Defendants admitted that they were liable to take over and maintain the parade but denied liability in respect of the road.

Mr. Cripps, K.C., Mr. Warrington, K.C., and Mr. Metcalfe appeared for the plaintiffs, and Mr. Macmorran, K.C., and Mr. Wood, for the defendants.

Mr. Cripps said that Mr. Lambe was the freeholder of the whole of certain lands and hereditaments called the Seaford West Estate in the parishes of East Blatchington and Seaford, and having a frontage to the seashore between Newhaven and Seaford. For some years prior to 1898 the sea had made considerable encroachments upon the shore, and large portions of the public road along the coast from Newhaven to Seaford had been washed away or become buried in beach, and serious damage caused to the adjacent lands.

In 1898 the plaintiff and the other owners of land who had sustained injury, and the defendants and other Local Authorities affected, obtained the passing of the Newhaven and Seaford Defences Act, 1898, to provide for the construction and maintenance of the necessary defence works and other purposes, including the construction of a road 60 ft. wide. This road was to be constructed by Mr. Lambe and taken over when completed by the Seaford Council. In 1900 it was proposed to vary the proposed works by constructing a parade as well as a road, and on December 17 an agreement was entered into under which Mr. Lambe was to maintain and keep in repair the road, 60 ft. wide, on the landward side of the parade until the same had been taken over by the Local Authority and become repairable at the public expense, and in the meantime he was to permit the free uninterrupted use thereof by the public.

It was further agreed that so soon as the whole of the road and works should have been carried out and completely finished by the plaintiffs, the defendants should take over and maintain at the public expense the parade of the width of 60 ft. By a deed of conveyance, dated June 28, 1901, Mr. Lambe conveyed portions of the Seaford West Estate, including his rights to the foreshore, road, and parade, to the Seaford West Co., Ltd. Plaintiffs in July, 1902, completed the road and they now claimed that defendants were liable under the Act and the agreement to take over and maintain both road and parade.

The defendants' case was that the agreement drew a distinction between the road and parade, the intention being that they should take over the parade instead of the road.

His Lordship, in giving judgment, said he thought that on the true construction of the agreement there was nothing in the way of variation or supersession of the Act to negative the plaintiffs' contention. The Council accepted the old road and the addition, and the result was that the provision under the Act respecting the old road stood, notwithstanding the agreement respecting some addition to the old road. It had been conceded that the road had been constructed, and therefore the plaintiffs were entitled to the declaration asked for.

Judgment accordingly.

#### ISLINGTON DRAINAGE DISPUTE.

THE hearing of the case of *Proctor v. the Mayor, &c., of Islington* concluded before the Court of Appeal, composed of Lords Justices Vaughan-Williams, Sirling, and Mathew, on the 19th inst. on the appeal of the plaintiff from a judgment of Mr. Justice Wright in the King's Bench Division.

This was an action brought by the plaintiff, Mrs. Proctor, to recover from the defendants £41 paid to the Borough Council in respect of sanitary work done at Nos. 106 and 108, Rotherfield-road, Islington. The plaintiff alleged that a sanitary inspector of the defendants served her with a written notice to the effect that certain drains in the premises of which plaintiff was owner were in a defective condition. Upon receipt of the notice plaintiff instructed her builder to do the necessary work, the cost of which amounted to £41. The plaintiff's case was that the repairs the defendants required done were repairs to a sewer, and as the duty of keeping that in order fell on the defendants she could recover the amount she had paid her builder from them.

The defendants' case was that the notice served upon the plaintiff was simply an intimation that the drainage was defective, and that they did not call upon the plaintiff to do the work. The defendants, however, in order to decide the question of their liability in the matter, admitted that the work done by the plaintiff was on a sewer which was their duty to keep in order. Mr. Justice Wright in the Court below held that, as the work was not done by the plaintiff under compulsion nor at the time that the defendants themselves were bound to execute the work, the plaintiff could not recover from the defendants the amount she had paid her builder for the repairs. He accordingly dismissed the action with costs. Hence the present appeal of the plaintiff. The plaintiff appeared in person, and Mr. Courtthorpe Munroe for the defendants.

In the result their Lordships held that the plaintiff was entitled to succeed. They thought that justice would be met by defendants paying to the plaintiff the sum of £40.

The appeal was accordingly allowed.

#### PATENTS OF THE WEEK.

##### APPLICATIONS PUBLISHED.\*

4,644 of 1902.—W. E. EVANS (H. Croizer & Co.): *Manufacture of Artificial Stone*.

This consists of a receptacle in which the mass is expanded after the first mixing and is constituted of a simple reservoir where the material falls without settling before passing to the second mixer, this reservoir being capable of being heated either by a steam-jacket or other appropriate means in such manner as to maintain in the mass a temperature slightly below 100 deg. Cent.

6,392 of 1902.—M. YARROW: *Construction of Earthenware and other Pipes and Apparatus therefor*.

The construction of earthenware and other pipes and apparatus for producing same, consisting in so forming or arranging the spigots and sockets of said pipes that in jointing such pipes together greater facility is afforded for the insertion of the joint-forming substance and a better or more secure joint is produced than is the case with those as ordinarily constructed, and the invention further consists in the formation and arrangement of the press and parts in connexion therewith, whereby the said pipes and others of a similar nature may be readily and properly produced.

6,495 of 1902.—P. H. MELLOR and S. W. HASSALL: *Process of Moulding Clay or other Earthenware*.

This process consists of moulding earthenware by casting, said process comprising the building of a mould composed of a box and a core, a portion or portions of said mould being pervious to moisture, and after the mould is closed, injecting clay slip thereto under pressure.

6,046 of 1902.—CALLENDER'S CABLE AND CONSTRUCTION CO., LTD., and H. HASTINGS: *Covers for the Junction Boxes of Telegraph Cables and the Like*.

This consists of covers for the junction boxes of telegraph cables and the like, so inclined as to water condensing on them does not drop into the box but adheres to them, running down towards their outer edge and escaping by a suitable channel.

6,948 of 1902.—T. PETERSON: *Fender Pillars or "Above Ground" Boxes used in Connection with Electric Supply Mains*.

This consists in the combination of a pillar, panels, or the like, or the fittings carried on the outside thereof, and a cover surrounding the fittings and pillar.

8,805 of 1902.—L. HOUGHT: *Sliding Door and Sash Check or Holder*.

A door or sash check comprising a hinged or jointed member in combination with springs and a stud.

6,299 of 1902.—T. A. STEVENSON: *Fuel Economisers and Heat Generators for Use in Domestic or Other Fire Grates*.

Fuel economisers and heat generators for use in domestic and other fire grates, consisting in a frame or grate comprised by a number of central parallel bars and inclined splayed end bars, having lengthwise grooves therein, said frame being given a suitable curve, and ribs arranged transversely of said grooves, and rearwardly projecting supports or bases.

9,047 of 1902.—D. M. NESBIT: *Ventilators and Fittings therefor*.

This consists in rendering the flow of air through a ventilator grating uniform by dividing the uptake into two or more independent passages and separately regulating the flow of air through such passages.

9,877 of 1902.—D. M. NESBIT: *Ventilating Systems*.

This consists in arranging the outer air inlet orifice at a comparatively high level and causing the entering air to pass first down the inlet passage and then up through a heating chamber arranged within a cabinet.

10,333 of 1902.—J. PALLISER: *Chimney-tops*.

This consists in the combination of a lower or base component for attachment to the chimney head and an upper opening disposed thereon and held concentrically therewith by wings or distance pieces, said upper opening being prolonged considerably with reference to the lower or base opening so as to extend downwardly and confine or enclose the major part thereof.

8,028 of 1902.—T. SABINE: *Machines for Making Sanitary Pipes, Chimney pots, and the Like*.

Machines for making sanitary pipes, chimney-pots, and the like, consisting in the employment of additional and adjustable systems of balance weights arranged to vary in weight according as the weight increases or decreases on the table of the machine and as said table descends or ascends.

6,281 of 1902.—P. BAKER: *Chimney top*.

In constructing a chimney-pot according to the invention the base is preferably made square, and the top is approximately circular in cross section. The top is formed with a slight outward extension, the middle part is made to taper or contract towards the top, so as to resist the external wind pressure and thus prevent down draught. The top is made

\* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.



90 | Linden-rd., four plots of building land, f.....



Broadstairs, Kent.—Stanley-rd., corner plot of land, f. 1.  
Holloway.—95, Dabham-rd., u.t. 62½ yrs., g.r. 64, w.r. 31½.  
Edmonton.—Eaton-pl., f.g.r. 25½, reversion in 80 yrs.

By STIMSON & SONS.

Regent's Park.—72, Albany-st., and 35, Little Albany-st., u.t. 21½ yrs., g.r. 15½, y.r. 120½.  
Islington.—89, St. Peter-st., u.t. 33 yrs., g.r. 64, w.r. 40½.  
Caledonian-rd.—9, Blundell-st., u.t. 44 yrs., g.r. 64, w.r. 39½.  
Stoke Newington.—52, Farleigh-rd., u.t. 60 yrs., g.r. 84, w.r. 69½.  
55 and 57, Barretts-grove, u.t. 71 yrs., g.r. 154, y.r. 71½.  
6, Salcombe-rd., u.t. 70 yrs., g.r. 74, y.r. 146.  
Walworth.—20, Alvey-st., u.t. 49 yrs., g.r. 34, 158, w.r. 3½.  
Deptford.—37 and 39, Ravensbourne-st., u.t. 63 yrs., g.r. 71, w.r. 74, 168.  
Battersea.—68, Salcott-rd., u.t. 70 yrs., g.r. 64, w.r. 40½.  
Brixton.—46, Burton-rd., u.t. 33 yrs., g.r. 74, y.r. 62.  
Walthamstow.—2, Second-av., u.t. 94½ yrs., g.r. 51, 108, c.t. 34½.

By WHITE, BERRY, & TAYLOR.  
Chiswick.—165, 169, and 171, High-rd. (Park House), f. and c., p.  
Brackley-rd., a block of freehold building land, p.

March 20.—By BARKERS.

Leytonstone.—31 to 41 (odd), Acacia-rd., f., w.r. 159, 188.  
15 to 29 (odd), Lansdowne-rd., u.t. 73 yrs., g.r. 120, w.r. 121.  
Bow.—97, 92, and 94, Fainfoot-rd., u.t. 59 yrs., g.r. 114, 58, w.r. 96½.

By NIGHTINGALE, PHILLIPS, & PAGE.  
Kingston Hill (Surrey).—Gloucester-rd., Friedens-thal, and 12, f., p.  
Surliton Hill (Surrey).—Oak Hill, Oak Hill Lodge and 4 & 6, f., p.

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; p. for possession; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; h.b. for best-house; p.h. for public-house; o. for offices; s. for shops.

## PRICES CURRENT OF MATERIALS.

\* \* \* Our aim in this list is to give, as far as possible, the average prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

### BRICKS, &c.

Hard Stocks	£ s. d.	per 1,000	alongside, in river.
Red	1 12 0	"	"
Grizzles	1 12 0	"	"
Facing Stocks	2 12 0	"	"
Shippers	2 12 0	"	"
Flint	4 7 6	"	at railway depot
Red Wire Cuts	1 12 0	"	"
Best Fareham Red	3 12 0	"	"
Best Red Pressed	5 0 0	"	"
Ruabon Facing	5 0 0	"	"
Best Blue Pressed	4 5 0	"	"
Staffordshire	4 11 0	"	"
Do. Bullnose	4 11 0	"	"
Best Stourbridge	4 8 0	"	"
Fire Bricks	4 8 0	"	"
GLAZED BRICKS.			
Best White and Ivory Glazed	13 0 0	"	"
Stretchers	13 0 0	"	"
Headers	13 0 0	"	"
Quoins, Bullnose, and Flat	17 0 0	"	"
Double Stretchers	17 0 0	"	"
Double Headers	16 0 0	"	"
One Side and two Ends	19 0 0	"	"
Two Sides and one End	20 0 0	"	"
Splays, Chamfered, Squints	30 0 0	"	"
Best Dipped Salt Glazed Stretchers and Headers	14 0 0	"	"
Quoins, Bullnose, and Flat	14 0 0	"	"
Double Stretchers	14 0 0	"	"
Double Headers	14 0 0	"	"
One Side and two Ends	15 0 0	"	"
Two Sides and one End	15 0 0	"	"
Splays, Chamfered, Squints	14 0 0	"	"
Second Quality Whitened Dipped Salt	2 0 0	"	less than best.
Thames and Pit Sand	0 0 0	"	0 per yard, delivered.
Thames Ballast	3 0 0	"	0 per ton, delivered.
Best Portland Cement	30 0 0	"	0 per ton, delivered.
Best Ground Blue Lime	21 0 0	"	

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 20s. 6d. per yard, delivered.  
Stourbridge Fire-clay in sacks 27s. 6d. per ton at rly. dpt.

## PRICES CURRENT (Continued).

STONE.	s. d.
Ancestor in blocks	1 14 per ft. cube, deld. rly. depôt.
Bath	"
Farleigh Down Bath	1 8 " "
Beer in blocks	1 6 " "
Grinshill	1 10 " "
Brown Portland in blocks	2 0 " "
Darley Dale in blocks	2 4 " "
Red Corshill	2 5 " "
Cloaburn Red Freestone	2 0 " "
Red Mansfield	2 4 " "
YORK STONE.—Robin Hood Quality.	
Scappled random blocks	2 10 per ft. cube, deld. rly. depôt.
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 3 per foot super.
6 in. Rubbed two sides	2 6 " "
6 in. Sawn two sides slabs (random sizes)	0 1½ " "
1 in. to 2½ in. Sawn one side slabs (random sizes)	0 7 " "
1½ in. to 2 in. ditto	0 7 " "
Best HARL YORK—Scappled random blocks	3 0 per ft. cube
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 8 per ft. super.
6 in. Rubbed two sides	deld. rly. depôt.
Ditto	"
3 in. sawn two sides slabs (random sizes)	2 2 " "
2½ in. self-faced random flags	0 5 " "
Hopton Wood (Hard Bed) in blocks	2 3 per ft. cube.
" " " 6 in. sawn both sides landings	2 7 per ft. super.
" " " deld. rly. depôt.	"
" " " 3 in. do.	2 2½ " "
SLATES.	
20 x 10 best blue Bangor	3 6 per 1000 of 1200 in rly. dep.
20 x 12 " "	3 7 " "
20 x 10 best seconds	12 15 " "
20 x 12 " "	13 10 " "
20 x 8 best	7 0 " "
20 x 10 best blue Portmadoc	12 5 " "
16 x 8 best blue Portmadoc	6 0 " "
20 x 10 best Eureka un-fading green	15 0 " "
20 x 12 " "	16 10 " "
18 x 10 " "	11 10 " "
16 x 8 " "	8 7 " "
20 x 10 permanent green	10 0 " "
18 x 10 " "	9 0 " "
16 x 8 " "	6 5 " "
TILES.	
Best plain red roofing tiles	42 0 per 1,000, at rly. depôt.
Hip and valley tiles	3 7 per doz.
Best Broxley tiles	50 0 per 1,000
Do. Ornamental Tiles	52 6 " "
Hip and valley tiles	4 0 per doz.
Best Ruabon Red, brown or brindled Do. (Edwards)	56 6 per 1,000
Do. ornamental Do.	60 0 " "
Hip tiles	4 0 per doz.
Valley tiles	3 0 " "
Best Red or Mottled Slate for fashades Do. (Peakes)	51 0 per 1,000
Do. Ornamental Do.	54 6 " "
Hip tiles	4 1 per doz.
Valley tiles	3 8 " "
Best "Rosemary" brand plain tiles	48 0 per 1,000
Do. Ornamental Do.	50 0 " "
Hip tiles	4 0 per doz.
Valley tiles	3 8 " "
WOOD.	
Deals: best 7 in. by 11 in. and 4 in. by 9 in. and 11 in.	At per standard.
Deals: best 3 by 9	15 10 0 16 10 0
Battens: best 2½ in. by 7 in. and 8 in. and 3 in. by 7 in. and 8 in.	14 10 0 15 10 0
Battens: best 2½ by 6 and 3 by 6	11 10 0 12 10 0
Deals: seconds	10 0 0 less than best
Battens: seconds	10 0 0 less than best
2 in. by 4 in. and 2 in. by 5 in.	9 0 0 9 10 0
Foreign Sawm Boards—1 in. and 1½ in. by 7 in.	8 10 0 9 10 0
3 in.	10 0 0 more than battens.
Fir timber: Best middling Danzig or Memel (average specification)	At per load of 50 ft.
Seconds	4 10 0 5 0 0
Small timber (8 in. to 10 in.)	4 5 0 4 10 0
Small timber (6 in. to 8 in.)	3 12 6 3 15 0
Swedish balks	4 5 0 3 10 0
Pitch-pine timber (6 ft. average)	2 15 0 3 0 0
JOINERS' WOOD.	
White Sea: First yellow deals, 3 in. by 11 in.	At per standard.
1 in. by 9 in.	23 0 0 24 0 0
Battens, 2½ in. and 3 in. by 11 in.	21 0 0 22 10 0
Second yellow deals, 3 in. by 11 in.	18 10 0 20 0 0
Battens, 2½ in. and 3 in. by 9 in.	17 10 0 19 0 0
Third yellow deals, 3 in. by 11 in. and 9 in.	13 10 0 14 10 0
Battens, 2½ in. and 3 in. by 7 in.	15 10 0 16 10 0
Petersburg: first yellow deals, 3 in. by 11 in.	12 10 0 13 10 0
Do. 3 in. by 9 in.	21 0 0 22 10 0
Battens	18 0 0 19 10 0
Second yellow deals, 3 in. by 11 in.	13 0 0 15 0 0
Do. 3 in. by 9 in.	24 10 0 26 0 0
Battens	22 10 0 24 10 0
Third yellow deals, 3 in. by 11 in.	13 10 0 14 10 0
Do. 3 in. by 9 in.	13 0 0 14 0 0
Battens	10 0 0 11 0 0

## PRICES CURRENT (Continued).

WOOD.	At per standard.
White Sea and Petersburg:—	£ s. d. £ s. d.
First white deals, 3 in. by 11 in.	14 10 0 15 10 0
Battens " 3 in. by 9 in.	11 0 0 12 10 0
Second white deals 3 in. by 11 in.	13 10 0 14 10 0
" " 3 in. by 9 in.	12 10 0 13 10 0
" " battens	9 10 0 10 10 0
Pitch-pine " deals	16 0 0 18 0 0
Under 2 in. thick extra	16 0 0 18 0 0
Yellow Pine—First, regular sizes	33 0 upwards.
Oddments	22 0 0 24 0 0
Seconds, regular sizes	24 10 0 26 10 0
Yellow Pine Oddments	20 0 0 22 0 0
Kauri Pine—Planks, per ft. cube	0 3 6 0 4 6
Danzig and Stettin Oak Logs—Large, per ft. cube	0 2 6 0 3 6
Small	0 2 3 0 3 6
Wainscot Oak Logs, per ft. cube	0 5 0 0 5 6
Dry Wainscot Oak, per ft. sup. as inch	0 0 7 0 0 8
3 in. do. do.	0 0 6½ " "
Dry Mahogany—	
Honduras, Tabasco, per ft. sup.	0 0 9 0 0 11
Selected, Figury, per ft. sup. as inch	0 1 6 0 2 0
Dry Walnut, American, per ft. sup.	0 0 10 0 0 10
Teak, per load	16 10 0 20 0 0
American Whitewood Planks—Per ft. cube	0 4 0 " "
Prepared Flooring—Per square,	
1 in. by 7 in. yellow, planed and shot	0 13 6 0 17 6
1 in. by 7 in. yellow, planed and matched	0 14 0 0 18 0
1 in. by 7 in. yellow, planed and matched	0 16 0 0 18 6
1 in. by 7 in. white, planed and shot	0 11 6 0 13 6
1 in. by 7 in. white, planed and matched	0 12 0 0 14 0
1½ in. by 7 in. white, planed and matched	0 14 6 0 16 6
3 in. by 7 inch yellow, planed and beaded or V-jointed boards	0 11 0 0 13 6
1 in. by 7 in. do. do.	0 14 0 0 16 0
1½ in. by 7 in. white do. do.	0 10 0 0 11 6
1 in. by 7 in. do. do.	0 11 6 0 13 6
6 in. at 6d. to 9d. per square less than 7 in.	
JOISTS, GIRDERS, &c.	
In London, or delivered.	
Railway Vans, per ton.	£ s. d. £ s. d.
Roller Steel Joists, ordinary sections	6 5 0 7 5 0
Compound Girders	8 2 6 9 5 0
Angles, Tees and Channels, ordinary sections	7 17 6 8 17 6
Fitch Plates	8 5 0 8 15 0
Cast Iron Columns and Stanchions, including ordinary patterns	7 2 6 8 5 6
METALS.	
IRON.—	
Common Bars	£ s. d. £ s. d.
Staffordshire Crown Bars, good merchant quality	8 5 0 8 15 0
Staffordshire "Marked Bars"	10 10 0 " "
Mild Steel Bars	9 0 0 9 10 0
Hoop Iron, basis price	9 5 0 9 10 0
" galvanised	16 0 0 " "
(* And upwards, according to size and gauge.)	
Sheet Iron, Black.—	
Ordinary sizes to 20 g.	11 0 0 " "
" 22 g. and 24 g.	11 0 0 " "
" 26 g.	12 10 0 " "
Sheet Iron, Galvanised, flat, ordinary quality—	
Ordinary sizes 6 ft. by 2 ft. to 3 ft. by 20 g.	12 15 0 " "
" 22 g. and 24 g.	13 5 0 " "
" 26 g.	14 5 0 " "
Sheet Iron, Galvanised, flat, best quality—	
Ordinary sizes to 20 g.	16 0 0 " "
" 22 g. and 24 g.	16 10 0 " "
" 26 g.	18 0 0 " "
Galvanised Corrugated Sheets—	
Ordinary sizes, 6 ft. to 8 ft. 20 g.	12 15 0 " "
" 22 g. and 24 g.	13 5 0 " "
" 26 g.	14 5 0 " "
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g.	13 0 0 " "
" and thicker	13 0 0 " "
" 22 g. and 24 g.	13 0 0 " "
" 26 g.	14 5 0 " "
Cut nails, 3 in. to 6 in.	9 5 0 9 25 0
(Under 3 in. usual trade extras.)	
LEAD, &c.	
Per ton, in London.	£ s. d. £ s. d.
LEAD—Sheet, English, 3 lbs. & up.	16 5 0 " "
Pipe in coils	16 15 0 " "
Sold pipe	19 5 0 " "
Compo Pipe	19 5 0 " "
ZINC Sheet—	
Vieille Montagne	28 5 0 " "
Silesian	28 5 0 " "
COPPER—	
Strong Sheet	per lb. 0 0 10½ " "
Thin	0 0 11½ " "
Copper nails	" 0 0 11½ " "
BRASS—	
Strong Sheet	" 0 0 10 " "
Thin	0 0 11 " "
Tin—English Ingots	" 1 5 " "
SOLDER—Plumbers'	" 0 0 6½ " "
Tinmen's	" 0 0 8½ " "
Blowpipe	" 0 0 9½ " "

[See also page 346.]



(For some Contrasts, &c., still upon but not included in this list, see previous issues.)

Nature of Work.	By whom Required.	Premiums.	Designs to be delivered.
High School Station on Tees .....	The Governors.....	2d. 14, and 1 / .....	May 13

Nature of Work or Materials.	By whom Advertised.	Form of Tender, &c., supplied by.	Tenders to be delivered.
Well salinity, W. K.	East Cowes U.D.C.	H. Brown, Engineer, 704, High-street, Tottenham, N.	Mar. 20
Electric Apparatus, &c.	Bridgford (Glenn) U.D.C.	T. Hughes, Council Offices, Bridgford, Lincs.	Mar. 21
Pire Brigade Station	Rotherham Corporation	J. P. Stevenson, Chief Engineer, Rotherham	do.
Extension of Ford Quay, Lymington	Aberdeen City District Lunacy Bd.	M. Mackenzie, Architect, 313, Union-street, Aberdeen	do.
Bricklaying, K. & Co., 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000	do.		
Two Cast-iron Pipes, Stoneware Pipes, Portland Cement, &c.	Surveys Materials	W. A. S. Mason, Civil Engineer, Tans Gate, Guildford	do.
Removal of Old Buildings, &c.	Surveys Materials	W. A. S. Mason, Civil Engineer, Tans Gate, Guildford	do.
Removal of Old Buildings, &c.	Surveys Materials	W. A. S. Mason, Civil Engineer, Tans Gate, Guildford	do.
Removal of Old Buildings, &c.	Surveys Materials	W. A. S. Mason, Civil Engineer, Tans Gate, Guildford	do.
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Removal of Old Buildings, &c.	Surveys Materials	W. A. S. Mason, Civil Engineer, Tans Gate, Guildford	do.
Removal of Old Buildings, &amp			

[See also next page.



PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
Temporary Clerk Draughtsman in	Hampstead Borough Council.	2l 2s. per week	April 3
Architectural Draughtsman	Agent General for Natal.	Not stated	April 15
Clerk of Works.	Kingsgate Corporation.	Not stated	Not date

Those marked with an asterisk (\*) are advertised in this Number.

Competition iv.

Contracts, iv. vi. viii. & x.

Public Appointments, xix.

PRICES CURRENT (Continued).

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	2d. per ft. delivered.
" fourths	"
21 oz. thirds	3d. "
" fourths	4d. "
26 oz. thirds	4d. "
" fourths	5d. "
32 oz. thirds	5d. "
" fourths	6d. "
Fluted sheet, 15 oz.	3d. "
" Lead, Dry	20 s. "
Hardley's Rolled Plate	13d. "
" " "	2d. "
" " "	2d. "

OILS, &c.

Raw Linseed Oil in pipes or barrels..	per gallon	2 s. 3
" " " in drums..	"	2 s. 7
Boiled " " in pipes or barrels..	"	2 s. 5
" " " in drums..	"	2 s. 9
Turpentine, in barrels..	"	3 s. 8
" " " in drums..	"	3 s. 10
Genuine Ground English White Lead	per ton	21 10 0
" Lead, Dry	"	20 0 0
Best Linseed Oil Putty..	per cwt.	8 0 0
Stockholm Tar..	per barrel	12 10 0

VARNISHES, &c.

Fine Pale Oak Varnish	per gallon	10 s. 6
Pale Copal Oak	"	10 s. 6
Superfine Pale Elastic Oil	"	10 s. 6
Superfine Hard-drying Oak, for Seats of Churches	"	14 s. 0
" Elastic Carriage	"	16 s. 0
Superfine Pale Elastic Carriage	"	16 s. 0
Fine Pale Maple	"	16 s. 0
Finest Pale Durable Copal	"	18 s. 0
Superfine Pale Elastic Oil	"	18 s. 0
Best Black Japan	"	18 s. 0
White Copal Enamel	"	14 s. 0
Extra Pale Paper	"	13 s. 0
Best Japan Gold Size	"	16 s. 0
Oak and Mahogany Stain	"	9 s. 0
Brunswick Black	"	8 s. 6
Berlin Black	"	15 s. 0
"Knooting"	"	13 s. 0
French and Brush Polish	"	10 s. 0

TO CORRESPONDENTS.

J. F. M.M.—W. J. M. & Son (Amounts should have been stated).

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and giving addresses.

Any communication to a contributor to write an article is given subject to the approval of the editor, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and sent to the Editor.

TENDERS.

(Communications for insertion under this heading should be addressed to "The Editor," and must reach us not later than 10 a.m. on Thursdays. N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under roof, unless in some exceptional cases and for special reasons.)

\* Denotes accepted. † Denotes provisionally accepted.

ABERTYSSWG (Wales).—For the erection of a chapel, for Calvinistic Methodist Connexion. Mr. W. Davis, architect, Pontllyty.—

J. Lloyd ..... £565 10  
W. J. Vaughan ..... 510 0  
W. Wain, Abertyswg, near Rhymney ..... 440 0

ALNMOUTH. For the erection of a house, for the Golf Club. Mr. Geo. Ravell, jun., architect, Alnwick.—  
E. Fordy, Sea Houses\* ..... £670 4 10

BRIDGWATER.—For the erection of a parish room, King-square, for the Building Committee. Messrs. Samson & Cottam, architects, 43, High-street, Bridgewater.—

Pittard & Son ..... £1,226 10 0  
H. W. Pollard ..... 1,050 0 0  
A. J. R. Silke ..... 1,043 0 0  
T. Stockham ..... 609 10 0  
R. Ashton ..... 989 6 6  
F. Scott ..... 924 12 6  
A. Green ..... 949 10 0  
Reduced to £900 and accepted.

BRYNMAWR (Wales).—For supplying and laying C.I. pipes (10,000 yds.), for the Urban District Council. Messrs. Haller & Machell, engineers, Corporation Chambers, Dewsbury. Quantities by engineers:—

Munks & Co. .... £4,721 5 1  
Rutter & Sons ..... £3,380 4 4  
Garforth Bros. .... 3,465 0 8  
Brown & Son ..... 3,415 6 0  
Noel Bagley ..... 3,806 0 0  
E. H. Page ..... 3,684 5 2  
Thompson & Son ..... 3,625 6 8  
E. Powell ..... 3,572 2 0  
(A schedule of wrought-iron tubes and house fittings filled in, for supply connection to about 1,300 houses. This work also by W. Doleman.)

CARSHALTON.—For the construction of 2½ miles of sewers for the Urban District Council. Mr. W. W. Gale, C.E., High-street, Carshalton.—

J. Moore ..... £1,732 0 0  
Cliff Ford ..... 977 0 0  
A. C. Sloan ..... 951 11 0  
T. Atkins ..... 872 12 7  
Kavanagh & Co. .... 3,389 0 0  
Killingback & Co. .... 3,472 0 0  
Free & Sons ..... 8,540 0 0  
E. C. Rayner ..... 8,372 0 0  
E. Hes, junr. .... 7,491 0 0  
Sutton\* ..... 6,362 5 2  
Streeter & Todhunter (informal) ..... 6,125 0 5  
[Engineers' estimate] .. 7,499 5 7

CRAWFORD.—For the erection of new schools, Northend, for the Crawford School Board. Mr. C. L. Morgan, architect, 43, Cannon-street, E.C. Quantities by Messrs. Young & Brown, 104, High Holborn, W.C.:—

Smith & Sons, Ltd. .... £7,381 0 0  
G. Miles ..... 7,611 0 0  
Lawrence & Son ..... 6,594 0 0  
Thomas & Edge ..... 7,390 0 0  
W. H. Archer ..... 7,294 0 0  
H. L. Holloway ..... 7,240 0 0  
Spencer & Son ..... 7,113 0 0  
R. A. Lowe ..... £6,990 0 0  
Friday & Ling, Erith\* ..... 6,494 0 0

CROYDON.—For alterations to the Harp p-b., Parsons Mead, for Messrs. Page & Overton, Ltd. Mr. A. Broad, architect, 25, George-street, Croydon. Quantities by architect:—

Lorden & Son ..... £866 0 0  
D. W. Barker ..... 845 0 0  
Smith & Sons ..... 7 8  
Smith & Sons, Ltd. .... 827 0 0  
Akers & Co. .... 796 0 0  
E. J. Saunders ..... 773 0 0  
Bulled & Co. .... £750 0 0  
Smith & Sons ..... 7 8  
Pearson & Co. .... 685 0 0  
Hanscomb & Smith ..... 604 0 0  
Dawson & Son\* ..... 610 0 0

EAST SHEEN.—For repairs and painting at The Angles, East Sheen, under the supervision of Mr. R. B. Rowell, architect, Triangle-corner, East Sheen:—

Hughes & Co. .... £197 10 0  
Seal & Co. .... 273 4  
Sooles & East Sheen Works, Richmond\* ..... £268 0 0

GILLINGHAM (Kent).—For sixty-one cottages at Gillingham. Mr. Ernest J. Hammond, architect, 21, architect, Queen-street, Great Yarmouth.—

C. E. Skinner ..... £12,750 0 0  
H. E. Phillips ..... 12,610 0 0  
L. Seager ..... 11,940 0 0  
A. Candler ..... 11,700 0 0  
J. Wilford ..... 11,940 0 0  
A. C. Ingleton ..... £11,600 0 0  
W. C. Snow ..... 11,600 0 0  
West Bros. .... 10,800 0 0  
H. Harris, New Brompton\* ..... 10,740 0 0

GREAT YARMOUTH.—For alterations to Northgate School, for the School Board. Messrs. Olley & Haward, architects, Queen-street, Great Yarmouth.—

A. Gunns ..... £1,339 10 0  
J. D. Harman ..... 1,250 0 0  
J. Read ..... 1,241 0 0  
G. W. Beech ..... 1,222 0 0  
J. Ward ..... 1,203 10 0  
J. M. Dawson ..... £1,165 0 0  
J. Rand ..... 1,148 0 0  
J. Leggett, Dene Side\* ..... 1,137 0 0

HASTINGS.—For the supply of 2,000 tons broken granite, for the Corporation. Mr. P. H. Palmer, C.E., Town Hall, Hastings:—

L. Sommerfeld, 2, Powel-buildings, Great Tower-street, London ..... 13s. 11d. per ton.

HERNE COMMON (Kent).—For the execution of water supply works, for the Blean Rural District Council. Mr. W. D. Statham, district surveyor, Clifford Villa, Herne Common. Quantities by Surveyor:—

A. G. Osenton ..... £812 10 9  
M. Webb ..... 668 2 10  
Wyver, Nicholls & Co. .... 642 15 0  
T. Rowland ..... 595 14 7  
H. Knock ..... 548 9 6  
G. Browning ..... 547 13 2  
J. Coker ..... 580 1 0  
C. H. Porter ..... 450 0 0  
Rutter & Sons, Washington, Co. .... 490 10 0  
Durham\* ..... 268 7 3  
W. Wilson ..... 434 15s. 1d.  
[Surveyor's estimate, £434 15s. 1d.]

LANGHAM.—For restoration of roofs of Langham Church, near Oakham, Rutland. Mr. J. C. Traylen, architect, Stamford:—

S. F. Halliday ..... £370 0 0  
Thornton Bros. .... 360 0 0  
A. E. Billows ..... 339 15 0  
Nichols Bros., Oakham\* ..... £352

LEICESTER.—For enlargement of vestry, St. Paul's Church, Leicester. Mr. J. C. Traylen, architect, Stamford:—

Hardington & Herbert & Son ..... £153 16 19  
Richardson ..... £135 0 0  
Jeyes & Monk, Leicester\* ..... 129 16 3

LONDON.—For the erection of a boundary wall and refuse destructor, &c., Downhills Recreation Ground, for the Tottenham Urban District Council. Mr. W. H. Prescott, C.E., 712, High-road, Tottenham, N.:—

Refuse Destructor.  
Knight & Sons, 16, Bruce-grove, Tottenham ..... £13,681 0 0

Recreation Ground.  
Knight & Sons, 16, Bruce-grove, Tottenham ..... 5415 17 3

MAIDENHEAD.—For the erection of a riverside villa on the Fishery Estate, for Mr. E. J. Read. Messrs. Falgrave & Co., architects, 28, Victoria-street, S.W. Quantities by the architect:—

W. J. Lovell ..... £4,447 0 0  
A. J. Hudson ..... 2,398 0 0  
Butcher & Hendry ..... £4,185 0 0  
Hunt & Sons ..... 2,090 0 0

MAIDENHEAD.—For the completion of a riverside bungalow, for Mr. Harold Messop, on the Fishery Estate. Messrs. Falgrave & Co., architects, Westminster:—

Hunt & Sons, High Wycombe\* ..... £1,260 0 0

MARGATE.—For the execution of reservoir works, Uffington, for the Town Council. Mr. A. Latham, C.E., 15, Cecil-square, Margate:—

Tuff & Miskin ..... £1,093 7 1  
G. H. Denne ..... 1,365 0 0  
Fossey ..... 1,359 6 11  
T. T. Denne ..... 1,247 0 0  
Browning ..... 1,226 0 0  
Castle & Co. .... £1,199 0 0  
Adcock ..... 1,145 18 7  
G. Bell ..... 1,051 19 8  
Withdrawn.

NEATH (Wales).—For the erection of two houses, Gnoil-road. Mr. F. B. Smith, C.E., Port Talbot:—

W. Crighton ..... £750 0 0  
M. Lake ..... 624 0 0  
J. Snow, Neath\* ..... £615 0 0

ROKEHAMPTON (Devon).—For the erection of a Wesleyan Church and Vestries, school and four classrooms, including paving, heating, &c., for Okehampton Wesleyan Trustees. Mr. John Willis, architect, Victoria Chamber, Derby. Quantities by the architect:—

M. J. Harris ..... £4,759 10 3  
Wm. Ball ..... 3,875 0 0  
John Sturman ..... 3,479 18 0  
Henry Harris ..... 3,375 14 3  
Worden & Sons ..... £3,370 0 0  
R. F. Brealy ..... 3,000 0 0  
Okehampton\* ..... 3,159 0 0

SLAPTON (Devon).—For works at schools, for the School Board. Mr. E. H. Back, C.E., Victoria-road, Dartmouth. Quantities by the engineer:—

Back & Watts ..... £225 0 0  
W. Shepherd ..... 224 0 0  
Wm. Edgcombe ..... £210 0 0  
Edward Wells ..... 208 5 0  
[Engineer's estimate, £212.]

[See also next page.]



**STONEHAVEN (N.B.).**—For laying and supplying cast-iron water pipes, for the Town Council, Burgh of Stonehaven. Mr. G. Murdoch, Burgh Surveyor, Stonehaven, N.B. Quantities by Surveyor:—  
J. Walker .. £5,048 10 5  
Mitchell & Sons 1,710 17 6  
J. Murray .. 1,544 15 3  
A. McKay .. 1,491 7 2  
T. S. Dick .. 1,471 15 6  
W. Smith, jun. 1,465 9 9

**SWANLEY (Kent).**—For the erection of a police station, for the Standing Joint Committee of the County Council. Mr. F. M. Ruck, County Surveyor, 85, Week-street, Maidstone:—  
J. F. Virell .. £4,950 0 0  
J. Knight .. 4,069 0 0  
Sons .. 4,053 0 0  
W. H. Archer 3,747 0 0  
Garben & Co. 3,744 0 0  
Ennis Bros. .. 3,683 0 0  
H. J. Smith .. 3,653 0 0  
J. Lonsdale .. 1,550 0 0  
Goodwin & Jeffery .. 1,546 0 0

**LONDON SCHOOL BOARD TENDERS.**  
At the last meeting of the London School Board the Works Committee submitted the following lists of tenders. Mr. T. J. Bailey is the Board's Architect:—

\* Recommended for acceptance.  
**ALTON-STREET.**—Painting interior:—  
A. E. Symes .. £452 0 0  
Turnbull & Son .. 355 0 0  
A. J. Sheffield .. 313 0 0  
Haydon & Sons .. 328 14

† **BROOK GREEN.**—(Iron buildings). Painting interior and exterior:—  
F. Childley .. £367 0 0  
Curt & Sons .. 205 0 0  
C. F. Kearley .. 191 16 6  
S. Polden .. 187 0 0  
G. H. Senley .. 185 10 0  
W. Chappell .. 175 0 0  
Spencer, Santo & Co., Ltd. .. 173 0 0

† **GLAUCUS-STREET** (Iron Buildings).—Painting interior:—  
Gibb & Co. .. £65 0 0  
J. F. Holliday .. 51 7 6  
A. E. Symes .. 45 0 0

**HOLMES-ROAD.**—Painting interior:—  
Bate Bros. .. £856 0 0  
G. Kirby .. 532 0 0  
M. Pearson .. 516 0 0  
McCormick & Sons .. 495 0 0

† **LATCHMERE**—(Junior Mixed).—Painting interior:—  
General Builders, Ltd. .. £169 0 0  
E. Flood .. 140 0 0  
J. & C. Bowyer 335 0 0

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**LYHAM-ROAD.**—Painting interior and exterior:—  
Martin, Wells, & Co., Ltd. .. £625 0 0  
Maxwell Bros. .. 590 0 0  
Ltd. .. 590 0 0  
Johnson & Co. .. 510 0 0  
Hudson Bros. .. 510 0 0  
Silk & Son .. 475 0 0  
E. P. Bulled & Co. 483 0 0

† **PORTMAN-PLACE.**—Painting interior:—  
Parrott & Isom .. £916 0 0  
Turnbull & Son .. 537 0 0  
Silk & Son .. 475 0 0  
Stevens Bros. .. 474 0 0

† **PRIORY-GROVE.**—Cleaning interior and painting exterior:—  
T. L. Green .. £707 0 0  
W. Downs .. 408 0 0  
W. V. Goad .. 398 0 0  
J. R. Sims .. 376 0 0  
Sayer & Son .. 353 0 0  
H. J. Williams .. 330 0 0

† **RICARDO STREET.**—Painting interior:—  
W. J. Howie .. £549 0 0  
Silk & Son .. 500 0 0  
Vigor & Co. .. 315 0 0  
Gibb & Co. .. 333 0 0

† In these cases the interior work will be executed between April 1 and April 18, 1903.  
‡ In these cases the interior work will be executed between March 21 and April 18, 1903.  
§ In this case the interior work will be executed between March 28 and April 18, 1903.  
NOTE.—An additional week will be allowed for exterior work.

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# The Builder.

VOL. LXXXIV.—No. 3150.

APRIL 4, 1903.

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Japanese Ornament.—Plate V. ....	From Original Drawings.
Business Premises, Bombay. ....	Mr. John Cash, F.R.I.B.A., and Mr. Starnes Hack, A.R.I.B.A., Architects.
Reredos and Altar Frontal, St. Peter's, Newton-le-Willows. ....	By Messrs. Shrigley & Hunt.
Cartoons for Stained Glass Panels: "The Four Seasons". ....	By Mr. Paul Woodroffe.
Sketches in Belgium. ....	By Mr. E. Stanley Mitton.

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### Papers of the British School at Rome.



THE first volume of the Papers of the British School at Rome, recently issued, has an interest as being the first of a series, apart from the value of its contents. It indicates what sort of study the School has first essayed, in the large and varied field at its disposal; a field restricted unfortunately to research above ground, as the Italian law does not permit excavation to be carried out by foreigners in Italy. But if it is more of a school proper, and less of an exploration centre, than the kindred society at Athens, the school at Rome should be distinctly helpful to English architects and others sojourning in Rome for purposes of study; and such students are in fact, beginning to identify themselves with it.

The present volume contains only two papers, but they are very solid ones, which, "taken together aptly illustrate the variety and richness of the field which Rome and Italy offer to the student," to quote from Professor Pelham's preface to the volume. The first of these papers, by Mr. G. McN. Rushforth, the present Director of the school, is on the Church of "Sta. Maria Antiqua," recently discovered in the Forum excavations. The second, by Mr. T. Ashby, junior, begins a series of papers on the "Classical Topography of the Roman Campagna." Both subjects are exclusively archaeological, and both are treated by men who know intimately what they are writing about. Mr. Rushforth, in the past, has been a diligent student of Italian art, and has written ably on Carlo Crivelli. Mr. Ashby, a former Craven Fellow of Oxford, through his long residence in Rome, should be better qualified than most to deal with his vast and difficult subject.

Both contributions are, from the nature of the case, outside of ordinary criticism—at least, in essentials. Mr. Rushforth's paper however, is necessarily very much limited. He has merely been an onlooker, and with him cannot rest any complete publication of a work which has been carried out by the Italian authorities, and will presumably be fully illustrated by them. This he has stated in his preface, adding that "the present description must be regarded chiefly as a contribution to our knowledge of Byzantine iconography as it was understood and practised at Rome in the eighth century." His continuing sentence does not seem quite satisfactory:—

"It may be added that the damaged condition of all but a few of the pictures makes a careful description almost as valuable for iconographical purposes as reproduction, and that their interest consists rather in the choice and treatment of subjects than in their artistic character."

However, Mr. Rushforth's saving word "almost," coupled with the fact that a large part of the publication of Byzantine iconography must rest with [description], makes his plea somewhat more justifiable than it appears at first sight. He has certainly gone most fully into that useful branch of the subject, the elucidation of inscriptions; and in any case illustration of the pictorial side of the art, by photo or colour-plate, is rarely quite satisfactory. Perhaps in this line the French have succeeded best, as in their book on the church at Daphnæ, near Athens, with its fine photographic plates and no attempt at colour.

It may safely be said that the church of Sta. Maria Antiqua is of little interest to the architect in its present condition. It is a mere shell, in places almost razed to the ground. But as a book, interesting and valuable, it gives us an almost unique idea of eighth century church decoration in Italy, or, to be more particular, in Rome. The plan, unfortunately, is not original in essentials, but on the other hand, it gives us ideas about the origins of many details in later church planning. It is founded on a Roman building, which "completes the vast brick structure known as the Temple of Augustus, by filling up the space between the back wall of the temple and the steep N.W. face of the Palatine Hill. The various parts of the block condition (*sic*) one another and belong to a single plan; and

the date of its construction is the reign of Hadrian."

This plan is practically that of a Roman house, and Mr. Rushforth has shown this by a comparison between it and some Roman houses on the Capitoline Hill (p. 22). He points out that the type of plan, with its narthex, central space flanked by aisles, and apse flanked by side chambers, exactly resembles contemporary (and earlier) Byzantine churches; giving St. Sophia at Salonica as an illustration.

Interesting points of detail in the plan are (1) the piscina, under the floor of the atrium of the Hadrianic building forming the basis of the church, and of earlier date, shown by dotted lines on the plan (a reduction of which, from the plan given on page 18 of the book, is subjoined). (2) The graves of the 8th century church, also found under the floor of the atrium.

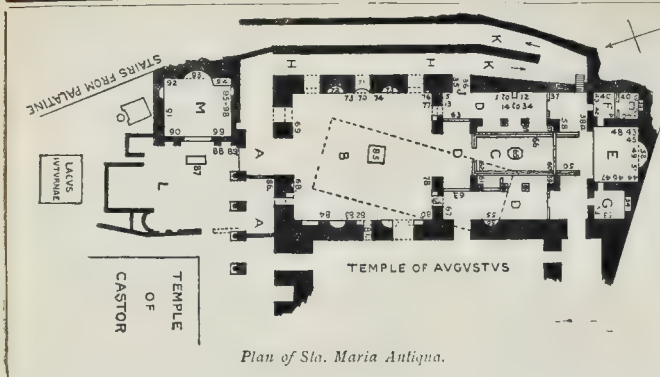
3. The octagonal base in the centre of the peristylum, apparently belonging to the ambo of the church (p. 90).

4. The fragment of paving in the sanctuary, an echo of the fine geometrical style of late Roman art.

The first paragraph of Mr. Rushforth's Introduction is terse and to the point. He specially emphasises the historical value of the eighth century, and as he states further on, painting of that time in Italy is very rare. Though lacking the art of the earlier sixth century work, and the later ninth and following centuries—belonging, in fact, to a middle period, comparatively sunk in barbarism, the period still forms an important link in the chain of art history. The Introduction also contains important information concerning the motives of the decorative scheme, its place in contemporary art, and the question of the date of the church.

After describing, in a few pages, "the original building," Mr. Rushforth devotes the remainder of his paper to a "description of the church." He describes the conversion of the building into a church by the addition of an apse and an enclosed choir, as at St. Clemente, and then goes on to discuss the various parts, with their paintings in detail. By a system of lettering and figuring on his plan he manages to make his descriptions





clear in their sequence, but the addition of a small table of the principal sections of the building, on the plan-sheet, would have been an improvement. One cannot but regret also the absence of even only one good drawing or photograph of a representative piece of wall decoration, which would give the reader a standard of judgment at once. The only illustrations of the painting given are two line sketches—a sketch showing position of hands with flower, p. 51, and "The Descent into Hell" in the appendix, p. 116. Both are too slight to be of more than diagrammatic value.\* In his descriptions, however, Mr. Rushforth carries us along with him in a most interesting manner; and it is, perhaps, as well for our interest in certain scenes that we are enabled to form ideal conceptions of them, and be led on unsuspectingly to a study of the curious details of Byzantine martyrology under the guidance of a ready writer, who is at home in his subject.

A specially interesting point is the analysis of the paintings of the apse, as belonging to a better, more classical manner than those of the rest of the church. It is fortunate that the eastern end preserves these paintings, and those in the adjacent chapel of SS. Quiricus and Julitta, almost intact as to general scheme, owing to the preservation of the roof at this point, especially as "the three walls of the sanctuary exhibit a single design." This is evidently the most interesting part of the church, and we are given some descriptions of detail in it. Concerning the "Crucifixion" over the apse we read that "even in their damaged condition some of the heads are of great beauty." There is an appendix to the paper, treating of the "Descent into Hell" in Byzantine art, and giving one example in line diagram from St. Maria Antiqua. The Early Saxon sculpture from Bristol Cathedral illustrating the same subject is also given.

Mr. Ashby's contribution to the volume—"The Classical Topography of the Roman Campagna"—is interesting at the outset as a choice of subject. It is not often in this age of specialism that a student is found devoting himself deliberately to a large theme embracing many fields of research, and which has been treated before by others. But if Mr. Ashby's choice has not the merit of originality, he is to be warmly congratulated on trying to bring the light of newer scientific inquiry to a subject which has been ably, but very differently, treated

\* See the March number of *Harper's Magazine* for an illustration of a fresco at St. Maria Antiqua, in Professor Ponzi's article on the Recent Forum Excavations.

by Piranesi and Canina. Nowadays, we too much lack the patience and the largeness of idea required in treating such studies.

The Roman Campagna has a melancholy interest for every one, and those who approach Rome from the south cannot but feel powerfully the solemnity and grandeur of the ruins which rise to sight, set, as they are, in the midst of a dead country:—

"The Champaign, with its endless fleece  
Of feathery grasses everywhere!  
Silence and passion, joy and peace,  
An everlasting wash of air—  
Rome's ghost since her decease."

From Rome itself, also, the great antique roads—the mighty arms of the capital which stretched far into the populous south—offer a never-ending interest to those who have leisure to examine them mile by mile; and it would be hard to recommend more fascinating paths to a man of philosophic mind than the ancient Via Appia or the Via Latina.

In his introduction, however, we are sternly reminded by Mr. Ashby that he has "purposely restricted" himself to "the dry bones of the subject." He has taken three main roads, the Via Collatina, the Via Praenestina, and the Via Labicana, to (1) determine their course, and (2) "to describe the ancient remains which exist near each road, as evidence of the inhabited character, or the reverse, of the country through which it runs, and of its comparative importance or unimportance." He goes on to hedge himself in, in rather a disappointing manner, by stating the incompleteness of the present papers, for various reasons. Now if the formidable series of maps at the end of the volume are all Mr. Ashby's own, as far as details are concerned (a fact—serious blunder—which is not stated) there would be no need for any excessive humility on the part of the author. For good competent maps, carefully corrected and made up to date by the author, are the very nerves and sinews of such a paper as this. But as it is, we must just accept Mr. Ashby's qualifications.

To describe the paper in any detail, or even to give a *résumé* of its main points, is quite impossible in a short notice. It is sufficient to say that the three roads are taken and described, each in turn, mile by mile. The abundance of references somewhat makes up for the want of many architectural illustrations, but we should have liked to have had some plans and sections of such interesting things as the water reservoirs and drainage mentioned in pp. 155, 156,

and 158. The plan of a tomb given on p. 169 shows the important influence such structures must have had on the development of later Byzantine churches.\* A section of the tomb would have been valuable, and also a statement of the precise reasons for thinking that the central part was left open.

The Temple and Forum at Gabii, on the Via Praenestina (pp. 182 *et seq.*), are given in some detail, and the photograph given along with the plans is useful. The photograph of the apse of St. Primitivus at Gabii, showing alternate bands of *opus reticulatum* and plain brick, is another reminder of the enormous debt that the Byzantine Greeks owed to the Romans in the development of their building forms. The photograph of the Via Praenestina, given at p. 200, is one of the best in the volume, and indicates the true character of an ancient Roman road.

Generally speaking, the photographs, of which there are not too many, seem to be of that most valuable kind—snapshots taken by the author entirely for his own purposes. The way they suffer in publication is no fault of Mr. Ashby's, but concerns the question of the get-up of volumes of this kind. The "texture" which only photographs of ancient remains can give is of great importance. Almost every other quality of illustration can be better obtained by a good drawing, unless the photograph be superbly reproduced. For this it is necessary to have special plate paper for the illustrations, and here we are confronted with the old alternative (which always crops up) of relegating such illustrations to the end of the volume—a method unhesitatingly adopted by the French and the Germans. There is no doubt, however, that to illustrate in the text is a far superior method, and to do this properly an example might be borrowed from some American magazines, which print all illustrated pages on special plate paper and the others on plain paper.

A slight drawback to Mr. Ashby's fine series of maps is the absence of scales on the maps themselves; and (more serious) the absence also of anything that might bring them into real touch with the volume, as they are not mentioned in Mr. Ashby's letterpress at all. It may be questioned, also, if contour lines give any real compensation for the confusion they cause on a map, unless they are shown very faintly, as on the Ordnance Survey sheets.

The volume is got up in a similar style to the *Annual of the British School at Athens*, in a workmanlike cover and paper.

#### NOTES.

THE Report of the Bridges Committee of the London County Council on the proposed new Lambeth Bridge is given in our report of the proceedings of the County Council on another page. It is stated that the question of gradients practically decides that the spans must be of steel and not of masonry. The County Council cannot raise the approaches more than 3 ft. 10 in. above the present level, and it is stated that the requirements of the Thames Conservancy would render it impossible to erect a granite bridge with a less gradient than 1 in 25, which is described in the Report as about the

\* See Lethaby and Swainson's "St. Sophia," p. 202.



same as the north gradient of Southwark Bridge. We should like to see that reduced to measurement; Southwark gives the impression of being a steeper gradient than that. We have often wondered whether the Thames Conservancy are not allowed to be too autocratic in their requirements, and whether they ought to have the power to deprive us of any more bridges of ornamental character, by requirements which may not be so necessary as the Conservancy choose to think. In the present case, however, their demand for 15 ft. headway does not seem extravagant, and we are informed by the County Council Engineer that this condition is incompatible with the construction of a granite bridge. For the present, of course, we must accept the statement, not having data to decide on it, though one cannot help remarking on the persistency with which engineers always report in favour of a steel bridge whenever they can find an excuse for doing so. However, if a steel bridge is really unavoidable it can of course be made an artistic object, or avoid being an ugly one, if properly treated; but the London County Council have no one in their employ who can do this; and unless the advice of an independent artist is taken, we shall probably have another monstrosity like Blackfriars Bridge.

**Rating of Ground Values.** THE debate in the House of Commons last week upon the rating of the capital value of land very nearly resulted in the second reading of the measure. The narrowness of the division is not surprising, since it is felt that the taxpayer needs every penny that can be raised, and it is well understood that large sums are made by the sale of building land, which escapes taxation. A piece of building land may be unused for several years, the owner paying mere nominal sums by way of taxation, and then he obtains a large sum for it from several purchasers. But, on the other hand, this matter is part only of a large question—one which obviously can only be dealt with in a Government measure. Nor is it clear, even, if ground values are to be taxed, what way this had best be done; it may be that a tax on transfers would be most desirable. It is pretty clear, however, that public opinion is inclined to favour some form of taxation by which what is popularly called unearned increment may pay more to the Exchequer.

**Compensation for Church Property.** A CURIOUS point has arisen out of the arbitration which has been held to ascertain the value of the site upon which the Church of St. Mary Woolnoth stands, and which is being acquired by the City and South London Railway for the purpose of their undertaking. The arbitrator had to seek the opinion of the Court of Appeal on which of the three bases the compensation should be assessed—1. That the site of the church could never be used for any other purpose. 2. That the site under some Act of Parliament, or some scheme under the Union of Benefices Act, might become available for building at a time to be fixed by the arbitrator. 3. That the land might immediately be made available for building. The respective figures under each head were 90,628*l.*, 136,421*l.*, and 143,548*l.* It appeared that in 1899 a scheme for pulling

down the church and for selling the site by tender had been approved, and the Court of Appeal have decided in favour of the second basis, although by their private Act of Parliament the railway company were under terms to maintain the church.

**An Architect's Case.** THE case of Adams v. Kynoch, recently decided by Mr. Justice Wright, deserves a few words of comment, although it decides no new principles of law. The plaintiff, an architect, was employed by a company known as the Kynoch Estate Company, Limited, in and about the erection of an hotel upon their lands. Subsequently, this company went into voluntary liquidation, and its assets and liabilities were taken over by a company called Kynoch, Limited. The plaintiff alleged that he had notice of this assignment, and consented to Kynoch, Limited, being substituted as his debtors, and now sued them for his remuneration, but the defendant company denied that there had been any novation of the contract with the plaintiff, and the Court decided in their favour, holding that there was no evidence of novation. In considering this case, it must be remembered that certain contracts are capable of being assigned by one person to another, but not contracts such as the one in question, which involve special personal qualifications in which a substitution of parties can only be effected by novation, to which, however, both the parties to be bound must have agreed. In the present case the defendants had not so assented, but the plaintiff had his remedy still against the original company he contracted with, for liquidation, of itself, does not rescind a contract in the absence of some act showing an intention to repudiate the contract or to render its performance impossible. It must be observed that, in the case under consideration, the work done by the plaintiff must have been completed before the transfer to the Kynoch Company was effected, for had this company actually accepted any benefit from the services of the plaintiff, they would have rendered themselves liable to pay for them.

**Smoky Chimneys v. Quiet Enjoyment.** THE case of Davies v. Town Properties Investment Corporation, Ltd., as decided by the Court of Appeal, raises some interesting questions to householders in towns. Some offices had been let by one Lee to the plaintiff on a lease for fourteen years, which lease contained a covenant for "quiet enjoyment." Subsequently Lee assigned the reversion of the premises expectant on the determination of the lease to the defendant company. The company subsequently purchased other premises next door, but from other vendors, and having pulled down the buildings on this site, erected others in their place, but of much greater height, and, in consequence, caused the plaintiff's chimney to smoke. The plaintiff claimed an injunction against the defendants and a declaration of breach of the covenant, but failed in his action. The main ground of the decision appears to be that the interruption must be the act of the lessor or those claiming under him the right to do the act complained of, whereas now the acts complained of were done under

the title obtained not from the plaintiff's lessor, but from an independent source, the man next door. The case at present is very shortly reported, and some observations seem to have been made on the case of Tebb v. Cane, which at present has been the authority for such an inconvenience constituting a breach of this covenant where it has been caused by the grantor of the title or some one claiming under him. We shall revert to this subject when a fuller report of the case appears.

**Mortgagees and Hire Purchase Agreements.** THE case of Lyon v. London City and Midland Bank raised recently a question of importance to owners of shops, manufactories, &c., but on which some uncertainty appears to exist in law. The facts of the case were, shortly, that the owner of the Brighton Hippodrome had entered into a hiring agreement with the plaintiffs in the case for certain seats to seat the auditorium, the terms of which were that 20*l.* a week should be paid for the hire, with the power to remove the seats on default being made in one week's payment; but there was also an option given the hirer to purchase within three months. The Hippodrome was subsequently mortgaged to the defendant bank, and the bank entered into possession and refused to allow the plaintiffs to remove the seats. The seats were capable of being used without being attached to the freehold, but to satisfy an order of the Brighton Town Council, they had been screwed to the floor. The Court held that they were only attached to the structure for a temporary purpose, analogous to the case of a carpet, and that they never passed to the mortgagees as fixtures. In questions between landlord and tenant, and between life tenants and reversioners relating to fixtures, it has been decided by the House of Lords in the tapestry case that the intention of the parties as well as the object and method of attachment to the freehold have to be regarded. In cases where mortgagees are concerned, the same considerations have been applied, but in disputes in relation to hire purchase agreements the law seems rather to favour the mortgagee, for if the property in dispute is attached to the freehold at all, the onus of proof is laid on the person claiming as against the mortgagee. This seems somewhat hard, for whereas the person letting out chattels has probably no idea that the premises are, or will be, mortgaged, the mortgagee has every opportunity of satisfying himself what security he is taking for his loan if he makes reasonable inquiry, and in any case it is difficult to see how the borrower can give a better title than he himself possesses. There is considerable conflict in the various cases, and we trust that the law may soon be authoritatively settled.

**Natural Gas in Sussex.** DURING the last five years paragraphs relating to the discovery of natural gas at Heathfield, a Sussex village some fifty miles from London, have from time to time been published in the daily Press. In accordance with a request of the Royal Commission on Coal Supplies, Professor Dixon visited Heathfield in October last, and collected samples of the gas for analysis. In a paper on the subject, recently communicated to the



Chemical Society by Professor Dixon and Mr. Bone, the percentage composition of the gas is stated to be as follows:—Methane, 93.16; ethane, 2.94; carbon monoxide, 1.00; nitrogen, 2.90. According to this analysis, the heating power of the gas must be fully 50 per cent. greater than that of London coal gas, and the gas apparently closely resembles the natural gas of the United States, which has played so important a part in the production of cheap steel in Pittsburgh and other districts. In some of the American natural gas districts the supply of gas is now nearly exhausted, but the commercial value of the total annual supply is still increasing. The value of the natural gas used in America during the year 1902 is stated to have exceeded six million pounds. That natural gas exists in Sussex has been known for more than sixty years, but it is only in recent years that a serious attempt has been made to ascertain whether the gas exists in sufficient quantity to be of any industrial value. Professor Dixon reports that in all the wells which have been sunk gas has been encountered after the bores have penetrated through 300 to 400 ft. of sandstone and marl. The gas issues from the boreholes under a pressure of from 140 to 200 lbs. per square inch, and has for some time been used for driving engines and lighting the railway station and a number of houses in the locality by the incandescent mantle system. Whether the Natural Gas Company's venture will prove a financial success remains to be seen, but the results of the borings will be studied with interest by all geologists and mining engineers.

**MANUFACTURERS** employing steam boilers are generally pleased to adopt measures for minimising the volume of smoke emitted from their factory chimneys, if only for the selfish reason that a smoky chimney indicates the direct waste of so much costly fuel. Other owners of steam boilers are not so particular, and among such may be instanced some public authorities in small towns and rural districts. The following case may serve as an illustration. An architect is commissioned to build a hospital by a board consisting of country shopkeepers, farmers, and, perhaps, a clergyman and one or two lady members. The architect gives an estimate of cost, apportioning therein a sum for engineering work, and, after discussion by the board, he is instructed to make considerable reduction of the cost. Everything is then pared down, and engineering work suffers more severely than any other. A contracting firm is called upon to submit a specification and estimate for engineering work, the amount of which must be kept within pre-ordained limits. Certain essentials must be ensured; the boilers must be able to furnish power required for the generation of electricity, and for driving laundry and other machinery; they must also ensure ample supplies of steam for hot water, heating, cooking, and other apparatus; and none of the machinery and appliances mentioned can be diminished in capacity, for the duty is in each case fixed by the extent of the buildings and the number of inmates. For their own protection, the contracting firm take most excellent care that the installation, so far as it goes, shall be adequate and in every way of such nature that hostile criticism may safely be defied. And

yet it is the fact that the plant may be one that no consulting engineer would ever permit himself to recommend. Appliances for saving steam, heat, water, and labour are conspicuously absent, and so are mechanical stokers and apparatus for the prevention of smoke and for the economy of fuel. In due course the hospital is opened, the contractors are paid, the architect is complimented, and everybody is pleased. But, year by year, tons and tons of coal continue to be dissipated from the chimney-shaft in the form of smoke, for the sake of saving an initial expenditure: surely a very false economy.

**THE new circus and music-hall** for which Mr. Frank Matcham has prepared the plans and designs will occupy a site of about 41,000 sq. ft., bounded by St. Martin's-lane, Chandos-street, Bedfordbury, and Way's-buildings. Those streets will, it appears, be widened along the new frontages. Chandos-street was laid out in or about 1635, and is named after George Brydges, Lord Chandos, ancestor of the "magnificent" Duke, Pope's "Timon." But in Taylor's-buildings and the west side of Bedfordbury we may still see vestiges of the rookery, formerly known as the Straits of the Bermudas, Porridge Island, once famed for its cook-shops, and the Straits of the Strand. The Bermudas, afterwards called the Caribbee, corrupted by the inhabitants into Cribbee, Islands, together with most of the narrow courts, passages, and purlieus—including Duke's-court, where lived Roger Payne, the celebrated book-binder, Moor's-yard, Church lane and court, Vine street and court, Seymour and Lancaster courts, and the Golden Cross inn—were taken down seventy years ago for the building of St. Martin's-place, Duncannon, Adelaide, King William, and other streets around the church of St. Martin-in-the-Fields. A further clearance was subsequently carried out by the late Metropolitan Board of Works. The new scheme provides for the widening of May's-buildings leading out of St. Martin's-lane into Bedfordbury from 9 ft. to 25 ft., and the removal of the Black Horse, Star and Garter, and other taverns. The two tablets of "May's building," so named after the builder, bear the date "1739;" in that court at No. 18 lived N. Smith, the printseller and publisher of many interesting views of old London. The Sutherland Arms formed the headquarters of "The Eccentrics," a club of beaux and wits. At the Hole-in-the-Wall, since the Marquis of Granby public-house, by Taylor's-buildings, Claude du Val was captured in 1669. He lies in the graveyard of St. Paul's Church, Covent Garden. On the west side of Bedfordbury stands the Mission Church, erected after designs by the late Sir Arthur Blomfield. The old Black Prince tavern, on the north side of Chandos-street, was pulled down in May, 1889. St. Martin's-place has been altered for the making of Charing Cross-road. On May 22, 1875, we published an illustration of the Provident Institute and Savings Bank, by David Brandon, architect, which was founded in 1816, and closed on the transfer of the accounts to the Post Office Savings Bank in January, 1896; the building is now occupied by Parr's Bank. The library and offices of the Royal Society of

Literature (No. 4), by Decimus Burton, 1830-1' were demolished for the laying-out of the south end of that thoroughfare after the passing of the National Gallery Enlargement Act, followed by the removal of the work-house and Hemmings-row.

**THE Duke of Argyll** intends to dispose, by private treaty, of the islands of Iona and Ross of Mull, which have belonged to his house during many generations past. The property extends over some 37,000 acres, and the various farm lands, homesteads, and other holdings yield a rental of nearly 3,000l. per annum. In Mull, besides numerous vestiges of Druidical and even earlier forms of religious worship, are situated the ruins of Duart Castle (opposite Oban), a former stronghold of the Macleans when they held sway in the Western Isles. In Morvern stand the ruins of Arternish, an ancient castle of the Earls of Ross and Lords of the Isles, which in later times was acquired by the Macleans of Duart, and those of Killundine; near Tobermory is Aros Castle, a rock-built fortress of the island chiefs, at the middle point of the Sound of Mull. Sailing southwards one passes by Mingarry, a house of the Mac-Ians, a clan of Macdonalds, which Allister MacDonald captured for Montrose, the Tresharnish islands, "And Ulva dark, and Colonsay. And all the group of islets gay, That guard fair Staffa round."

On the left hand lie Gometray, and in Loch na Keal the island of Inch Kenneth, where Sir Allan Maclean and his family, who, with their servants, were the only inhabitants of the island, entertained Dr. Johnson and Boswell. Inch Kenneth formerly had a school of priests served by Icolmkill or Iona. At the head of Loch Buie, on the south coast of Mull, is Moy Castle, a seat of the MacLeans. In Iona, well chosen by the Cluniac monks for its fruitful soil, are beds of Tertiary coral, and quarries of red granite close to the sea-shore, which, we believe, supplied material for (new) Blackfriars Bridge and the Albert Memorial in Kensington Gardens.

**MR. MACWHIRTER**, in a letter in the *Times* of Saturday last, spoke forcibly in regard to the great increase of fraudulent copies of the works of eminent painters. Those who are the favourite subjects among deceased painters are those who had a very marked and individual style, such as Constable and Corot, the prominent characteristics of which may be hit off, though the refinements and the knowledge of the original artist are absent from the copy. It has been possible, however, to make a copy so as to deceive the painter himself, as was the case with Müller, who, with an artist friend, was once entirely taken in by a copy of one of his own works, the forgery being only discovered by the fact that the original canvas had had an oil sketch on the back of it, which was not on the back of the sham picture, the imitator not having thought of looking at the back of the canvas. We have no doubt that these fraudulent imitations are greatly on the increase, and are often very cleverly done; and it would seem that some more severe legislative enactment is necessary to put a stop to it. Mr. MacWhirter's letter may have the effect of putting pur-

Iona and the  
Ross of Mull.

The Colosseum,  
St. Martin's-  
lane, and its  
Site.

Smoke from  
Steam Boilers.

Forgeries of  
Pictures.



chasers on the *qui vive*, and if a good solid case can be brought home to any one, a severe sentence may have some effect in checking what is not only an injury to purchasers of works of art, but an injury to art.

A CORRESPONDENT sends us the following remarkable extracts from the accounts of St. Mary's, Louth (circa 1500):—

"Item. Paid Robert Boston for the Holy Ghost appearing in the Kirk roof ..... 2s.  
Paid Robert Boston for Holy Ghost ..... 2s.  
Paid Robert Boston for said Holy Ghost, as appears afore ..... 20d."

The extracts are taken from "Notitiae Ludæ" or notices of Louth, published for the author by W. Edwards, Louth. Probably the ingenious Robert Boston had contrived a mechanism by which a representation of a dove could be let down from the roof of the church at the desired moment. What strikes one most is the barefaced manner in which the transaction seems to have been entered in the accounts. Was it cynicism, or mere simplicity?

MR. BROCK'S statue of Gladstone, which has just been "inaugurated" (as the French put it) at Westminster Abbey, is about as fine a piece of sculpture as can well be achieved in the case of a full-length portrait figure in realistic costume; a kind of work which we have always considered to be little adapted for treatment in sculpture. A portrait bust or medallion, with symbolical accessory figures, affords a far better opportunity of producing a work of art. However, various other statesmen are carved there at full length, and at all events the admirers of Gladstone may congratulate themselves on the fact that his is the best statue in the transept, and shines conspicuously by contrast with Boehm's commonplace and badly-posed figure of Disraeli. It must be admitted that Gladstone's head offered the sculptor far the better chance of the two, and Mr. Brock has made the most of it; the head is fine, dignified, and earnest. But he has also posed the figure finely (not the case with the Disraeli statue, which has something of a shambling look), and has taken advantage of the gown which one of Gladstone's Honorary additions, probably, allowed him to wear, to get a broad effect with a costume which naturally falls

"Into great laps and folds of sculptor's work."  
The result is a fine and interesting addition to the contents of the national Valhalla.

#### THE DECORATIVE ART OF THE JAPANESE.—IV.

TEMPLE DECORATION—WAVES AND CLOUDS.  
In the use of wave and cloud forms for decorative purposes the East stands alone, and the Japanese pre-eminent. They appear in every conceivable variety and under every conceivable circumstance. If I have fallen short of completeness in previous articles, the sin of omission must inevitably be greater here, for it is impossible to do more than give a few of the most striking examples. The formal arrangement of super-imposed semicircles, which is called the "wave pattern," is, I suppose, well known; and curiously enough we find one of those coincidences between the designs of the East and West at the threshold of this branch of our inquiry. The arrangement of semicircular tiles one upon the other



B.



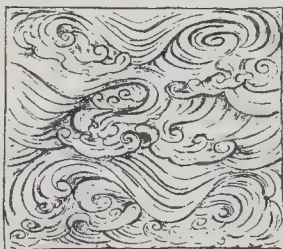
C.

is of common occurrence in Tudor architecture, but I presume that no one will consider it necessary to examine the question whether, and if so when, it was introduced to the East from the West.

I must now refer to the illustrations of wave and cloud given with the last article (March 7). Figs. 7, 8, and 9 are typical examples of the formal design. I speak with some hesitation, but I think I am right in saying that it is never found without inner lines; and it is from these inner lines that much of the charm is derived. Figs. 7 and 8 are taken from the walls of two of the last court-yards of the Temples—those where the tombs are. There is no other ornament but this, which is made of hammered metal in plates, which give about 9 in. as the diameters of the wave circles. The grooving is triangular, like all the diaper carving, the edges being left rough, as I have endeavoured to show in the figures. It is all symbolical of the calm of death, when the soul sets out on its voyage across the quiet sea. I feel sure that my readers will accept my testimony when I say that the symbolism is perfectly successful in its endeavour, and that the effect on the mind is one of absolute repose. In fig. 7 the circles are concentric, and are drawn from the hexagon points of contiguous circles. But in fig. 8 the construction is much more complex, and if I may say so, difficult to discover. In each wave the interior circles are triangular at the base, the centre descending on the diameter by half a "ripple-length." Fig. 9 is a variety of fig. 7; it is painted blue, with incised gold lines.

Fig. 10 is a conventional wave design of quite a different form, which, perhaps from a consideration of the forms in figs. 11 and 14, it would be accurate to term the crested wave. It occurs in a triple form in fig. 11, in conjunction with the lines of repose, and in this the suggestion of foam is irresistible. The carving in this is in deep relief, the wave lines being in gold on a dark blue ground, and the crests in gold on a crimson ground. Fig. 12 is in red lacquer carved in very low relief. Fig. 13 is a plain panel, the wave lines being cut through.

On account of their great interest, I add three more designs in black and white. A is a



A.

panel in low relief, of crimson lacquer; B white surging waves in high relief on a gold

\* The inconvenience of referring back to a former issue for all these illustrations is caused by the author's own arrangement of his articles and illustrations. They were sent to us in duplicate packets with corresponding numbers, and we duly published them together in accordance with the numbering.—Ed.

ground; and C gives the more conventional scroll which has its origin in the wave. This example is taken from a piece of heavy richly-coloured carving under the gable ends of one of the two Nikko temples.

Fig. 14 is a combination of wave and cloud. It is carved in white on the pillars of one of the Shiba temples; the medallion of waves in full relief, the cloud diapers in deep, broad, incised lines. The conjunction of wave and cloud in the same design serves to show what seems to be the fundamental difference between the wave and the cloud designs, which resemble one another in the scalloped curves of the head. The cloud designs appear almost invariably to be double-headed, or infolded. The gradual evolution of the design is, I think, clearly traced in figs. 15, 16, 17, and 18. Fig. 15 is a conventional representation of a cloud executed in three shades of colour mixed with white, very much in the manner of Western "illuminations." The clouds are of different colours on a gold beam. Fig. 16, which is in gold outline on brown lacquer, shows the conventional process carried still further. Fig. 17, which is in high relief, carries out the idea of infolding, and this naturally gave rise to the formal design in fig. 18. The design in this is cut very deeply, and shows the different layers of lacquer. From this comes, of course, the rigid diaper pattern in fig. 14, and also the less formal incised pattern in the border of the same figure. Fig. 19 is one of those designs which stand on the border between cloudland and waveland. Although it is in a single curve, and has some affinity with fig. 10, I am inclined to place it among the clouds—flecked, perhaps, across a summer sky. Fig. 20 is a rigid cloud diaper, often seen; and fig. 21 a fanciful adaptation of cloud forms, executed, like fig. 15, in body colour in three shades on a gold ground.

The illustrations given in the separate plate in the present issue are monochrome reproductions from colour work; they show the design and the balance of light and dark, but the colours are so varied that it was impossible to attempt a colour representation of the original work. Figs. 1 to 4 show the way in which large surfaces are varied with diaper work. The star pattern in fig. 1 will be seen to vary slightly from the one already given in the third article. Fig. 2 is one of a series of twenty frieze panels going all round one of the temples in Shiba. The treatment of the waves, it is needless to observe, differs in each. Fig. 3 is the end of a roof-beam of gold, in which a crimson cloud is deeply incised. An ornament of this nature is almost always cut in the end of roof-beams. It will be noticed again in fig. 4, which is a very elaborate piece of carving, the space between the beam and the joist being filled with a branch of foliage. Figs. 5 and 6 are painted borders, the colours of the peony and butterflies being in three shades, treated like English missal painting. Fig. 7 is an open-work frieze. Fig. 8 is a wave scroll, and fig. 9 a pure line scroll which has developed from the wave scrolls. Fig. 10 shows the capital of a painted column with a diapered beam. The metal fitting is of brass, chased with a highly conventional peony scroll, the groundwork being filled with black lacquer. Figs. 11, 12, and 13 are typical examples of high relief.



carving. Figs. 14, 15, and 16 are painted friezes showing different methods of treating the flowers. Figs. 17, 18, and 19 are cornice-panels between the roof-beams and the supporting timber. Figs. 20, 21, and 22 are examples of two metal ornaments used at the end of a balustrade, one of which, of black lacquer with chased brass fittings, is given in fig. 23. The head of the support is a lotus leaf. Fig. 24 is an ornament used in the angle of a gable, and shows the use frequently made of the cloud form in architecture.

The tail-piece is a small piece of chased metal; the shape is in the cloud form, and is given as illustrating how these figures seem to permeate all art work.

F. T. P.



#### LETTER FROM PARIS.

THE Société des Architectes du Nord has formed its committee for 1903 of the following members:—M. Louis Cordonnier, President; M. Coutureau, Vice-President; M. Mourcou, secretary; M. Goris, sub-secretary; M. Baert, architect; M. Salomez, treasurer; and MM. Ronfort and Douillet, delegates of the Départements of the Pas-de-Calais and the Somme respectively.

MM. Pascal, Guadet, and F. Blondel, the three architects appointed by the Minister of Public Instruction to study in the provinces the ways and means for the proposed creation of provincial schools of architecture, have already visited Toulouse, Bordeaux, Rouen, Rennes, and Lille. The Municipality of Bordeaux looked at the question of endowing its town with an Ecole d'Architecture with disfavour, and has refused to contribute to any expenses in this matter. The Municipality of Toulouse has accepted, but requests the Government to afford all facilities as regards expenses. The town of Rouen has not yet decided one way or the other. The Municipality of Lille has accepted with enthusiasm, and consents to place all expenses on the municipal budget. The delegates are now proceeding to visit Lyons, Marseilles, and Nancy.

The subject for the preliminary competition for the Prix de Rome given by M. Daumet was "A Town Gateway," and twenty sketches were selected, the authors of which entered into the second preliminary competition. The following ten students are now competing for the final Prix de Rome:—MM. Coutare, Jausse, Bans, Boileau, Weilhorsk, Lefèvre, Ebrard, Joulie, Fougereuse, and Nicot. The subject for the final competition, which was given by M. Bernier, is "A Public Square," and the ten students have now entered *en loge* to prepare their drawings.

A competition is being opened by the Municipality of Limoges for designs for a circus to be constructed on the Place de la République. The cost is not to exceed 16,000*fr.* The author of the accepted designs will carry out the building; the authors of the designs claimed second and third will receive premiums of 80*fr.* and 40*fr.* respectively. The designs will include the arrangements of the gardens, terraces, and the exterior monumental staircases.

The competition for a municipal theatre at Coulommiers has been decided as follows:—MM. Charles Duval and Camille Robida are awarded the premium of 40*fr.*, and are entrusted with the execution of the work; second and third premiums are awarded to M. Gridaine and M. Saint-Père.

The Société Nationale des Architectes de France has opened its twelfth annual competition. The subject is "A Café Restaurant."

An army of workmen have been occupied for the past few days in commencing the demolition of the Palaces of Electricity, Chemical Industries, &c., and the Château d'Eau, in the Champ de Mars, and within six months the last buildings of the 1900 Exposition will have ceased to exist.

Drawings and models of architecture and art objects are to be sent in to the Grand Palais des Champs Elysées, between March 19 and March 21, for the Salon of the Société

National des Beaux-Arts (New Salon), and those for the Salon of the Société des Artistes Français (Old Salon) are to be sent in on April 4 and 5.

The Chamber of Deputies has passed a vote authorising the delivering of a certain number of official decorations on the occasion of the centenary of the foundation of the Académie de France at Rome, the completion of the excavations at Delphi, and the twenty-fifth anniversary of the creation of the Ecole Française at Rome. These decorations, limited to the number of four Croix de Grand-Officier, ten Croix de Commandeur, thirty Croix d'Officier, and forty Croix de Chevalier, will be exclusively bestowed on artists and savants who have been members of one of the French schools of Rome or Athens.

There has been much discussion in Paris, the last few days, about the "Tiara of Saitapharnes," acquired by the Louvre a few years ago, the authenticity of which was doubted from the first. Former differences of opinion have been revived with additional acrimony: eminent archaeologists declare the tiara to be a genuine antique, while others equally eminent demonstrate its spurious character, and even question the existence of Saitapharnes himself. The immediate result of this conflict of opinions has been that the directors of the Louvre have withdrawn the tiara from exhibition pending an examination of its claims by a learned professor of the College of France, M. Clermont Ganneau, who has been commissioned by the Minister of Fine Arts to undertake the investigation. A goldsmith at Odessa declares that he made the tiara, and offers to come to Paris and prove it if his travelling expenses are paid.

The discussion has aroused a spirit of scepticism in regard to some of the contents of other Paris museums, and the paintings in the recently-opened Dutuit collection especially have been the subject of investigation and distrust. According to M. Henri Rochefort, whose experience in artistic matters is undeniable, the picture entitled "Portrait of Rembrandt by Himself" is not even the work of one of the Flemish master's pupils, but of a clever "pasticheur," one Dietrich. As the work is part of a collection which was a gift to the City of Paris, no one has been cheated; but the questionable tiara at the Louvre was purchased at a good sum, and it is feared that the doubts thrown on it will be a check upon future contributions from the "Amis du Louvre." The "Société des Amis du Luxembourg," which is concerned only with modern works, may be supposed to be less exercised by the abilities of clever forgers; but even the Luxembourg is not safe in this respect. There are an immense number of spurious modern pictures among the Parisian dealers, and the works of a certain Trouillebert have been freely sold as pictures by Corot.

M. Paul Maurice, the faithful friend and admirer of Victor Hugo, has nearly completed the arrangement of the Hugo Museum in the Place des Vosges. On the first floor are the poet's books, rare editions of his own works, and drawings or pictures in illustration of them; among them M. Carrières' "Fantine," M. Besnard's "Representation of Hernani," M. Rochegrosse's "Burgraves," M. Henner's "Sarah la Baigneuse," M. Roll's "Funeral of Hugo," and M. Roybet's "Don César de Bazan." The second story is reserved entirely for Victor Hugo's own "Fantaisies," as they may be called. The curious collection of original drawings occupies two large rooms; and here also are the pieces of furniture designed or executed by him, mostly exhibiting a kind of suggestion or reminiscence of Japanese work.

M. Rodin has at present in hand four large sculptured groups intended to decorate a château near Evian-les-Bains. These groups symbolise the Seasons, represented each by a female figure; "Spring" is reclining under the branches of a tree; "Summer" is grouped with a lion; "Autumn" with fruits and an infant; "Winter" is a well wrapped-up figure sound asleep.

The "Aéro-Club" has raised subscriptions for a monument to commemorate the services rendered by aeronauts during the siege of Paris. The monument, of which M. Bartholdi will be the sculptor, is to be erected on the Place St. Pierre, at Montmartre. It will be 8 to 10 metres in height, consisting of a square pedestal adorned with eschutcheons and inscriptions, supporting a group of figures, above which is a balloon, which, it is understood, is to be luminous at night. The pedestal is

to be reached by steps divided by pedestals carrying sculptured subjects relating to the use of balloons during the siege.

A monument to Arsène Houssaye was inaugurated last week at Père Lachaise, close to the Monument aux Morts. It is very simple; a white marble bust on a granite stele adorned with palms and roses.

As a kind of pendant to the "Concours des Façades," it is now proposed by the Municipal Council of Paris to arrange another competition which will be of considerable practical value. The intention is to offer prizes of 1,000 francs to the owners and architects of houses built during the year, which are let at not more than 600 francs (24*l.*), and which are proved to be entirely satisfactory in respect of comfort and hygienic condition. This is an excellent idea, and may have important results.

The Fête of the Centenary of the Villa Medicis will not be held at the Ecole des Beaux-Arts as was first intended, owing to the heavy expenses which the necessary installation for such a ceremony would involve. The Fête and banquet will take place at the Palais d'Orsay Hotel, Paris, in the month of June, which date has been fixed in order to allow the old Prix de Rome students to be present at the ceremonies which take place at Rome in April.

Among the new batch of students admitted to compete for the Prix de Rome in painting is a young lady, Mlle. Rondenay, the first of her sex admitted to compete for entrance to the Villa Medicis. She has already obtained, at the Atelier Humbert, two second medals and the Huguier prize. The example has been followed by another lady pupil of the Ecole des Beaux-Arts, Mlle. Rozat, who will take part in the sculpture competition. Mlle. Rozat is one of the most brilliant and promising pupils of the Ecole, where she has already carried off several prizes.

The death is announced, at the age of sixty-eight, of M. Jean Dabernat, a former architect to the Department of the Seine and member of the "Conseil d'Architecture" of the Seine. M. Dabernat was a pupil of Hippolyte Lebas. He carried out a number of buildings marked with the impress of real talent. He had obtained various honours in public competitions, notably an Honourable Mention in the competition for the Church of Sacré Cœur at Montmartre.

The death is also announced, at the age of fifty-six, of M. Lemarié des Landelles, the painter, a pupil of Gerome and of the landscape-painters Rapin and Pelouse. He was an exhibitor at the Old Salon, chiefly of landscapes in Brittany.

#### THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE usual fortnightly meeting of the Royal Institute of British Architects was held on Monday at No. 9, Conduit-street, Mr. John Slater, B.A. (Vice-President), in the chair.

Mr. Alexander Graham (Hon. Secretary) said he had to announce with regret the decease of Mr. John Bond Pearce, of Nottingham. He was elected a Fellow in 1879. He had also to announce with regret the decease of Mr. Samuel Stenton Markham, of Guildford. Mr. Markham was elected a Fellow in 1886, and placed on the list of retired Fellows in 1897.

#### Fire Prevention and Resistance.

Mr. Horace Porter, M.A. Cantab., then read a paper on "Fire Prevention and Fire Resistance," of which the following is an abstract:—

Mr. Porter said that his object was to bring forward for discussion the question not only of the number and value of methods already devised for fire protection, but also of the extent to which these are available for practical use. The fires due to mechanical or constructional causes are the only ones we can hope definitely to prevent. These are worth careful consideration, both on account of their importance, and also of the large extent to which they can be guarded against. The Glasgow fire returns for the years 1876-86, i.e., before the introduction of the Buildings Regulation Act, give 27.8 per cent. of the fires as due to defective hearths and flues, as against 9.65 per cent. in London during the same period. Defective hearths and flues account for a large majority of fires in the country, especially in old houses. All possible measures of safety in the construction, repair, or alteration of chimneys and flues in



country houses should be insisted on. In old London houses, too, the flues which were sound enough for the old-fashioned open kitchen range are found defective, in respect of their whiths and chimney-backs, for the modern close kitchener, which creates great and concentrated heat. Timber mantelpieces constitute another source of risk from the way in which they are frequently fitted, with the metal of the grate touching the wood. In fixing the mantelpiece there is often left a small pocket in which soot accumulates, and may become ignited. A fire had occurred from this cause in a very expensive London mansion. Wall-plates for joinery must also be regarded as sources of danger when near flues, especially in old houses where the targeting of the flues has worn away and the joints of the brickwork have become open. Another risk is due to the practice of boarding up unused fireplaces, or making them the receptacles of scraps of paper and other inflammable materials, which may easily be set on fire by a spark falling down the chimney from some other flue. The Glasgow Building Act compels all such fireplaces to be stopped up with incombustible material, and the chimney top as well.

Fire prevention is only practicable in about 25 per cent. of our present outbreaks. Fire resistance therefore claims our most immediate attention. The degree of perfection to which this can be carried depends not only on the building itself, but also on its contents and immediate surroundings. This has to be kept in mind, as it is useless to expect owners to spend large sums on "fireproof construction" which they are perfectly aware will benefit their neighbours rather than themselves. The two chief elements in fire-resisting construction are:—(a) the materials used; (b) the general design of the building and details of construction.

As regards building materials, good brickwork is no doubt best for fire resistance. The chemical composition of the clay is the great element in determining both the fire-resisting and weight-carrying properties of a brick, which depend chiefly on the proportions of silica and alumina in the clay, and secondly, on the oxide of iron, lime, magnesia, potash, &c. Terra-cotta used for structural purposes may be porous or hard-burnt. The porous is made by the addition of some combustible material, such as sawdust or finely-chopped straw, to the pure clay, which is then burnt under great heat. By this means the straw or sawdust is consumed, leaving the clay in a porous state. Hard-burnt terra-cotta is made from pure clay without the addition of any combustible substance. The porous form is non-conductive of heat, but does not carry weight so well as the solid; and if the straw or sawdust has not been thoroughly burnt out of it, there is danger of disintegration under the combined effects of fire and water. The hard-burnt terra-cotta has to depend greatly on the hollow spaces with which the blocks are moulded, and is liable to crack on being suddenly cooled. For the protection of girders or columns, where it has little or no weight to carry, the porous form seems the best.

Discussing the fire-resisting qualities of mortar, plaster, and cement, Mr. Porter referred to a series of tests with cement mortars carried out in Chicago in 1896. From these it was deduced that concrete floors might, after a fire test, hang together under heavy loads, but they are nevertheless weakened; to what extent depends upon the duration of the heat. Cement mortar can hardly be relied upon to resist high temperatures satisfactorily. Common lime and sand mortar in small quantities has probably greater fire-resisting properties than any other plastic material, and would be a better protection than cement mortar if it were strong enough to be used to a thickness of, say, 4 in. or more.

As regards concrete, tests have been made by which the material has been subjected to as much as 1,976 deg. F. for several hours, and allowed to cool slowly, and also suddenly by application of water. The concrete composed of sand, gravel, or stone mixture crumbled, or gave signs of great weakness, while that composed of cinders showed good coherence, and did not suffer by wetting while hot. The highest degree of coherence was found in a mixture of 1 part cement to 7 of coarse cinders. The conclusion is that where concrete has been made with care and knowledge it will bear very high temperature for a long time, even with the application of cold water.

Wrought-iron, cast-iron, and steel, although non-inflammable, are not good fire-resisting materials, and must be cased in some fireproof covering. Unprotected iron may not itself suffer by fire, but its expansion under great heat may cause serious damage to the building. Steel will expand 1 in. in 125 ft. for every 100 deg. F.

Combustible materials for the fitting-up of buildings should be used as sparingly as possible. Shelves might in many cases be made of wire-netting supported on metal uprights; counters might be constructed on the principle of fireproof doors and shutters. The use of wood, however, cannot be eliminated altogether. Careful tests seem to prove that wood can be so treated as to be made efficiently fire-resisting; that the treatment does not injure it for structural purposes, and that its effect is permanent. But the process adds about 20 per cent. to the cost of joinery in soft woods, hence it is too expensive at present for general use.

Design, construction, and fittings are the most important questions in the problem of fire-resistance. Errors in design and construction will cause what might have been a small fire to spread over a large area, and work practically unlimited destruction. The Horne Building fire in Pittsburgh, and, though less destructive, the recent fire at the Haymarket Stores, are cases in point. In both buildings the fire spread through a lift shaft, which served as a flue on a large scale. The problem immediately before us is the treatment of all such vertical shafts or openings in the interior of buildings.

The author went on to consider the treatment necessary for the different purposes for which well-holes are required—dealing first with well-holes and light shafts; secondly, with well-holes for stairs and lift enclosures. The use of wire-glass in iron frames for skylights in well-holes is desirable, as it helps to prevent the fire from bursting through from below or burning embers falling in from above. Wire-glass withstands not only great heat, but also the sudden cooling when water is poured upon it. It is not only admirably suited for skylights, but also for warehouse windows overlooking narrow well-holes or streets.

Judged from the standpoint of fire-resisting design, the usual position of staircases and lift shafts in mercantile offices and hotels is wholly wrong. Such well-holes should be enclosed by fire-resisting walls, with access to large floors or corridors by doorways only, which could be fitted with fire-resisting doors. The walls enclosing well-holes should be carried through and above the roof in the same manner as party walls, and the skylights over should be of thick plate-glass, or preferably wire-glass. Extra fireproof doors for stairs and elevator openings are recommended. To check the rush of flame up a shaft a system of automatic sprinklers might be fitted round the sides of the opening near the roof, or perforated pipes in connexion with an outside standpipe would serve the purpose. A staircase made of oak or teak, with 2-in. treads and risers and soffits, and the spandrels filled in solid with some hard wood, the author thought, would be found the most reliable.

Subdivision of large areas, where possible, is an important consideration. A fire in a large undivided area increases both in intensity and volume with much more rapidity than in a smaller one. Where areas are divided into rooms or offices, the partitions should be fireproof.

Fire-resisting floors the author classed as (1) concrete, (2) terra-cotta or brick. Some half-dozen exceedingly severe tests have been made of concrete floors, and not one of the floors failed. Experimental tests show that hollow tile arches, of good design and not too long span, have a strength sufficient to be safe under any load likely to be brought upon them in any ordinary building; also that their resistance to fire is entirely satisfactory, except that the dense tile is likely to go to pieces if struck by a stream of water when heated.

A satisfactory fire-resisting covering for columns and girders should be a non-conductor of heat, should be able to withstand the action of fire and water, should not break away from the column or water, should contain no joints through which fire could find its way. The covering may be of plaster, concrete, brick, or terra-cotta. Metal lathing should only be used where plaster is adopted for the covering material, and the

column should be first wrapped with asbestos lining bound with wire.

The author next described the best forms of fire-resisting partitions, dealing with (1) solid plaster partition; (2) hollow plaster partition; (3) terra-cotta, or porous brick, partition. It is most important that terra-cotta partitions should start directly upon the masonry of the floor, and the terra-cotta blocks should be of sufficient width to secure stability.

Special attention was called to the importance of protecting all openings made through floors for the passage of pipes for steam, gas, or any heating apparatus; and private apparatus, as aids for fire-resistance—e.g., automatic alarms, automatic sprinklers, stand-pipes, and hose—were briefly referred to.

In conclusion, Mr. Porter said he had tried to bring forward one by one the main features in the problem under discussion. The more carefully we go into it, the more apparent it becomes that the real problem is not to be solved merely by devising further improvements in the details of materials, construction, or design. We are already admirably equipped in these respects, and modern inventions are continually adding to our resources. Fire-resisting construction involves a considerable increase of expenditure, coupled often with a sacrifice of space and artistic effect. The practical problem for architects is how best to minimise these drawbacks. A useful basis for a discussion might be afforded by giving as a subject for a students' competition the designing of a hotel, retail store, or mercantile house, on fire-resisting principles, having special regard to internal effect in the first two cases, and in the third to economy of space.

Mr. H. D. Seales-Wood then read the following Report of the Science Committee on the fire offices' regulations for standard fire-resisting buildings:—

"In 1898, after the Cripplelegate fire, a conference of architects and insurance surveyors held two meetings with a view to ascertain what reduction of premiums the insurance companies would allow if buildings were constructed under the following conditions:—

1. If buildings are flat-roofed, with hard fire-resisting material.
2. If floors of iron and concrete, structural ironwork covered with fire-resisting material, say, as required by the London County Council regulations, floors connected only by staircases, which, with the landings, to be enclosed by fire-resisting material, such as cement on metal core, now much used; lights in these partitions to be sheet plate. Teak or oak doors, and treads and risers.
3. Similar floors, but pierced for lift, enclosing walls of brick rising through roof, and openings on each floor protected by light iron shutters.
4. Wood floors and joists pugged 4 in. between joists with some fire-resisting material pierced for stairs, constructed as in No. 2.
5. Pugged floors as above, with lift in addition, lift enclosed with fire-resisting partitions as stairs in No. 2, and with iron doors.
6. If the lighting areas or well-holes common to buildings in different occupations be carried down to the basement floors and not roofed over by skylights on the ground floor.
7. If windows in front and back wall fitted with iron sashes and frames, but left without shutters.
8. If opposing windows, within say 20 ft., are fitted with iron shutters or some fire-resisting material for blinds.

Any other heads or points which the offices may desire to note or which are set out in existing tariffs.

At a second meeting a tariff was submitted in which a normal building with a minimum rate was given, and the rate increased to meet ten or twelve different modes of construction. This tariff appeared to be in form and principal exactly what the Committee had been endeavouring to obtain from the offices, and they were strongly of opinion that if the insurance offices regulate their premiums on any principle whatever and agree upon a tariff among themselves, that it is only fair to the insurers and their advisers that such tariff with clear definitions should be available for public use, but this was not agreed to. Since this conference some rules for standard fire-resisting buildings, dated February, 1902, have been issued by the Fire Office Committee, and have appeared in our *Journal*,\* and the Science Committee have

\* *Journal*, Royal Institute of British Architects, January 11, 1902, p. 116.



given them careful consideration. The rules are numbered 1 and 2. No. 1 applies only to cotton mills, flax mills, woollen mills, and worsted mills. No. 2 gives rules for standard fire-resisting buildings, not including those scheduled above. From a careful consideration of these rules it would appear that they have been drawn up without reference to the London Building Act, 1894, and in several points the rules differ from the provisions of the Building Act. It would greatly facilitate business if these rules could be made to accord with the Building Act, and if the Fire Offices Committee would draw up a tariff which would be available by the public where the normal building should be the type allowed under the Building Act, with ten or twelve varieties of construction or arrangement, whereby the normal rate would be reduced.

We recommend the Council to approach the Fire Offices Committee, to ascertain whether they would meet a Committee of the Institute to discuss these rules and tariff, with a view to making them workable. It is the general experience that the rules as at present drawn do not encourage fire-resisting construction."

Mr. Thomas Blashill, in proposing a hearty vote of thanks to Mr. Porter, said there was no doubt that many of the points in the paper were a repetition of principles which had been dinned into the ears of everyone for a very long time, but they could not be dinned into the ears of architects and the people concerned with buildings too often, because one knew how important the advice was. He would take the opportunity of saying that the Science Committee had considered their Report with very great care, and although they could not discuss it at any length that night he hoped the Report would commend itself to the Council, and that the Council would be encouraged by the meeting to act upon it. Mr. Porter spoke of tests, but tests were valueless, or next to valueless. He had never found any particular value in tests as they were made, and with which they were familiar. A great number of these tests were made by the manufacturer of the article which was to be tested, and he thought, if they considered the matter, they would find they had never met with a single case in which the material which had to be burned was not drenched with paraffin. That was fatal to the test, and he had not the slightest doubt that some of the people who made the tests knew it. If they attempted to light a fire in a kitchen grate by soaking a little wood in paraffin they would find that it burned for a few minutes very brightly, but might then go out. That was a thing which could not be too well known. There was a Fire Prevention Committee, which had carried out very good and efficient testing so far as he had had the opportunity of seeing them, and he advised that Committee to avoid this fallacious kind of testing, and to test the thing as nearly as possible in the way it was likely to exist. They ought in such tests to try to get as nearly as possible to the conditions in which the material would exist in a fire, and, of course, in a fire the materials would not be soaked in paraffin or tar. He remembered once a very experienced and eminent fire engineer pointed out to him that these things make a great stink and a great smoke, but that they were of no utility whatever as testing the efficiency of the thing which was to be tested. Then he would like to ask Mr. Porter if he could give any more practical information upon such a question as that of concrete floors. The tests which had been alluded to were all very well, and were more valuable than those to which he (the speaker) had referred, and which applied more to wood; but they wanted to know about fireproof floors which had been in use for fifty years in London. What they wanted to know was what was the behaviour of such floors in an actual fire. It was something like giving an elaborate analysis of the degree of purity of the gold in a sovereign. They did not want to know that. What they did want to know was whether it was good enough to buy 20s. worth of any article they might wish to buy, and that was all they cared about. If Mr. Porter could now, or at some future time, get some information as to what happened in a real big fire to fireproof floors it would be extremely valuable, for he believed it was not now available to the public. He could quite corroborate the case mentioned by Mr. Porter as to several stories in a building being burnt out, while inter-

vening stories were uninjured. They could not be too careful in not having hollow partitions and trunks or shafts of any kind. They caused what was known as a fire haze, which was an exceedingly hot vapour produced by the fire below, and which did not burst into flame until it came in contact with the air. He hoped they were coming to the time when they would cease entirely the construction of wooden floors and floors not fire-resisting. In his own experience he had been able to construct floors quite as economically of coke breeze and iron as could be constructed of any good wooden material, and it seemed at this time somewhat behind the age, where houses were placed together, to build of materials which were combustible. He remembered so far back as 1861 to 1866 seeing fire-resisting floors built as a matter of course in Paris, whereas they had hardly begun to use them in England. He did not know whether at that time it was by law or not, but he hoped the legal pressure upon construction would be stronger in order to make buildings more nearly fire resisting. Mr. Porter referred to "cinders," and he presumed he meant that to cover all things which had passed through the fire. Coke breeze, as everybody knew, having suffered much greater heat than it was likely to be subjected to in an ordinary fire, was one of the safest of materials, especially when put together with cement in the proportions given. Burnt ballast was another, and flint concrete was the most easily disintegrated.

Mr. Mead (Sun Fire Office) said he was not commissioned to speak for the Fire Insurance Offices, but he might venture to say that they were always interested in suggestions coming from architects, and with regard to the remarks which fell from Mr. Searles-Wood, he had no doubt that the suggestions would receive proper attention from the fire offices. With regard to the cause of fire, he did not know that he could altogether agree with what Mr. Porter had said as to the number of incendiary fires. He believed that the statistics which would attempt to fix upon any proportion were fallacious. The incendiary fires were very often so complete as to leave behind them no trace whatever as to the origin of them. Sometimes the perpetrator of the incendiarism showed that he was altogether a novice at it—he started certain fires in different parts of the building by soaking material in paraffin and setting light to it, the result being, as Mr. Blashill said, that there was a good deal of smoke and then the fire went out. The police, of course, came in and detected the various heaps and were able to pronounce very fairly upon the character of the fire. But there were a good many who knew better how to do it, and if anybody had any doubt upon that if they came to him or to some other discreet official of a fire office they could learn how to do it. But, speaking with the experience of a good many years of an important fire office, he had come to the conclusion that it was greatly to the credit of the country that the proportion of incendiary fires was small. They could judge of that not only by the fires themselves, but by the way in which the claims were compiled after the fire. In those claims they were able to scrutinise, the result of their scrutiny was the conclusion that they were fairly made out as a rule, and betrayed no evidence of fraud, which would be found if the origin of the fires were of an incendiary character. He seconded the vote of thanks to Mr. Porter.

Mr. Blashill said he would like to add one word in view of the remarks of the last speaker. Some forty years ago he was called to a fire in an eight-roomed house. The man had had two fires before, and he was a pianoforte manufacturer, and had a good deal of material about. The man had bought a bushel of fire-wafers, and had made twelve fires, and when he (the speaker) and others got to the house they found that every one of the fires had gone out.

Mr. Lewis Solomon, in supporting the vote of thanks, said he had frequently had occasion, as most architects had, of waiting on the Fire Offices with reference to claims, and while it was true that the Fire Offices did not print any matter for the general use of architects, yet they had printed forms which they lent to architects, and their surveyors were exceedingly kind in giving every information, not only when an architect applied, but they would take the trouble to examine the plans, and suggest certain improvements which could be

made to reduce the premium. Therefore they would see that it was not through any want of good feeling that the Insurance Offices did not always fall into line with them. He thought, however, that the suggestion might be made to them to act with a little more business tact. After the Cripplegate fire several owners of property wished to restore their buildings in a fireproof manner, with stone and teak stairs, concrete floors, &c. Naturally, they wished to have the premiums reduced to some extent if they built their premises in a proper manner, and they were told that there would be no reduction whatever. Now he daresay that a good fire was a good advertisement for the insurance companies, and if they saved, say, 20 per cent. of the risk by the building, if they allowed only a quarter of that to the person who built the premises, it would pay them in the long run—at least, in every other business it was found to be a good thing to give the purchaser a share in the profit. Mr. Porter made a remark about teak staircases, and he thought it would be a very good thing, but would the County Council allow it to be used in factories instead of what they suggested? He doubted if they would. He had tried at times, and found they would not. His own impression was that a teak staircase was much better than a stone one for fire resistance and safety. Mr. Porter had not mentioned anything about concrete stairs, but nine-tenths of the fireproof stairs built in London were of concrete, and his impression was that they were far better than stone although not nearly so good as teak. Mr. Porter had shown them a plan of a staircase, but he did not think that plan would apply in London, because it did not comply with the requirements either of the County Council or of the fire insurance offices, who asked, and reasonably asked, for a space of 6 ft. between the stairs and doors so that the fire could not spread. The plan they had seen did not show anything like as much. Then the County Council required newel walls and staircases, and the plan submitted did not show that. Mr. Blashill had remarked about the fallacy of making tests, and he remembered some years ago a man brought some material to him as being fireproof, and to show that it was so he built a fire on the top of it, and the fire did not burn through it. He (Mr. Solomon) took up some of the material and threw it on the fire and he found that it burned like the best coal.

Mr. Henry Lovegrove remarked that he had had a good deal to do with fires, and had noticed that in the smaller factories a good many fires occurred about quarter day. He did not know whether they were incendiary fires. There was no doubt, however, that in Shoreditch and Whitechapel a good many fires resulted from incessant smoking of alien workmen, who threw the ends of the cigarettes about and often on to heaps of shavings. He would like to ask something about sprinklers. He had seen a great many sprinklers put up, and they were a great expense. But when this expense was incurred it seemed to him that when a fire occurred on the top floor, as the result of the operation of the sprinklers, the lower part of the building was deluged with water, and an enormous quantity of stock was destroyed. He had spoken on the matter to a man whose name was well known and who was a great believer in sprinklers. This gentleman was the owner of very large mills, and he was rejoiced when some one should come and ask questions, and he laid it down, after some discussion, that the theory of 10 ft. apart was wrong. This gentleman advocated that the sprinklers should be 8 ft. apart, and he seemed to be able to prove it by facts. Mr. Porter had said 10 ft. apart. This gentleman seemed to think that the alarm given at the time the sprinkler started would be sufficient warning for some person to attend who would in due course turn off the water. He would like to know Mr. Porter's opinion as to the damage done by the water to the goods below. Some of the buildings with which he was most intimately connected were large furniture stores, and it seemed to him that immense damage might be done by the water coming down on the floors beneath. Incidentally he would like to ask a question as to the use of rushes which had been worrying him for some years. He had seen many old ceilings taken down where rushes had been used, and he would very much like to know the period when rushes were used for the plaster. Concrete staircases had been referred to, and he really thought



that a good concrete staircase was the very best kind, because he knew that stone staircases came to grief most horribly. In theatres and in an infirmary fire stone staircases were destroyed. Coke breeze, he quite agreed, was good material, and he thought it stood much better than even a good ballast concrete floor. He considered that the iron girders and stanchions should be protected, but there was another weak point, and that was the fittings, partitions, &c. The other day he went over a building in which everything had been done to make it fire resisting so far as the girders and columns and so on were concerned, but almost every floor was filled with partitions and fittings of ordinary deal, which would be most inflammable. He would also like to know what Mr. Porter and others thought of armour-plated doors. He had one case where they had actually been fixed, but he had them taken out. He did not give any opinion as to whether they were good or bad, but simply said they were not allowed, and they were taken away.

Mr. T. Lewis Banks said there was no doubt that concrete was a material they more and more used, not only for floors, but in all kinds of construction, and he would like to refer to one point which had not been mentioned, viz., that of the necessity of armouring concrete. He remembered when the Cardiff Merchants' Exchange was burnt down he went to see the effects of the fire on the ordinary concrete floor, and he found that there were holes in several places which allowed the flames to go from one story to another. If the concrete had been armoured, these broken pieces would not have fallen down. The same principle applied also to concrete stairs. They had already put iron rods through the stairs, but he would like to see the whole of the surface armoured. In the Midland Hotel now being built at Manchester, which was, perhaps, the most scientifically fireproof building of the hotel type being built in the whole of the country, they found that all the principal staircases were concrete, and they were all armoured in the way he spoke of and afterwards covered with marble. There was one other thing, which was the material used for plaster, and he believed the best fire-resisting plaster was made from slag from the hematite furnaces, which set much harder than Portland cement, or any other material he knew, but it set very slowly.

Mr. Max Clarke said that any one who had read a paper at any time knew the trouble it entailed, and he trusted that Mr. Porter would not mind if he made some criticisms on the paper. Mr. Porter seemed to fall foul of the words "fire prevention," and he commenced by giving an analysis of the various means of accident by which fires occurred. He took it that all fires were created by accident, except those few which were caused by incendiaries. But when they used the words "fire prevention," what they intended to convey to everybody was that a fire should not assume importance, and that should be the usually accepted meaning of the words. If so, it appeared to him that Mr. Porter might have given them the benefit of experience of how these fires should not obtain this undesirable importance. For instance, at the start of the paper they had a very clear description of defective hearths and flues, and they were, of course, conversant with these matters. What they wanted was a cure for them or some method of obviating the defects. Now in the North and in Ireland, nine-tenths of the chimney-flues were built with terra-cotta or fire-brick linings which were almost unused in London, but if that was done a great number of fires which occurred through defective flues might be avoided. He threw that out as a suggestion. Then the Building Act, which unfortunately Mr. Porter had not mentioned, did play an important part in all these matters, and that Act permitted them to drive plugs and iron holdfasts into chimneys, and entirely ignored the fact that iron holdfasts might get red hot and set fire to the skirtings, &c. With regard to the remarks of Mr. Porter as to gas fittings, he would like to ask one question, because, as they knew gas created only explosions, he took it meant creating fires, and whether it was a matter which was purely a fire insurance one he did not quite understand. But supposing they had a fire caused by an explosion, would the insurance company look upon that as an accident or an explosion only, and as not coming within their risk? Then Mr. Porter said the phrase "fire resistance" was, of course, a relative term, and the degree

of perfection to which it could be carried depended not only on the building itself, but also on its contents and its immediate surroundings, and he went on to say, "This has to be kept in mind, and it is useless to expect owners to spend large sums of money on fireproof construction which they are perfectly aware will benefit their neighbours rather than themselves." He thought that was a most unfortunate remark to make in that room, for in the first instance he did not consider that it was a fact, and in the second place it would be apt to create an unfortunate feeling amongst people who were going to build. If a man built for the good of his neighbour, when his neighbour also built for the good of the adjoining man, and if they only looked at it in that light it would be seen that it was for the benefit of the building owner. But, in addition, he took it that the man who built a fire-resisting structure did benefit himself. Of course, they must start with the assumption that there was no such thing as a fireproof building. That was absolutely impossible, because they had only got to get the material inside the building for it to be destroyed. He had a report of the Horn fire, in which it simply said that it did not make any difference how much they covered the steel or other materials with what were known as non-conducting mediums, because in time all these non-conducting mediums were of precisely the same temperature as the fire itself, and they communicated this to the steel structure. So they must not call a building fireproof, except in a degree. That degree depended entirely upon the material which was inside, and if they went to the heart of the City of London, which, unfortunately, had got the reputation of being rather a dangerous zone, they found in that portion of the City the materials were of the most inflammable nature, and, rightly or wrongly, he thought the people who stored those materials stored them in the most inflammable receptacles. It seemed to him that they tried, as far as possible, to destroy their buildings when the fire did occur. Then with regard to brickwork, every one knew that the best fire-resisting brick was the firebrick, but the firebrick was not the one which stands the greatest amount of weight, and so they had to try and get the happy medium, and use the material which was weight-carrying as well as capable of resisting fire. If they had seen the Barbican fire they would have seen enormous cracks down the thicknesses of brick walls caused by the excessive heat. It was only a question of degree. The hard-burned terra-cotta, every one knew, was absolutely useless when water was put on. Then with regard to concrete, Mr. Porter said that tests had been made by which the material has been subjected to as much as 1,976 deg. Fahr. for several hours and allowed to cool slowly, and also suddenly by the application of water, and it was found that the concrete composed of sand, gravel, or stone mixture crumbled or gave signs of great weakness, while that composed of cinders showed good coherence, and did not suffer by wetting while hot. He would like to know where those tests were made, for he had had the fortune or misfortune to have to write the reports of some tests on concrete floors, and he would like to compare those tests. With regard to ballast he must differ absolutely from Mr. Blashill, because he did not consider ballast was a good material. In the fire which occurred at the Theatre Royal, Glasgow, a good many years ago the corridors there were all made of ballast concrete, and they became very hot, and when the water was put on the whole of the floors, or the majority of them, fell down. When they made floors of ballast at the British Fire Prevention station, and put water on them, they fell down—usually in layers as regarded their thickness. But the coke breeze concrete, although absolutely incandescent throughout its thickness, did not fall down, and he thought it was pretty clear from these reports that the coke breeze floors, of not too large an area and of sufficient thickness to protect the ironwork, was a good fire-resisting material. He understood that cast-iron was good so long as no water was applied, but if water was applied when the iron was hot, it was not so. He understood that the best treated wood added 90 per cent. to the every-day cost. He applied for a quotation some time ago, and it was 6s. per foot cube, and that, of course, would put it on a par with the best hard wood. He had in his hand a Report, which had not yet been

made public, on tests made of oak and deal flooring. It says:—"The centre piece measured 13 in. by 13 in. at the bottom, and 13½ in. by 13½ in. at the top over the charred surface, and was charred to the average depth of 1½ in. The transverse beams measured 9 in. wide over the charred surface, and were charred to the depth of 2 in., and still more at the ends. The joists were charred to the depth of 2 in., and still more at the ends and where they rested on the walls." These were all deal. At the second fire at the Theatre Royal, Glasgow, the timber over the proscenium opening (of deal) was burned absolutely through. It rested on a wall 3 ft. in at each end, and the whole thickness of the timber was burned right through. That of course occurred owing to the brickwork around having got red hot and the timber burned away by degrees. In the case here there were some bolts through the timber and these bolts became red-hot, and they burned the timber away, altogether for the space of about 3 in. to 5 in. all around, so that with regard to heavy timber construction which was insisted on in Hamburg, the danger was where it was put together by massive bolts: and that was a point to be considered.

A member: Was that proscenium a hard wood beam or an oak beam?

Mr. Max Clarke, continuing, said that timber construction was extremely dangerous with regard to smoke. The enormous quantity of perfectly black smoke which was emitted by oak was a most terrible source of danger. In a fire which occurred in Brownlow-street some time ago the place was not burned down, but the oak timbers in the basement were burned, and, unfortunately, suffocated the three inhabitants. In the tests at the Fire Prevention Station there was as much black smoke as would have suffocated the people all round, and this, of course, was very much to be avoided. He took it that all discussions on fire prevention matters resolved themselves into two heads. One was where the building or its contents was destroyed, like the Haymarket Stores fire just recently; and the other was where the unfortunate inhabitants were destroyed. They could insure a building and its contents against loss, but not the lives of the people, and, therefore, any discussion on fire prevention was incomplete without considering the lives of the people, and if they did that at all they must consider not only their being burned, but their being killed in any other way. Those not familiar with the matter might imagine that it was in the Horn building that the original fire occurred, but that was not so. It occurred in Jenkins stores which adjoined, and the fire was communicated to the Horn building through the top of Jenkins building. The fire seemed to have gone up the elevator shaft and set fire to the Horn building at the top. That would be obviated, he took it, in most of the buildings of the warehouse class if the lift shaft were surrounded by brick, and if these openings were fitted with fire-resisting doors. He was not himself a believer in Dowson's or anyone else's armoured doors, nor a believer in the iron door at all which was not adequately fastened. In the Building Act it was said that there must be an iron door, but it did not say anything about the fasteners, and he took it that they would be at liberty to put up an iron door without any fastenings, or, at any rate, with one fastening, and a door like that would be useless. He hardly agreed with Mr. Lewis Solomon as to teak staircases. Of course, if they had a solid teak step, or a solid oak step, with a fairly good thickness in the waist it would be an absolutely fire-proof material, but on the other hand if they built a wall to a staircase which complied with the County Council factory requirements at the present time, he thought they had got there what was very nearly a fireproof staircase, because the doors protected the staircase pretty well, and there should be nothing in the staircase of a combustible nature. He would like just to refer to an old friend of his, and that was slag wool, which he believed to be the best non-conducting and fire-resisting material of its kind that there is. He patented a fireproof screen for theatres fifteen or sixteen years ago made of this material, and he would advocate slag wool as against asbestos for covering columns, because in the first place it was a better non-conductor of heat, and in the second place it was much more economical.

The Chairman said they had had a most



interesting discussion on an important subject. It seemed to him that fire prevention and fire resistance were really two things. They could not prevent a fire occurring, because the cause of fires was beyond the control of the people who constructed the buildings. What the architect and the builder had to do was to make the building as far as they could resist the fire which was sure to break out in many kinds of buildings sooner or later. He was much struck by the statistics which Mr. Porter gave of the Glasgow fire returns, showing what an immense effect really good construction in the way of hearths and flues had. Mr. Porter said that 28 per cent. of the fires in Glasgow were due to this cause, whereas they were only a little over 9 per cent. in London. He did not think Mr. Porter laid quite enough stress on the extreme importance of making all roofs fireproof. If the roof of a building was made of concrete the spread of the fire would be resisted to a considerable extent. It was quite true with regard to cast-iron columns that, unless cast-iron was protected, as soon as the water touched it when it was hot, it was absolutely useless. With regard to the staircases which had been handed in by Mr. Porter, it seemed to him that Mr. Solomon, in his criticism, rather mistook the purpose for which it was intended. As he understood it a staircase of that sort was intended to make the up shaft through which the fire was sure to go, practically cut off from the rest of the building, and for that purpose it served an admirable design. The only fault he found with the staircase was that they had winders at the bottom of a flight. That was quite contrary to the regulations of the County Council with regard to any proof staircase. It always seemed to him an exceedingly curious thing that the L.C.C. should lay down in every particular such exceedingly stringent regulations which had to be complied with literally in every respect, and yet they could build a warehouse five or six stories high with simple wooden joists and no ceiling at all. That seemed to him to be a matter which ought to come under some regulations; because they might have fire-resisting staircases, but considering the materials which were stored in a great many of these factories and workshops a fire would break out and would rise from floor to floor in an incredibly short space of time if there were no ceilings, as there need not be. Instead of having these vexatious restrictions and technicalities if the County Council was simply to pass a resolution that every building of the factory and workshop kind must be so constructed as to satisfy them that it was fairly fire resisting, it would do a good deal of good. Although Mr. Searle-Wood was unable to bring forward a resolution from his Committee, he was quite certain that after that meeting the Council would be only too pleased to adopt the recommendation which the Science Committee had set out, and they would endeavour to induce the Fire Office to meet a Committee and see if they could arrive at a more consistent tariff.

The vote of thanks having been heartily agreed to,

Mr. H. Porter, in reply, said with regard to Mr. Max Clarke's question as to where the concrete tests were made, they were conducted by a Commission of the City of Hamburg in 1895, and would be found fully reported in "Materials and Construction," by M. and P. Johnson. As to the concrete stairs and floors, which Mr. Blashill mentioned, he could not personally give any account of a floor that was damaged simply through the concrete. Mostly the fireproof floors were damaged by the capping of the ironwork in them.

#### The Next Meeting.

The Chairman announced that the next meeting would be held on April 20, when Mr. E. T. Hall would read a paper on "Four Modern Hospitals of Different Types," illustrated by working and detailed drawings.

**REBUILDING IN REGENT-STREET, W.**—A clearance has just been made of the sites of some houses, including the former "Blanchard's" Restaurant, on the north side of Beak-street. The ground is being prepared for the erection, after plans and designs made by Messrs. G. R. Crickmay & Sons, of new premises for Messrs. Robinson & Cleaver, upon the sites of Nos. 156 and 158, Regent-street, of the seven houses in Beak-street at the side end of some four or five houses in King-street at the rear. The two houses in Regent-street form part of the block built in 1820-1, and designed by Soane.

### INCORPORATED ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS: WOODEN STRUCTURES.

A METROPOLITAN District meeting of this Association was held on Friday last week in the Westminster Palace Hotel, Victoria-street, S.W., Mr. T. H. Yabbicom, President, in the chair.

Mr. J. Rush Dixon, hon. district secretary, read the minutes of the last Metropolitan District meeting, which were confirmed, and Mr. J. Patten Barber, Borough Engineer, Islington, opened a discussion on "Wooden Structures and the Powers of Metropolitan Borough Councils with Respect Thereto."

Mr. Barber said that the powers and duties of the London County Council under Section 84 of the London Building Act, 1894, with respect to wooden structures were transferred to the Metropolitan Borough Councils by Section 5 of the London Government Act, 1899, and while designated in the second schedule of that Act "minor powers and duties," their exercise had brought great responsibility on Borough Councils and their engineers. In advising his council respecting applications for licenses for the erection of wooden buildings, stands, gantries, and other wooden structures, the engineer had to consider the danger from fire and from the loads which the structures would have to sustain. Simple as an application might seem, there were very serious questions involved in it for the officer responsible for advising upon it, both in examining the plans and detail drawings and in inspecting the structure during its erection, and again at the expiration of the license in case of application for renewal. It was to be feared that persons applying for these licenses did not understand the responsibilities resting on Borough Councils and their engineers in connexion with these structures, and that they regarded their requirements of detailed drawings showing accurately and fully the mode of construction, and the situation of the structures with respect to neighbouring buildings, as faddy and unnecessary. Should disaster occur, however, the Authority and its officer would be the foremost to receive blame and condemnation, and the loudest clamour would be made by those who expect that rough and ill-considered plans are sufficient to enable any one to arrive at a complete understanding respecting a proposed structure. In view of the risk of fire being communicated to and from wooden buildings, and of the terrible consequences of the failure of stands and other similar structures, the duties and responsibilities of Borough Engineers in connexion with the administration of this section of the Building Act were of no minor character. But there would be no shrinking from responsibility nor evasion of duty, and, as the examination of these structures by District Surveyors had given the public confidence in their stability, and had been regarded as a guarantee of their safety, the Borough Engineers of the metropolis would not allow that assurance to be weakened or destroyed now that the erection of the structures had come under their supervision. Much confusion and difficulty had arisen owing to the imperfect legislation connected with the transfer of the powers referred to, and from the first it was foreseen that in the working of Part VII. of the Building Act, under the incomplete provision which had been made therefor in the London Government Act, 1899, there would be uncertainty, friction, and misunderstandings. In dealing with the subject reliance seemed to have been placed in Section 29 for providing a remedy for any deficiencies and shortcomings in the Act, but this could scarcely be regarded as a justification for the inefficient character of the legislation on the subject under consideration. The intricacies of the London Building Act, 1894, were so well known that in attempting to express one's views on any part of it was necessary to state that they were put forward with a due consideration of the uncertainty of one's position and of the scope which existed for disagreement. It was hoped therefore that what was said would be received as impressions rather than regarded as dogmatic opinions. There was apparently nothing in the Building Act, or in the London Government Act, which would prevent the London County Council dealing with a wooden building or a wooden structure under Sections 82 and 83 of the first-mentioned Act (with the exception of "coronation stands," which the

King's Bench Divisional Court, in Metropolitan Borough of Westminster v. London County Council, decided must be dealt with by the Borough Councils under Section 84, and not by the London County Council under section 83 of the Building Act). Apart from these structures, however, it seemed that the London County Council might have jurisdiction, under Sections 82 and 83, in the same cases as the Borough Councils had under Section 84, and that an application which had been refused by one authority might be submitted to and granted by the other. There was no definition in the Building Act either of "building" or "structure," and unless a building was a structure a Borough Council could not issue a license for the erection of a wooden building. In Sections 82 and 83 the words "building or structure" were used, and the omission of the word "building" from Section 84 was remarkable. It might, perhaps, be urged that the Borough Councils had no jurisdiction in the case of wooden buildings, and that their powers related only to wooden structures. A license having been obtained from a Borough Council, the builder or the person directing the work to be executed must give notice to the District Surveyor and supply the information relating to the building or structure specified in Section 145, Sub-section c. of the Building Act; and the work was subject to the supervision of the District Surveyor pursuant to Sections 138 and 146 of the Act. Doubts having arisen as to the duties of District Surveyors respecting wooden structures under Section 84, the Westminster City Council and the District Surveyors' Association obtained the following decision of the King's Bench Divisional Court on several questions:—

"1. The powers, duties, and liabilities of the district surveyors with respect to the supervision or inspection of wooden structures, falling under Section 84 of the London Building Act, have not been transferred to the City Council and its officers; but the district surveyors have no powers, duties, or liabilities under the licenses granted by the City Council.

"2. Wooden structures falling within the said Section 84, are works of which the district surveyor should have notice under Section 145 of the said Act in a proper case.

"3. The right to receive the fees for such supervision and inspection, specified in paragraph 15 of the said special case, has not lapsed nor has it been transferred to the City Council or its officers."

The position created by the latest attempt at legislation for the improvement of local government in London was obviously an awkward one for all concerned with wooden structures. The Borough Engineer advised his council on an application for a license, which was granted by them subject to conditions which they imposed; the erection was supervised by the Borough Engineer on behalf of the Council, and the builder naturally regarded him as the person whose directions he must follow, and whom he must satisfy. But the builder must give notice to the District Surveyor who knew nothing of the Borough Council's requirements, and had no copy of the plans or of the license, and who, moreover, had neither powers, duties nor liabilities under such license; he, perhaps, made requirements of his own in addition, or contrary, to those of the Council. In the police-court, where the builder would be called upon to answer for his failure to comply with the conflicting requirements of the Borough Council, and the District Surveyor, the confusion would be complete, the former taking proceedings under paragraph c and the latter under paragraph d of Sub-section 3, Section 200, of the Building Act, 1894, and Section 7 of the Amendment Act, 1898. The remedy for the present unsatisfactory condition of this subject might be obtained by further legislation determining all the powers, duties, and responsibilities of the London County Council and District Surveyors with respect to wooden structures licensed by Borough Councils, or by transferring the administration of Part VII. of the Building Act to the Borough Councils, and determining the above-mentioned powers, &c., with respect thereto. Through a defect in paragraph d and e of Sub-section 3, Section 200, of the Building Act, 1894, a conviction thereunder can only be obtained by taking proceedings under Section 7, or Sections 6 and 7, as the case may be, of the London Building Act, 1894 (Amendment) Act, 1898. A Borough Council might proceed under Section 170 of the Building Act, 1894, for the demolition of a structure, where the conviction had been obtained by such Council.



The Chairman, in inviting discussion, said that at Bristol the difficulty dealt with by Mr. Barber had been overcome by appointing him (the Chairman) District Surveyor as well as Borough Engineer.

Mr. W. Weaver, in proposing a vote of thanks, said that at the present time it seemed to him that the only result of the amended legislation of 1894 and 1898 had been to make people pay twice over for the same thing. The practice in his district was for the applicant to pay 5s. when he deposited plans for a wooden structure, a further fee of 5s. for the license, and then the District Surveyor came along and drew his fees in the usual manner. That state of affairs ought not to go on. His remedy was a more drastic one than that hinted at by Mr. Barber. His (the speaker's) remedy was one he had advocated for the past twenty years, viz., that the work in London should be put on the same footing as the work in the towns throughout the country—i.e., that the functions of the District Surveyors and the Borough Surveyors should be amalgamated, and that the Borough Council of a district should have the direction of the work of a district—that it should have not only the supervision of the water-closets, say, of a building, but the building of which the water-closets formed a part. That would lead to a great simplification of the work of the Metropolitan Council, and to elevate the position of the Borough Surveyor. The convenience to the public would be great, as would be realised when they thought of the trouble a country builder was put to when he started work in London—say, in developing a piece of land. The duplicating of plans and the applications necessary to the authorities led to much loss of time. The work of the London boroughs should be assimilated to the work of the boroughs throughout the country. There was a strong opinion in that direction at the present time. He had recently had a letter from a leading member of the London County Council urging him to do what he could to press on the matter, and a circular had been sent out from the Paddington Borough Council to all the Councils in London, asking them whether they would appoint delegates to a conference to consider the transference of duties of District Surveyors to the Borough Councils. There seemed to be a great deal of apathy on the part of the Borough Councils on the subject. They often did not grasp the difficulties of the situation as well as their officers did, and he would urge on the Borough Surveyors to do all they could to bring about the reforms he advocated. Failing that, the present confusion with regard to wooden structures must not be allowed to continue, and if the Act were not transferred entirely, some amendments would be necessary. He had already asked his Council for advice in the matter, and his Report had been referred to the Law Committee. He wanted his responsibility fixed, and he thought it would be well for other Surveyors to do something of the same kind. If an accident happened and lives were lost or people seriously injured, there was a great disposition for juries to saddle the blame on some official, and it was just as well to know what one's position was.

Mr. W. Nisbet Blair seconded the vote of thanks. He had, he said, experienced many difficulties in regard to these wooden buildings. One of them was as to distinguishing between what might be approved by the District Surveyor acting for the London County Council, under Sections 82 and 83 of the Building Act, and what might be approved or erected under license by the Borough Council under Section 84. He had found that difficulty and had written to the Superintendent Architect of the County Council, asking him if he would advise whether, in cases given, this building or that building was one which ought to be approved by the District Surveyor, or one which might be licensed by the Borough Councils. The reply to that letter did not elucidate the matter. Borough Surveyors were left absolutely to their own judgment often. The position of District Surveyors, as determined by the High Court, was in conflict with the position of the Borough Surveyor, though so far he had avoided any ill-natured controversy with the District Surveyors. The proposals by Mr. Weaver were approved by a conference of London Municipal Surveyors, and the result was that in the London Building Act Amendment Act certain powers were transferred to the Borough Councils i.e., the supervision and licensing of temporary wooden buildings, the executive

powers in regard to sky signs, and regulations as to the stacking of timber on vacant land. Those were the three powers and duties transferred to the Borough Councils in reply to their request that they should be placed in charge of all building operations in their districts, so that any builder in executing work might be directed by one authority and its officers. Having so completely failed to get what they wanted then, his Council thought, when they received the circular from Paddington, that it was utterly futile to raise the subject again. He did not think, therefore, that that method of getting fresh legislation could be entertained. What course, therefore, was available? It was obvious that District Surveyors did not wish to lose control of buildings, for they were not salaried officers, and they depended on the fees they received. Under the Borough Councils, the fees for supervision did not go to the officers. After the Borough Surveyor had seen that a building was erected according to plans which he had examined and approved, the District Surveyor came along, had a look at the work, and sent in an account for fees for doing so—and he got them, for he had power to sue. A District Surveyor had suggested to him that without involving the Borough Councils in any fiduciary arrangement with the District Surveyor, it should, in its licenses, require the building licensed to be in accordance with the plans approved and to be carried out to the satisfaction of the District Surveyor, he being named in the license as the officer to whom satisfaction must be given in the erection of the building. District Surveyors were competent gentlemen, and Borough Surveyors should be careful how far they undertook a personal liability in approving that which might have elements of very considerable risk, and for that reason he thought that that solution was in some respects not at all a bad one. It was, practically, transferring back to the District Surveyor that power which was given to the Borough Councils by the Building Act Amendment Act of 1899. The duties then transferred were a little insignificant, but they were onerous, and Borough Surveyors had not appreciated them and did not want them. In further illustration of his point as to the difficulty of distinguishing between buildings referred to in Section 83 of the Act and those in Section 84, a wooden-frame building covered with corrugated iron, with its sides against a brick wall would not be a building for Borough Surveyors to license; it would be a building to be approved by the District Surveyor. But if the corrugated iron were stripped off it became a wooden building which they could license. What had actually happened was this: in a certain rapidly-growing district in London, where many people desired to add what they called a "shed" at the end of a house, but which, by the provision of a door, became a room of the house and gave valuable additional space, the builders had endeavoured to get the consent of the London County Council to such additions. The County Council had disapproved of these buildings, and the builders had then made fresh tracings of the same things, omitting the corrugated iron, had sent them to the Borough Councils and had asked for and got approval for these "temporary" buildings. Thus a structure was erected that was actually worse than what had been disapproved by the District Surveyor. Then there was the question whether these temporary buildings might be erected at a less distance from the centre of the street than the Act prescribed. The feeling of the County Council as to buildings essentially of a temporary character—a rabbit hutch, or a hen house, or a bicycle-shed in a garden, for instance—was that such erections must not be within less distance than the prescribed distance from the centre of a street, and must not be in advance of the general line of building. That made one wonder what the Section was really devised for, and his opinion was that the first thing the draughtsman who prepared the Section had in his mind was stands to view processions. But in ninety-nine cases in every hundred those stands were erected in advance of the general line of building, and, therefore, they could not be made to apply to other requirements of the Council. Therefore, the Council had given instructions that when these buildings were obviously of a temporary character and required for only a few days that no objection was to be made if

they were beyond the general line of building.

Mr. Norman Scorgie, Hackney, said he thought that Mr. Barber had put the responsibility in reference to these structures at a rather high altitude. He had not experienced the difficulties Mr. Barber suggested would come to the Borough Surveyor, but perhaps that was because he had had to deal with very genial district surveyors. Any case which came before the District Surveyor which the latter thought he (the speaker) should deal with was handed over to him, and any case which he (the speaker) thought was within Section 82 or 83 he handed over to the District Surveyor. The point had been raised as to structures beyond the general building line, and whether temporary or permanent, he thought that was a matter for the County Council only. He recently had a curious case to deal with. A house with a long forecourt became occupied by a photographer, who put a show case, erected on posts fixed into the ground. He (the speaker) at once communicated with the London County Council, who first granted the photographer a license for twelve months, renewed it for a second period, but declined on the third and threatened the photographer. The photographer, instead of removing it, cut the posts at the ground level and put four little wheels on the structure. The Council then found that they could do nothing as the structure had become a "temporary" one. They referred the case to the Borough Council, but the Borough Council declined to do anything and so the structure remained to the present day. The difficulty was to know where one responsibility commenced and another ended. In his district he thought the district surveyors had handed the responsibility over to the Borough Council, but the only structures he had had to deal with had been motor-car sheds or erections to cover bicycles, and his Council would not grant any license for a wooden structure which was tacked on to the end of a house. Since the Act came into force they had granted about four or five licenses, and they only licensed for a very limited period. He cordially agreed with what Mr. Weaver had said as to transferring powers, but if that was to be done he thought Borough Engineers must have a separate and distinct appointment, independent of the Councils. One knew very well that there were, especially in the metropolis, influences at work to get a Council to sanction structures which were not strictly in accordance with the Act.

Mr. Newton, Paddington, said that the procedure they followed in Paddington was much like what had been described elsewhere, except that they did not recognise the office or the authority of the District Surveyor. They considered that on the judgment given in the King's Bench, or rather the case referred to was stated, so far as the license given to the Borough Surveyor, to that extent only was the builder under the authority of any officer—that was to say, that unless the license referred to the District Surveyor, he had no authority to inspect a building. That view was not shared by District Surveyors, and there were many cases arising out of that conflict of authority, and no doubt that operated in many cases very unjustly against the builder. He had a case recently where he licensed some eighty wooden huts as coal sheds. (At that time his Council only charged a fee of 5s., but now they charged an extra fee of 5s. for supervision by the Borough Surveyor.) After the sheds had been erected, the District Surveyor demanded a fee of 15s. for each hut—the huts did not cost as much to erect—but he took out a summons for only one hut, so that the matter might be dealt with in the police-court, and the builder paid the fee rather than incur extra expense. If a summons had been taken out for all the huts, the Council might have assisted the builder to fight the case.

Mr. Winter, Hampstead, said the transfer in 1899 was a most unnecessary alteration in the law. Builders, especially country builders doing work in London, were put to much trouble and inconvenience owing to the present state of the law. A country builder recently got into difficulties for not giving notice in regard to some small drainage work, being under the impression that the Building Acts of London were similar to the Acts in the country. The only rational proceeding, it seemed to him, was for the Building Act to be entirely supervised by the Local Authorities or by the London County Council. To select



a few minor matters for transference to the Local Authorities seemed to be absurd. He had had no little difficulty in respect to wooden structures in his district. The Borough Councils should persevere until the Building Act was administered by them: the By-laws, &c., could be settled by the Central Authority, but as to administration, London ought to conform with the practice in the provinces.

Mr. Harrison, Southwark, said that stands were erected in his district during the Coronation to accommodate over 100,000 people, and some of those stands were to accommodate 4,000 persons. It had been suggested that Borough Surveyors should approve the plans for such structures, and that District Surveyors should supervise them. But how was that responsibility to be divided? Would the District Surveyors supervise the structures in accordance with the requirements of the Borough Surveyors? and if an accident occurred who would be responsible? Some plans submitted during the Coronation were of a very rough character. Out of every 100 plans submitted to him he had to correct 95 of them. Some plans were submitted by people who had not the least idea of how to utilise timber, and some architects seemed to have got out of the way of putting a timber structure together. A fee of 5s. was charged on application, and another fee of 5s. on approval, and in some cases they charged a little more in accordance with the accommodation, and altogether they took 600l. in fees. Then the District Surveyor wanted his fees, and in some cases he wanted alterations made. He gave instructions, however, that in no case was an alteration to be made in what he had passed, but one of his Council's own wooden structures was condemned by the District Surveyor. He did not take it down, however, but asked the District Surveyor to do so if he thought it was dangerous, but in all cases the District Surveyor refused to condemn the structures as dangerous. In one case he and the District Surveyor both approved, but the District Surveyor's assistant subsequently condemned the structure. As to the fees, the District Surveyor had been successful in getting them in all cases, though the opinion was expressed that the high fees ought not to be charged, but some modified fees. He had recommended his Council to disapprove of ordinary wooden structures, for had they the full power under Part 7 of the Act they would be able to do good work. Inferior wooden structures had been erected in various parts of London, and if Part 7 was taken out of the hands of the County Council, it would be a great improvement in local government. Borough Councils had opportunities for dealing with wooden structures that District Surveyors had not.

Mr. Gamble (Metropolitan Fire Brigade) said that as an old borough surveyor he knew what the difficulties were of defining what was and what was not a temporary structure.

The Chairman said the bottom of the trouble seemed to be filthy lucre. If Metropolitan Authorities had the courage to do what some of the large towns had done, i.e., abolish fees and pay their officers properly, it would be a great deal better. For his part, he would be sorry to think that any part of his income was derived from fees paid by a builder. At Bristol they would be sorry to return to the days when builders had to pay fees to have their plans passed and their buildings superintended. A borough surveyor, or district surveyor—in either capacity the officer was much more independent if paid direct by his Council.

The vote of thanks having been agreed to, Mr. Barber, in reply, said that several speakers had referred to temporary buildings. Section 84 had nothing whatever to say about temporary buildings or structures, but only referred to wooden structures. Temporary structures were referred to in Section 83.

A smoking concert was then held.

WESLEYAN METHODIST CHAPEL, OKEHAMPTON.—A new Wesleyan chapel is to be erected at Okehampton. Mr. John Wills, of Derby, is the architect, and he has prepared plans for a building 53 ft. long by 35 ft. 6 in. across the nave, and 47 ft. across the transepts, provision being made for a gallery at the front end. There will be seating accommodation for 475 persons. The design is Gothic, and includes a spire of 75 ft. The walls will be of local stone with ashlar dressings. At the rear there will be ministers' and choir vestries with the usual offices, and a schoolroom, with four classrooms. Mr. H. Geen is the builder.

#### COMPETITIONS.

BAPTIST CHURCH, BEVERLEY-ROAD, HULL.—The competition recently held for this church has been decided in favour of designs submitted by Messrs. George Baines, and R. Palmer Baines, architects, 5, Clement's Inn, Strand, London, W.C.

#### REGULATIONS RELATING TO PROTECTION FROM FIRE.

A MEETING of the Society of Arts, John-street, Adelphi, was held on March 11, when the Folgerhill Prize Essay, entitled "Existing Laws, By-laws, and Regulations Relating to Protection from Fire, with Criticisms and Suggestions," was read by Mr. T. Brice Phillips, Sir W. H. Preece, K.C.B., presided.

Mr. Phillips dealt with the chief general statutes in which were provisions relating to the subject, local statutes, by-laws and regulations, laws relating to prevention of fire, and laws relating to extinction of fire. In regard to laws relating to prevention of fire, he said the by-laws comprise, perhaps, the most important part of the preventive laws. With regard to by-laws made under Section 157 of the Public Health Act, 1875, it was difficult in some instances to define how far they actually refer to fire protection, and how far to other matters. The Act sets out that they are made "for securing stability and the prevention of fires, and for purposes of health." "Stability" and "prevention of fire" were included in the same sentence, but the means adopted for securing stability did not necessarily conduce to the prevention of fire. It had been noticed that the main provisions of the by-laws control the thickness of walls. So far as stability was concerned, it was a fundamental principle of building construction that the lower walls of a building of several stories should be stronger than those of the higher stories, inasmuch as the former have to carry greater weight. This principle had been faithfully adhered to throughout the by-laws. But it should be observed that so far as the prevention of fire alone was concerned, the danger increased as the higher parts of a building were reached. From this it would follow that if thickness of walls were the only protection against fire, the walls in the higher stories should be more stable, and therefore thicker, than those in the lower parts. This was, of course, impracticable, but the argument showed that "securing stability" and "prevention of fire" were not identical under all conditions. It would have been better if the distinction between the two things had been more clearly defined in the Public Health Act. The fact, also, that the Act empowered Urban Authorities to make by-laws with respect to the structure of walls, foundations, roofs, and chimneys only precluded any further preventive measures being enforced in upper stories. Had the fact of the increasing danger from fire in the higher parts of buildings been kept distinct from the question of stability, it was probable that the necessity of making by-laws for the inner constructive details of upper stories of buildings would have become more apparent, and that some minor risks, now entirely unprovided against, would have been minimised.

By-laws did not in some respects fall into line with the requirements of the present time. Since 1875, the date of the Act under which the principal ones were drawn up, many advances had been made in building construction, and particularly with regard to the prevention of fire. Valuable experimental work has been carried out in various spheres as to the effect of fire upon different materials and under varying conditions. In this respect the efforts of the British Fire Prevention Committee deserved to be mentioned, for under the auspices of that Committee valuable work had been performed. Furthermore, it was a subject of keen discussion in architectural and building circles which of two distinct types of building construction possessed the greater advantages, that of slow combustion, or that of non-combustion (or fire-resisting). The by-laws referred simply to the use of "incombustible materials." Such a term needed definition, as was shown by the fact that a schedule had been added to the London Building Act, 1894, specifying the materials which shall be deemed to be "fire-resisting" within the meaning of that Act. From the foregoing remarks it would appear desirable that the by-laws made under the Public Health Acts, in so far as they relate to protection from fire, should be remodelled

upon more modern lines. Other by-laws of more recent date had also been severely criticised in technical circles. Such are those made by the London County Council under the Metropolitan Management and Building Acts Amendment Act, 1878, for the protection of theatres from fire, and the regulations as to means of escape from fire for factories and workshops. It was sometimes argued that by-laws and regulations were so detailed as to defeat their own ends by rendering proper inspection impracticable; that they were of too bureaucratic type to be of practical use; and that they pressed too harshly upon property owners. Such criticisms were generally made in architectural quarters, and some allowance must be made for the fact that all restrictions contained in by-laws must, of necessity, hamper to some extent the freedom of that profession. The two criticisms that the by-laws defeat inspection by reason of their minuteness, and that they were too bureaucratic, did not carry much weight in themselves. It was most regrettable that no official records had been kept of the effects of fire upon buildings. Work of this nature should be entrusted to fire inspectors, whose duty, in addition to administering the preventive laws, would be to inspect and make after-fire reports to their several departments. Had this been done during the last twenty or thirty years much valuable official information of a reliable kind would now be available, which would indicate how far existing laws had protected property from fire. The work here outlined was not such as the chiefs of fire brigades could be expected to perform. The reports of those officials now contained some particulars of damage done to buildings, but they were not of the detailed character which properly qualified fire inspectors would have prepared. Some work of the kind was carried out at Glasgow, as the following extract from the Report of the Glasgow Fire Brigade for 1901 showed:—

"Defective building construction still bulks largely in our list of causes of fires. This is an inheritance that will last for a long time. Improvement may be looked for in the stringency of the Building Regulations Act, and in the inspection and proper repair of all buildings damaged by fire from this cause. All fires arising from defective building construction are at once reported to the Master of Works, whose staff visit and instruct how restoration is to be safely carried out."

Fire inspectors should be given some similar powers to those of surveyors or sanitary inspectors, and premises where fire had occurred should be brought under the operations either of special building by-laws, or it might be convenient, by extending the meaning of the term "nuisances," to bring such premises under Section 91 of the Public Health Act, 1875, so as to ensure that in reconstruction proper precautions were taken against a recurrence of fire. The larger boroughs should appoint their own fire inspectors, but other Councils should be invested with power to unite for the purpose of such appointments. A similar power of combination by District Councils was already contained in Section 286 of the Public Health Act, 1875, as to the appointment of medical officers of health, and in any legislation upon the present subject the section might, with slight modification, be made applicable to the appointments now suggested.

Another criticism raised as to by-laws was that they apply to new buildings only. The coroner's jury, in their verdict on a recent fire in Queen Victoria-street, London, recommended that the London Building Act of 1894 should be made retrospective in the matter of provision of escape from fire. Involved in such a recommendation was a principle with which, in the past, the Legislature had not too readily interfered. In most Acts of Parliament a distinct line had been drawn between existing, or old, and new properties. Throughout the Public Health Acts this distinction was specially observable, and those Acts seemed to be permeated with the doctrine that old buildings were not to be tampered with unless actual necessity arose for so doing. For instance, the Local Authorities had no power to insist upon alterations in sanitary arrangements, however obsolete they might be, so long as they were not defective, or did not, through such defects, create nuisances. When nuisances arise the Authorities had powers to specify the works necessary to be carried out. So jealously had the Legislature guarded the rights of property owners in this matter that it had been by gradual steps only that any alterations in the law had been made. Indeed,



it was sometimes necessary to prove actual injury to health before any action could be taken under the Public Health Acts. This latter condition had been found to unduly hamper the operations of Sanitary Authorities, and, as a consequence, the corresponding section in the London Public Health Act of 1891 was altered to include any premises "injurious or dangerous to health," thus giving the right of action in the face of danger, apart from the question whether injury had arisen or not. A further proof of the distinction drawn between new and old property was found in the Factory and Workshop Act, 1901. Section 14 had reference to fire escapes, both for new and old factories; but it was noticeable that the requirements for both, though apparently the same, were defined separately, indicating that what might be considered a "reasonable requirement" in the case of new factories or workshops might not be so in the case of existing buildings. Hence, a precedent, to take the drastic step of making by-laws as to fire prevention retrospective, remained to be established, and doubtless there would arise practical difficulties in the way of applying one and the same by-laws without distinction to all buildings. A somewhat similar proposal, to make the Factory and Workshop Act, as to the provision of means of escape from fire, apply to all factories, irrespective of whether more than forty persons were employed therein, had been made in some quarters. The Legislature, in the Act of 1901, retained that number, which had first been mentioned in the Act of 1891, Section 7 (1) and (2), and introduced a new provision in the Act of 1895, Section 10 (3) as to doors, to facilitate escape in rooms where more than ten persons are employed. That provision had been made more stringent by Section 16 of the Act of 1901. Gradual steps had thus been taken in reducing the specified number of employed persons in factories to which the Acts apply. Altogether it seemed a proper course gradually to bring about such alterations, rather than to precipitate great changes. In view of the criticisms which had been made with regard to existing by-laws, it should be stated that those by-laws had certainly not been without useful effect, although there were only meagre official records as to their precise results. A Report of the London County Council stated that in 1886, 25 per cent. of the fires in London were classed as serious, that was, fires involving considerable loss. The number was now reduced to between 3 and 4 per cent., although fires were now returned as serious which would not have been accounted so thirty years ago. Two factors had doubtless contributed to this, (a) the effective carrying out of the Buildings Acts by the Council, and (b) the increased efficiency of the fire brigade.

In some general remarks the author said that included in any legislation should be arrangements for some central department for the collation of reports and statistics. A marked feature in most reports was the large number of fires in private dwellings, thus:—

Year.	Town.	Total number of fires.	Total number in private dwellings.	Average percentage of fires in private dwellings.
1901	London...	3,684	1,025	
1901	Glasgow...	739	324	
1901	Liverpool...	340	121	
1901	Edinburgh...	410	215	
1901	Dublin...	127	49	
1901	Paris...	1,422	788	

It was noticeable, also, that a large proportion of these fires were caused by defects in construction of fireplaces and flues. A central statistical department could, with advantage, in such cases, keep records of whether such defects were in buildings which had come under the operation of building by-laws or not, whilst it would be the duty of the fire-inspectors, before alluded to, to report upon these defects, and suggest remedies for the prevention of a recurrence of fires. Possibly, too, the inspectors might be entrusted with the investigation of the causes of fires, as was done in the Fire Marshal's Bureau of the City of New York, referred to in a letter from the Fire Department of that city.

The question of the proper equipment of fire brigades was a matter for the consideration of the executive officers who administer the

statutory regulations relating to fire. It might serve some useful purpose to attach a comparative statement of the cost of fire brigades, per head of population, in London and in some foreign cities:—

Cities.	Population.	Cost of Brigade per annum.	Cost per Head of Population.
London...	4,536,063	£791,580	s. d. 1 3
New York...	3,444,675	5,313,000 dols.	6 5
Paris...	2,511,629	2,729,092 francs.	0 10
Berlin...	1,864,203	1,796,066 marks.	1 0
Chicago...	1,750,000	1,800,000 dols.	4 2

Amongst other matters for consideration would be some of those referred to, i.e.:

I. A general inquiry into fire preventive laws, as distinct from laws as to fire extinction, and as to any modification required in the powers given Local Authorities to make by-laws for the prevention of fire in buildings.

II. Whether, and if so, to what extent it was expedient to make the laws and by-laws in relation to protection from fire retrospective.

III. As to the desirability of appointing fire inspectors, their qualifications, duties, and as to the areas to be placed under their charge.

IV. As to the necessity of amending laws in relation to the conveyance, storage, and sale of inflammable goods, and more particularly whether existing laws could be amended or new ones framed which will tend to reduce the number of lamp accidents.

V. As to the desirability of amending the laws dealing with the protection from fire of theatres and other places of public resort.

VI. As to the necessity of repealing existing laws and of making all laws relating to protection from fire compulsory; also of obtaining by-law contributions from insurance companies and owners toward expenses incurred in the protection of property from fire.

VII. As to the need of creating a public fire department, to inspect the steps taken by Local Authorities, to compile statistics as to fire, and generally to supervise the administration of fire laws.

VIII. A general consideration of the Report of the Select Committee on Fire Brigades, dated July 16, 1900, and the recommendations therein contained.

IX. Subsidiary questions, such as:—

(a) The position of efficient volunteer fire-brigades under the proposed amended laws.

(b) The fire-protecting measures adopted in foreign countries.

(c) The desirability of training school children how to act in time of panic, and in outbreaks of fire.

(d) Questions of general administration.

A discussion followed, in which Messrs. E. O. Sachs, S. Chatwood, A. Casson, E. T. Scammell, and Major Fox took part. On the motion of the Chairman, a vote of thanks was accorded to Mr. Phillips, who briefly replied.

#### ARCHITECTURAL SOCIETIES.

EDINBURGH ARCHITECTURAL ASSOCIATION.—At a meeting of this Association on the 25th ult., in the rooms, 117, George-street, Mr. A. Hunter Crawford, the President, read his fourth paper on "The Building of a House," illustrated by blackboard sketches and drawings. Dealing with drainage, he described the main principles of drain construction, size of pipes, material, &c., and compared the English with the Scottish system. Numerous other matters concerning general house-building were discoursed upon, the windows and glazing receiving considerable attention. At the close Mr. Crawford was cordially thanked.—On the 28th ult. the members paid a visit to Darn Hall, near Eddleston. Permission for the visit was granted by Lord Elibank and Mr. John R. Menzies. The house, which dates from about the end of the seventeenth century, occupies an elevated and secluded position in a romantic glen. The place was originally known as Haltoun or Blackbarony. The house contains many fine family portraits. The party was under the leadership of Mr. Thomas Ross, architect. Votes of thanks were, on the motion of Mr. A. Hunter Crawford, accorded to Lord Elibank, Mr. Menzies, and Mr. Ross. The party, having partaken of Mr. Menzies' hospitality, visited the old churchyard, where there are some interesting old tombstones.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—The concluding meeting of the session of the Leeds and Yorkshire Architectural Society was held on the 26th ult., Mr. Butler Wilson being elected President for the third successive year. After the election of officers, Mr. R. P. Oglesby read a paper on "Sir John Vanbrugh, Dramatist and Architect." After some remarks on Vanbrugh's plays, he went on to observe that the line which divided Vanbrugh's work as a playwright and his career as an architect was clear and decided. There was, in a sense, a slight overlapping of vocations, inasmuch as his first completed architectural work was a theatre in the Haymarket. This sudden leap from the drama to architecture was taken as a glorious joke by his brother wits and litterateurs, who forthwith let loose such a flood of sarcasm and railery upon his architectural efforts as would have crushed with ridicule any ordinary individual. A house that Vanbrugh erected for his own occupation on the site of the ruins of old Whitehall was dubbed by the wits the "Goose Pie." The first great scheme of this imaginative but unschooled architect was the design and erection of Castle Howard, Yorkshire, for the Earl of Carlisle, in 1702. His want of training was here observable on all hands, but his genius for the picturesque atoned for many defects, and the Earl of Carlisle was so satisfied with the designs for Castle Howard that he created Vanbrugh Herald Clarenceux King at Arms. Walpole declared that the Mausoleum there "would almost tempt one to be buried alive." In the east wing of the south front of Castle Howard there are, contrary to classic law, an even number of sub-divisions—viz., eight, whereas to the west wing are allotted nine such spaces. Mr. Oglesby advanced the theory that Carr, of York (the architect of Harewood House), in completing the west block, added another space, thus correcting Vanbrugh's mistake. Among other notable buildings designed by Vanbrugh were Clarendon Building, Oxford; Seaton Delaval; King's Weston, near Bristol; Fleurs Castle, Roxburghshire; Kneller Hall, Hounslow; Grimsthorpe, Lincolnshire; and Stowe, Buckinghamshire. Reserved to the last was Vanbrugh's greatest work, "Blenheim," erected by a grateful nation for the first Duke of Marlborough. The plan of Blenheim at once stamped Vanbrugh as a man of powerful imagination, and, concluded the essayist, notwithstanding his glaring want of refinement and taste, he would, had he lived longer, and further studied, have become a really great architect. His ponderous extravagances, however blamable in detail, were never contemptible in the whole; but it was this love for the ponderous in architecture that inspired Dr. Evans' witty and not inappropriate epitaph:—

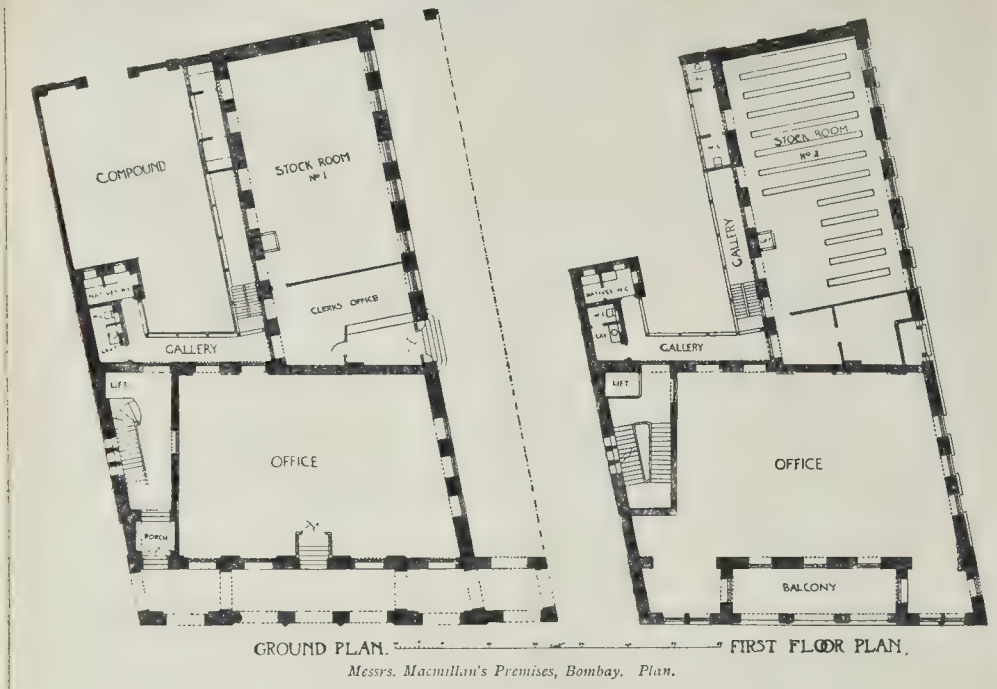
"Lie heavy on him, earth! for he  
Laid many a heavy load on thee."

All the buildings of this unschooled architect were conceived on such a huge scale that it has been quaintly remarked that the ruins will have far greater effect on the minds of posterity owing to the additional piles which conjecture will supply in order to give meaning to the whole.

#### ENGINEERING SOCIETIES.

THE JUNIOR INSTITUTION OF ENGINEERS.—The conversation of this Institution, which recently took place at the Westminster Palace Hotel, passed off most successfully, the attendance being greater than that of any previous similar occasion. The President, Colonel E. Raban, and Miss Raban, and the Chairman, Mr. Kenneth Gray, and Mrs. James Gray, received the guests. In addition to the usual musical arrangements, prominent features in the programme included a limelight lecture on "London Traffic: an Unsolved Problem," by Mr. James Swinburne, President of the Institution of Electrical Engineers; a potter's wheel, with an operator at work at it, by the courtesy of Messrs. Doulton & Co.; an improved photometer, shown by Messrs. Alex. Wright & Co.; the Kinemat angular hole drilling-machine; a new system of ship propulsion and steering, the invention of Mr. W. Cochrane; Nodon's electrolytic rectifier; timber vulcanised by a process of Mr. W. Powell; and in the general exhibition of models, &c., were some contributed by the Aeronautical Institute and Club. On March 23 the members visited the new works at Dalston belonging to the Shannon File Co. They were shown over by the manager, Mr. W. O. Stanley. The





GROUND PLAN.

Messrs. Macmillan's Premises, Bombay. Plan.

FIRST FLOOR PLAN.

works are operated entirely by electric power, the dynamos being driven by two steam engines, each of 150 h.p. Steam is raised by Babcock-Wilcox boilers. The wood-working and other machinery used in the various processes of manufacture of office and bank fittings, &c., was shown running. The apparatus for heating and ventilating, and the cyclone or dust-removing plant were other special features which attracted particular attention. On Monday, April 20, the members will visit the Brook Green works of the Incandescent Electric Lamp Co.

for the building; the constructional steel being supplied by Messrs. Dorman, Long, & Co., and the sanitary fittings provided and fixed by Messrs. Richards & Cruddus, of Bombay.

Mr. John Cash and Mr. M. Starmer Hack are the architects, Mr. Hack having superintended the carrying out of the work from the beginning.

#### REREDOS, ST. PETER'S, NEWTON-LE-WILLOWS.

THE illustration represents a reredos designed and executed in the atelier of Messrs. Shrigley & Hunt of Lancaster, for the Church of St. Peter, Newton-le-Willows, in Lancashire.

Mr. W. W. Brierley is the architect of the church.

#### CARTOONS FOR STAINED-GLASS PANELS.

THESE illustrations are from cartoons by Mr. Paul Woodroffe, for four stained-glass panels for the upper part of a screen between the hall and the servants' staircase in a private house.

They represent, as will be seen, the Four Seasons. The lower panels in connexion with them represent the signs of the Zodiac appropriate to each figure.

#### SKETCHES IN BELGIUM.

No country of an equivalent size appeals more forcibly to the antiquary, artist, or architectural student than Belgium, with the many old buildings, picturesque bits, and useful detail. Another and important consideration to the student who cannot afford much time and expense in travelling is that these fragments can be gathered frequently and easily from buildings closely grouped together. The travelling is so cheap that one can go there and back, say for thirty days, including hotels, railway fares, &c., for about 12l.

The house at Malines is a good example of picturesque domestic architecture, also the *beguinage* at Bruges is another good example. The Hall of the Skippers, one of the many guild houses at Brussels, is a fine specimen of stone building, also a novelty, for the top is in the shape of a ship, with cannons, &c., complete.

Of all the cities of Belgium, Bruges has best preserved its mediæval characteristics, though

the town now presents but a dull and deserted appearance. The city was long the residence of the Court of Flanders. It reached the culminating point of its prosperity during the first half of the thirteenth century, when the Dukes of Burgundy held their Court there. During this period a brilliant colony of artists were retained at Bruges in busy employment, and their works still shed a lustre on the name of the city.

E. STANLEY MITTON.

#### THE SURVEYORS' INSTITUTION.

An ordinary fortnightly meeting of the Surveyors' Institution was held on Monday last week at No. 12, Great George-street, Westminster, Mr. Arthur Vernon, President, in the chair.

The minutes were read and confirmed, and Mr. Penfold, Hon. Secretary, announced some donations to the Library and the Library Fund, and a vote of thanks was accorded to the donors.

Mr. J. L. Crouch then read a paper on "The Rating of Brickfields." In the course of his remarks the author said that the properties which were the subject of special rating were not numerous, and he should attempt to show that the clay-working properties comprised in the expression "brickfields" should be included among them. The few cases of brickfield rating which had been the subject of litigation in the High Court assist the settlement of the question to a limited extent only. It was a matter for some surprise that their number was so small, the industries being distributed over nearly the whole of the United Kingdom, and carried on in nearly every county. The brick-makers alone numbered some five thousand or thereabouts, giving employment to an army of labour, including many highly skilled artisans. The industries of brickmaking, tile-making of all description, sanitary pipe and other pipe making were, moreover, increasing, and it was probable that a still greater development awaited them in the future, despite the active and growing competition of foreign countries in more than one of the many branches. The use of brick and terra-cotta, both for construction and ornament, was better appreciated to-day than had formerly been the case, and manufacturers were striving more and more, and with an ever-increasing measure of success, to fulfil the demands of architects for the erection of fine buildings to the beautifying of our streets. The extent of

### Illustrations.

#### JAPANESE ORNAMENT.—PLATE V.

THESE examples are monochrome reproductions from coloured ornament, and therefore show only the formal design and the general effect of light and dark.

They are in illustration of the article on Japanese ornament on another page, and are referred to and described there.

#### NEW PREMISES, BOMBAY, FOR MESSRS. MACMILLAN & CO., LTD., PUBLISHERS.

THE building is now nearly completed on a site in Hornby-road, part of the Government lands, and in the centre of the European quarter of the city. The work has been done entirely by native labour; but, in the case of constructional steel, lifts, and sanitary fittings, with materials imported from England.

The walls, which are very thick, are built with blue basalt in coarse rubble, with dressings of Porebunder and Coorla stone, and the roofs are covered with native tiles.

The timber throughout, both in the structure and finishings, is of teak, including the floors (except the lower one, which is of marble). The galleries are paved in some cases with coloured china mosaic—a most effective and suitable material for a warm climate. It may be of interest to note that the whole of the wooden floors were laid before the roof was on.

The cost has been somewhere between a third and a half of what it would have come to for a similar building in London. Raoahib Manaji Rojooji is the responsible contractor





Fig. 1.



Fig. 2.



Fig. 3.

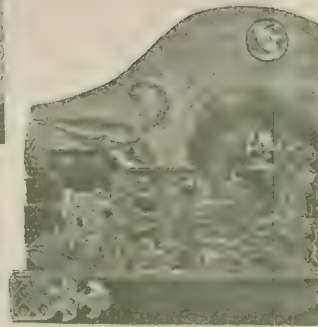


Fig. 4.

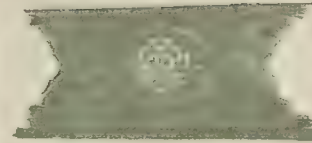


Fig. 5.

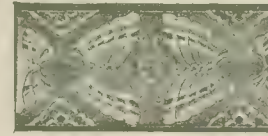


Fig. 6.

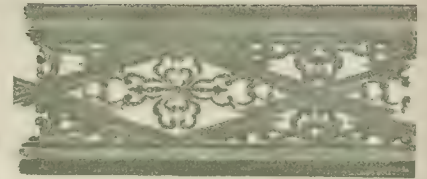


Fig. 7.



Fig. 8.



Fig. 9.

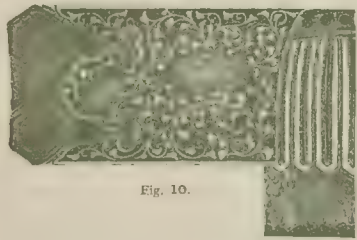


Fig. 10.



Fig. 11.



Fig. 12.

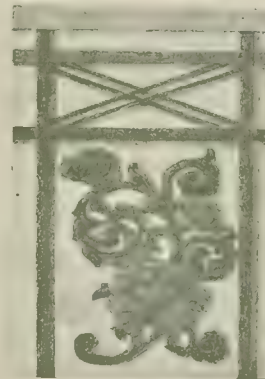


Fig. 13.



Fig. 14.

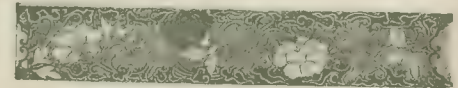


Fig. 15.

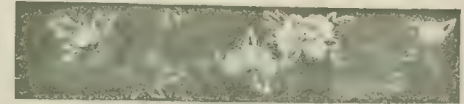


Fig. 16.

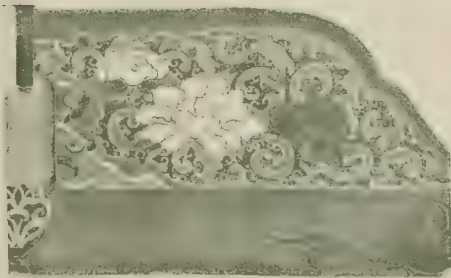


Fig. 17.

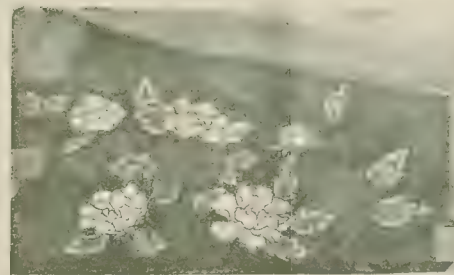


Fig. 18.

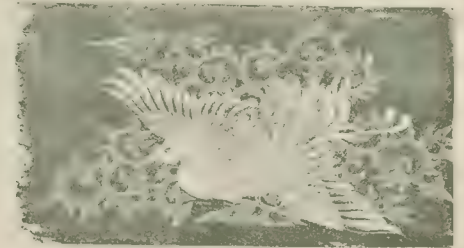


Fig. 19.



Fig. 20.



Fig. 21.



Fig. 22.



Fig. 23.



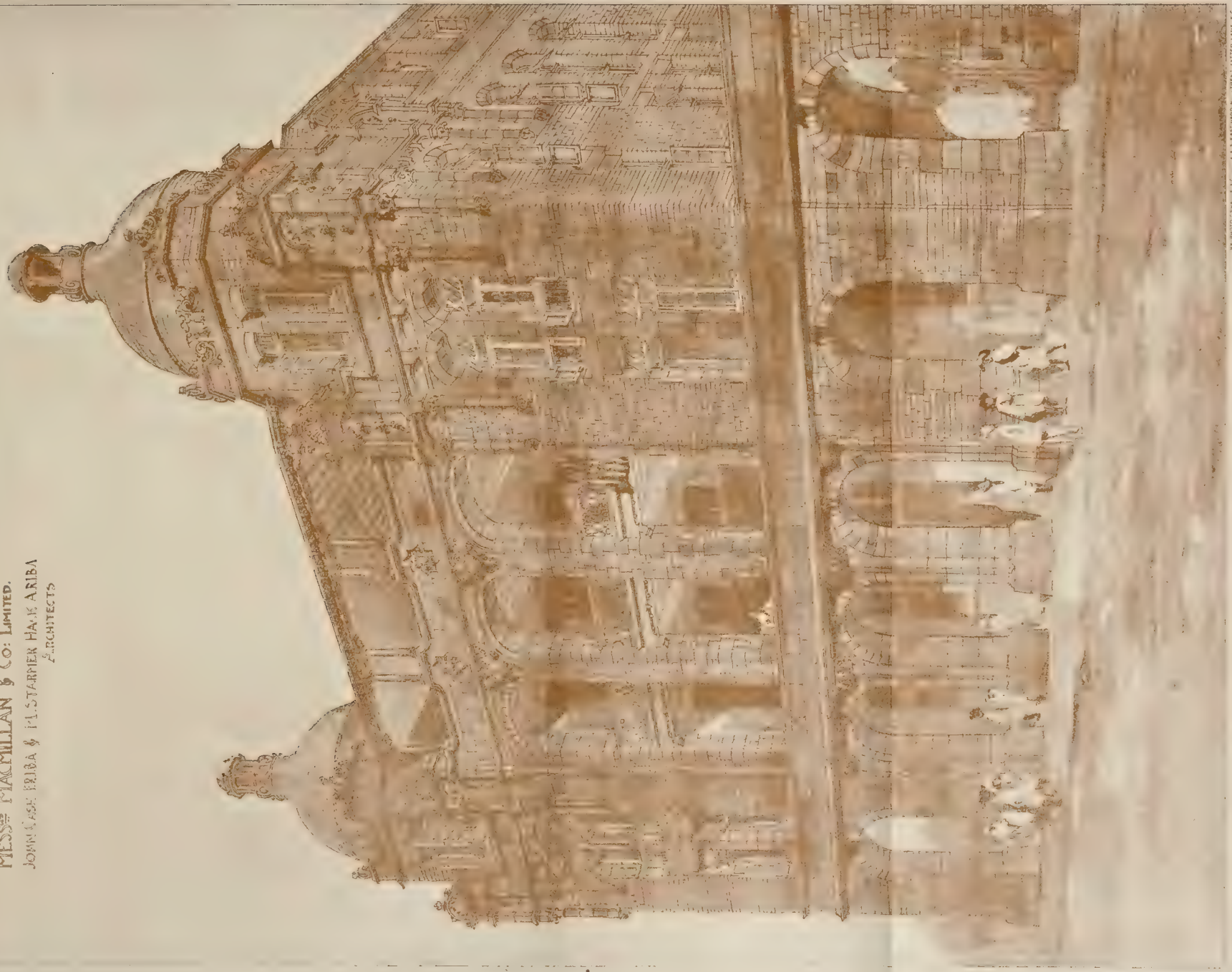
Fig. 24.







BUSINESS PREMISES, BOMBAY.  
MESSRS MACMILLAN & CO: LIMITED.  
JOHN C. & E. RIBA & J. L. STARRER HARK ARIBA  
ARCHITECTS



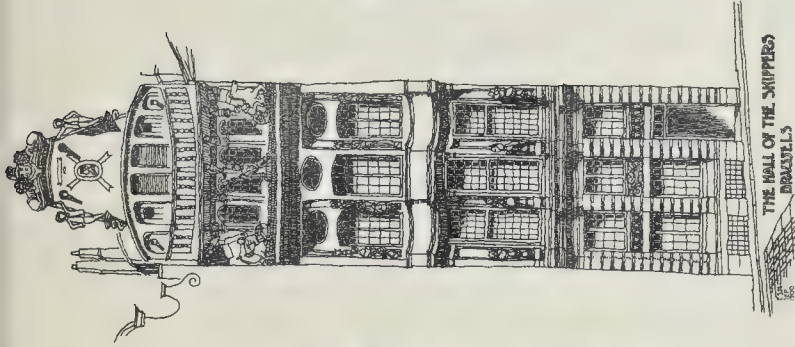








HOUSE AT  
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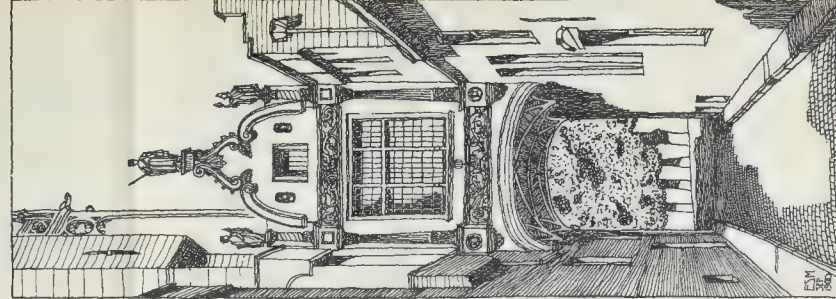
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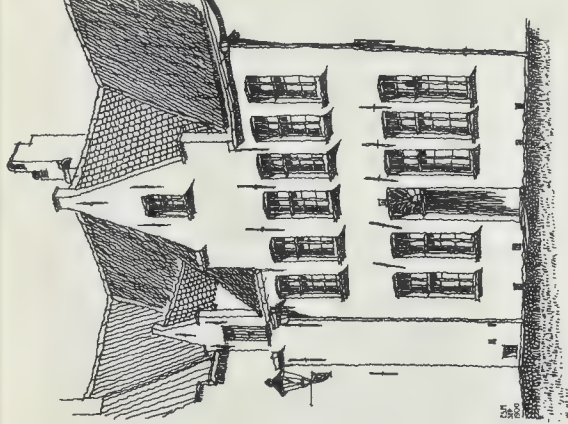
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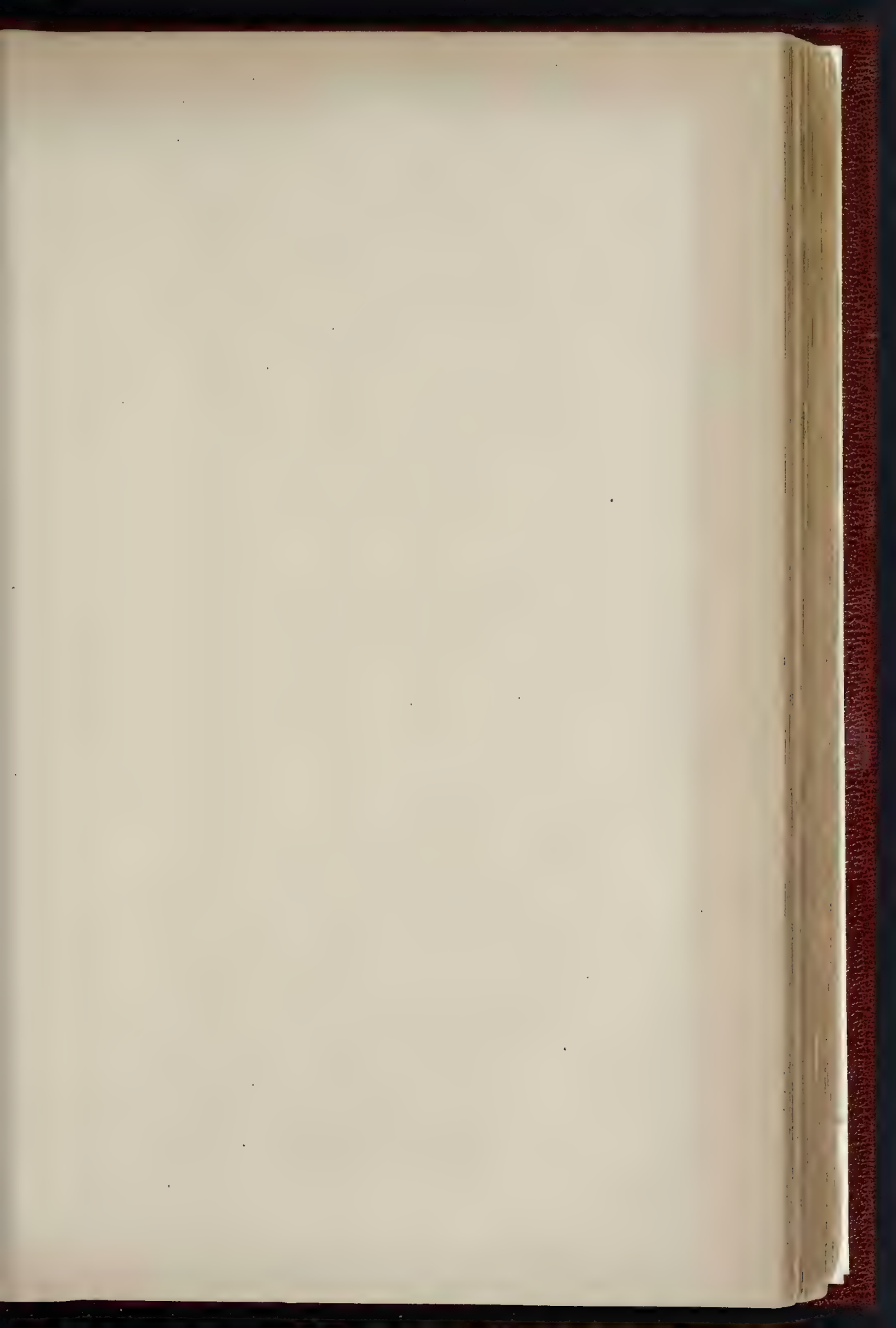
HALL TINDER HOUSE  
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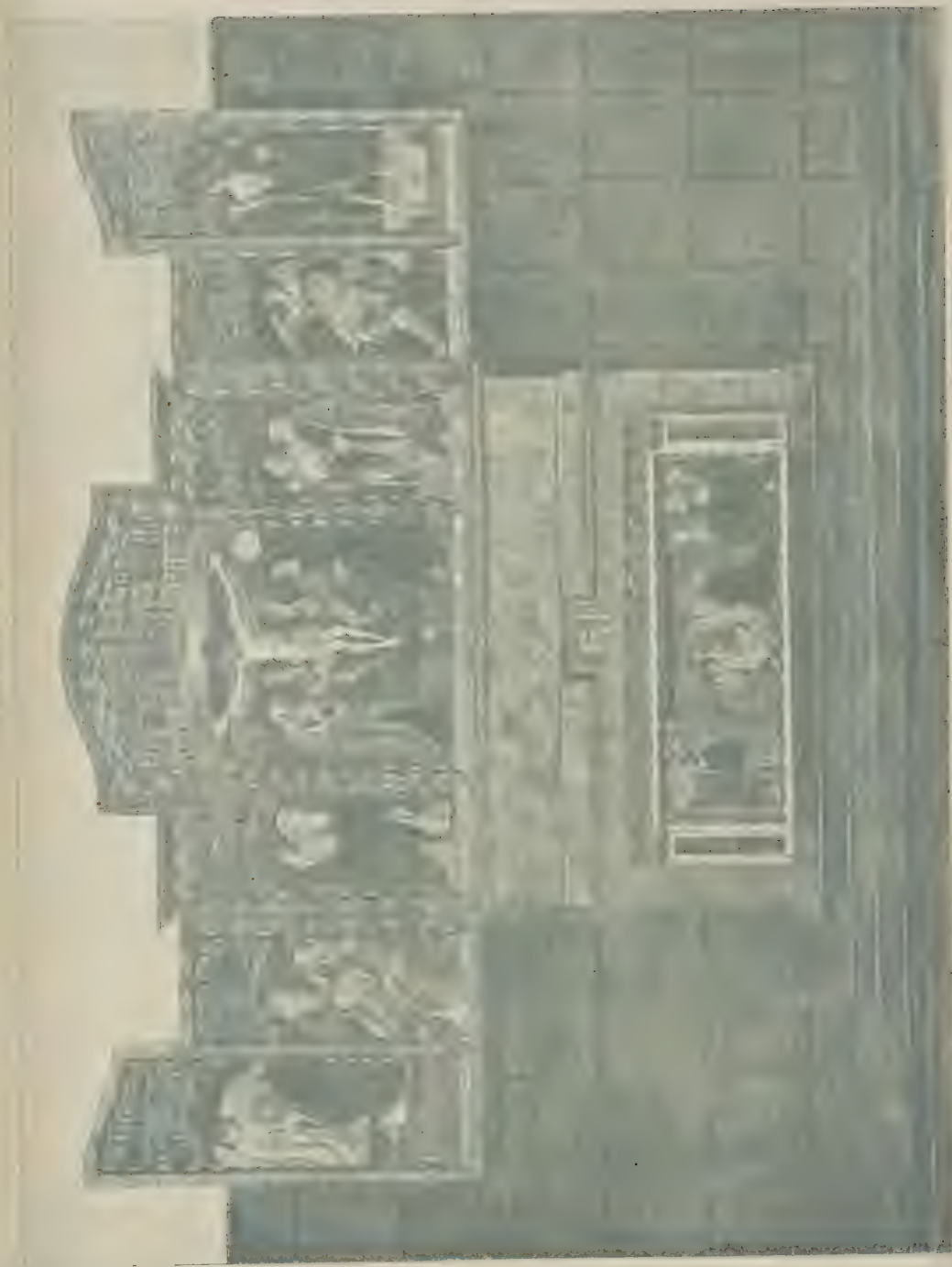








THE BOLDEN MEAL 4 3 3







CARTOONS FOR STAINED GLASS PANELS. "THE FOUR SEASONS" BY M. PAUL W. G. ROFFE.







the purely brickmaking department in this country could, in some measure, be estimated from the fact that Peterborough alone had an output of some 500,000,000 bricks a year, the trade being the growth of the last fifteen years at the most, and being confined almost exclusively to the manufacture of bricks for construction work only. As a general rule—though not an invariable one—brickfields throughout the country were let upon lease, and frequently for seven, fourteen, or twenty-one years, at an annual surface rent, with a royalty in addition. The royalty was calculated upon the business done by the brickmaker. This was open to the remark that the tenant was purchasing the freehold bit by bit, but the courts had held that the royalty was of the same nature as rent. Were it otherwise, and the royalty admittedly paid for the clay, it would be open to the fatal objection that as clay once taken out of the pit becomes a chattel, it would escape rating, as chattels were by statute exempted from contributing to the parochial exchequer. To be strictly consistent, royalties should be based on a percentage of the selling price of the goods in the yard. It was, however, within his experience at least, much more usually fixed at a definite sum, say 1s. 6d. per 1,000 bricks. There was usually also a rebate made by the landlord to the tenant for wasted bricks of about 10 per cent, which would be inconsistent with the theory that the royalty was paid upon the clay consumed, as it could make no difference to the owner of the soil whether the clay was turned into a marketable commodity or into a brick which was unsaleable. According to the present state of the law, the rent, including royalty, formed the basis of the assessment. It was clear, however, that it was not the fact itself, but merely evidence of what the fair rent would be. On such a tenancy one would anticipate a rising and falling rent, according to the state of the market, and however much this might be another way of saying the same thing, the application of the principle laid down was a matter of difficulty, brickfields never being let to a tenant from year to year. No deduction was to be made on account of anything which had been added to the clay to make it suitable for manufacturing into bricks, such as breeze or sand, as that expense would have been taken into consideration when the parties negotiated the tenancy and fixed the rent and royalty. Brickfields were generally regarded by most people as enemies to any neighbourhood, particularly the yards which turned out the London stock, and which were, it must be admitted, generally unsavoury things. From the amount of the rates which they pay, however, they were without doubt amongst the very best friends of the ratepayers, for it frequently happened that the royalties paid in any one year would amount to the full fee simple value of the land as agricultural land only. In a paper read before that Institution some time ago by Mr. Edward Boyle, K.C., the author went very fully into the rating of coalfields. Mr. Boyle said:—"I would suggest that any rating authority desiring to arrive at the true, gross, and rateable value of a colliery should take in consideration all circumstances in connexion with the premises, including the cost and value of the shaft and rateable machinery, the age of the mine, the quality and quantity of the coal, the rent paid under the lease, the rents recently obtained for similar coal under similar circumstances, the output, the prices obtained for the coal, and the expenses of producing and realising it." What applied to collieries in this respect applied very much to brickfields. If the rent and royalty were paid and they were not, then the difficulty of assessing the property was greatly diminished, and the path of all parties was made easy. If, however, it became necessary to demonstrate the correct value, recourse must be had to the method suggested by Mr. Boyle; and he (the speaker) advocated that brickfields should be specially rated having regard to their profits, taking into consideration all circumstances in connexion with the yard, including the cost of equipment, removal of over-burden, rateable machinery, kilns and dryers; the age of the works, quality and quantity of the clay, the rent and royalty paid under the lease; the business done; the prices obtained, and the expenses of production and realisation.

On the motion of Mr. J. H. Sabin, seconded by Mr. W. P. Ryan, and supported by Messrs. J. A. Jopling and H. T. Eve, a vote of thanks was passed to the author.

### THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, Lord Monkswell, Chairman, presiding.

**Loans.**—On the recommendation of the Finance Committee it was agreed to lend Poplar Borough Council 8,945*l.* for electric lighting, street lighting, and meters; Hammer-smith Borough Council 7,000*l.* for street improvements; Fulham Borough Council 3,100*l.* for the same purpose; Greenwich Borough Council 7,000*l.* for paving works; Westminster City Council 92,500*l.* for widening the Strand between Nos. 89 and 104; Stepney Borough Council 30,000*l.* for electric lighting works; Wandsworth Borough Council 2,000*l.* for underground convenience at Tooting Broadway; and Stepney Union Guardians 3,660*l.* to enable them to contribute towards the expenses of enlarging the public elementary school at Stifford, Essex.

**Proposed New Asylum.**—The debate was resumed on recommendation of the Asylums Committee in reference to the provision of a new asylum on the Horton estate.\*

Recommendation C was as follows:—

"That an expenditure up to 97,210*l.* be authorised for the following works in connexion with the erection of such asylum, viz., foundation, 55,710*l.*; roads, 10,000*l.*; architect and quantity surveyors, 13,000*l.*; additions to central station for the supply of electric current, 10,000*l.*; sinking well, 8,500*l.*"

To this an amendment was, last Tuesday, moved by Mr. White, seconded by Mr. Goddard Clarke, "that 10,000*l.* be substituted for 13,000*l.*" for architect and quantity surveyors.

Sir William Collins supported the amendment.

Mr. Hubbard, Chairman of the Asylums Committee, said that if the amendment were carried, the matter would be deferred for a year unless the architect the Committee wished to employ (Mr. Hine) would be willing to accept the amount named in the amendment.

The amendment was, however, carried on a division, 74 voting for and 28 against.

Mr. Beachcroft then moved to add to the recommendation the following words—i.e., "That the authority hereby given shall not be deemed as in any way to sanction the execution of the work, or any part of it, by the Works Department without the consent of the Council." Horton Asylum, the superstructure of which was carried out by the Works Department, had been open a year, and the Council had not yet been told what the financial result had been. There was reason to fear that the result would be found to be most unsatisfactory.

Mr. E. White seconded.

Mr. Torrance said that the report as to Horton Asylum would be brought up at the next meeting, and he protested against attacks on the Department in regard to this building until the facts were before the Council.

Mr. Hubbard said he would accept the amendment.

**Fire Station, Westminster.**—The Fire Brigade Committee recommended, and it was agreed, (a) That the estimate of 10,650*l.* submitted by the Finance Committee in respect of the acquisition of a site for a new fire-station at Westminster, be approved; that the fee simple of a site in Greycoat-place, near the junction of that thoroughfare with Strutton-ground, be acquired from the Ecclesiastical Commissioners for the sum of 10,500*l.*, the Council paying in addition surveyors' fee and solicitors' charges on the usual scales; (b) that the Fire Brigade Committee be authorised to make the necessary preliminary arrangements for the erection on the above site of a station in substitution of the existing Westminster fire station.

**Workmen's Trains.**—The Housing Committee reported having got certain concessions from the City and South London Railway Co. in respect to workmen's trains. The company has agreed to extend to eight o'clock the issue of workmen's tickets from the stations at Clapham Common, Clapham-road, Stockwell, and the Oval. All the 5d. fares have been reduced to 4d., the 4d. fares to 3d., two of the 4d. fares to 3d., and six of the 3d. fares to 2d.

Mr. Sidney Webb criticised the concessions,

\* See our last issue, p. 338, for details of the proposals of the Committee.

and said they did not go far enough. Compared with the Great Eastern Co., and, indeed, with most of the London companies, the workmen's rates on this tube line were excessive.

**Land Values.**—For upwards of an hour the Council discussed the following recommendation of the Parliamentary Committee:—"That the principle of the rating of land values embodied in the Land Values Assessment and Rating Bill of the present Session of Parliament be approved." An amendment to refer the matter back on the ground that the proposal was not in accordance with either of the Reports of the Royal Commission was defeated on a division by 20 votes to 71.

**Improvement.**—The Improvements Committee recommended, and it was agreed, that the working drawings, specification, and estimate of the cost (9,000*l.*) of the paving and other works in connexion with the widening of Long-lane and Tabard-street, authorised by the London County Council (General Powers) Act, 1897, be approved, and be referred to the Works Committee, with a view to the work being carried out without the intervention of a contractor.

**Lambeth Bridge—Proposed Rebuilding.**—The Bridges Committee reported as follows:—

"We desire to bring before the Council the question of the reconstruction of Lambeth Bridge, in respect of which we are of opinion powers should be obtained in the next Session of Parliament. The present bridge is a stiffened suspension structure, the principle of construction being a combination of iron cables with lattice girders. The bridge was erected about the year 1861, and was freed from toll in 1879 at a cost of 36,000*l.* Lambeth Bridge, soon after it passed into the possession of the late Metropolitan Board of Works, was found to be in a condition which caused considerable anxiety. In 1887 the opinion of Sir Benjamin Baker was taken upon its reported critical state, and, after an exhaustive investigation, he advised that, unless the late Board was prepared to accept great responsibility, there was no alternative but to increase the stability of the structure. Accordingly, in the following year, works to strengthen the structure were put in hand, and completed at a cost of 2,984*l.* The bridge is still of inadequate strength, and has to be used under restrictive conditions, and having regard also to the increasing traffic, the building of a broader and more substantial bridge is imperative.

We have not lost sight of the position which Lambeth Bridge occupies upon the river, and bearing in mind the resolution passed by the Council on February 15, 1898, that the new Vauxhall Bridge should be built of masonry, the kind of bridge to be erected in place of the present construction has necessarily been engaging our serious attention. The question of the gradients practically decides whether it is to be constructed of steel or masonry. At present the gradients are very steep, being 1 in 19 and 1 in 22 on the north, and 1 in 20 and 1 in 23 on the south. Under an agreement the Council cannot raise the level of the centre of the road at the junction of the bridge approach with Lambeth-road and the Albert Embankment more than 3 ft. 10 in. above the present level, and as a result that height fixes the level of the commencement of the road over the bridge. Our attention has been drawn to the fact that, even if the restrictions placed upon the Council with regard to Vauxhall Bridge were considerably relaxed, in the case of Lambeth Bridge, a masonry structure could not be built with a better gradient than 1 in 25, which is about the same as the northern approach to Southwark bridge, which, on account of its steepness, is so little utilised for vehicular traffic going southwards. On the other hand, a steel bridge with a gradient of 1 in 30 can be obtained, and better facilities for navigation afforded during construction than at Vauxhall Bridge. As it is most desirable that a satisfactory understanding should be come between the Council and the Thames Conservancy before Parliamentary powers are sought, we have submitted to that body a drawing showing generally the possible headways and waterways, both temporary and permanent, which could be provided under a granite or masonry bridge having a road gradient not steeper than 1 in 25. As the result of a conference between the Thames Conservancy and representatives of the river traffic interest, certain conditions have been imposed, one of which is as follows:—"That the headway of the openings of the temporary works in the two side arches adjacent to the centre arch should not be less than 15 ft. above Trinity high-water mark." This, the engineer informs us, is incompatible with the construction of a granite or masonry bridge with reasonable gradients. Under the circumstances, it appears to us that there is no alternative but to erect a steel bridge, and we have accordingly submitted to the Thames Conservancy an alternative sketch which we have reason to hope will prove acceptable, and upon which we shall be in a position to report at an early date."

The Council adjourned soon after seven o'clock.



The essay chiefly consisted of extracts from and comments on a Report of the Committee of the House of Commons. The author must have heard of a small village on the Thames called London, where more fires occur in a year than in the whole of England south of the Trent.

The various Acts and Regulations at present in force in London should have received attention, then suggestions should have been made for further legislation, and finally a proposal for a general Act on similar lines to apply to the provinces.

It was a dull commentary on almost obsolete Acts applying to small towns; there were no suggestions of a practical nature, and nothing that anybody could carry away with pleasure and profit. The essay placed second appeared the best, while the third went off to Glasgow, again ignoring London. I went for bread, and received a stone. It would be difficult to imagine a more wordy talking round the subject, only the remarks of Mr. E. O. Sachs being to the point and practical.

It is the duty of the Local Authority to provide fire-engines, &c., for the purpose of saving life, and to make such rules as will ensure proper exits in public buildings and factories. Why should the cost be laid on the insurance companies, who must, in self-defence, greatly increase the amounts of premiums. Better throw some expense on the rates, which all pay, and all receive the benefit of protection from fire.

I suggest a Building Act for London, including the present Building Act, the Regulations for Theatres and Factories, and an Act on similar lines, so far as the conditions apply, for the whole of the country. Architects would then know what they had to provide for, and owners would know the extent of their liability. The subject is great and important, and I consider the laudable attempt of the Society of Arts has produced very poor results. The opinions of your readers will be interesting.

"FIREPROOF."

#### IS A HOTEL A "DOMESTIC BUILDING?"

SIR.—Can you inform me (or any of your readers) through your paper whether a "Public Building"—for example, a hotel having sleeping accommodation for over a hundred persons—can be also considered a "domestic building" or "dwelling house" under the London Building Act, 1894; and whether the above example would have to conform to Sections 41 and 43 of the London Building Act, 1894?

JOHN F. BISHOP.

\*.\* Our correspondent will see by Section 27 of the London Building Act that a hotel is a public building "where such building extends to more than two hundred and fifty thousand cubic feet (or [as used] as sleeping accommodation for more than one hundred persons." Section 26 states that a "domestic building" includes a dwelling-house "and any other building not being a public building or of the warehouse class." A hotel below the limit of contents and accommodation defined in Section 27 is therefore a "domestic building" or "dwelling-house." It appears to us, however, that where it exceeds that limit it is still, by implication, a "dwelling-house" (since people sleep in it), but with the added responsibilities attaching to a "public building." The wording of the Act, it is true, is not very precise on this point; but no other conclusion could be rationally deduced from the intent of the Act.—ED.

#### OBITUARY.

MR. W. HUBBARD.—We have to record the death recently, at the age of seventy-nine, of Mr. M. William Hubbard, who for many years carried on the business of a builder and contractor on a large scale at East Dereham Norfolk, though he had for the last two years retired from business. Mr. Hubbard had erected or rebuilt, during the last fifty years, more Norfolk churches than any other builder, working under many of the best known London and provincial architects of the day. The list of churches on which he was employed for operations of greater or less magnitude amounts up to fifty-nine, and among the architects' names are those of G. E. Street, F. B. Lamb, Raphael Brandon, and others well known. Mr. Hubbard also executed large additions to Didlington Hall under Mr. Norman Shaw, and built the Bank, Corn Hall, and other buildings at East Dereham, besides much various work in other parts of the county.

#### GENERAL BUILDING NEWS.

NEW CHURCH AT MILE END.—On Wednesday, March 25, the new Roman Catholic church, dedicated to the Guardian Angels, was opened. The church, which occupies a prominent position in the Mile End-road, takes the place of what was formerly a Nonconformist chapel, which, after being used as a Roman Catholic church for a short while, was condemned as insecure by the London County Council. The new church is designed in the Perpendicular style of Gothic architecture, and externally is built of red brick, with Ancaster stone for the tracery windows, &c. The site only admitted of a very limited length, but for purposes

of accommodation this is compensated for in width. The plan consists of a nave 38 ft. wide, one wide aisle and one narrow processional aisle, a chancel 32 ft. in depth, with two large side chapels, over one of which is the organ place. Owing to the limited amount of space, the sacristies are beneath the chancel, while under the rest of the church is a large crypt or hall for drilling and other parishial purposes. The internal height of the church is 57 ft. High up in the chancel arch is a carved and decorated rood beam, and beneath is a plain stone communion-rail with wrought-iron gates, which, together with the other wrought metal work throughout the building, have been executed by Mr. Bainbridge Reynolds. The chancel itself is completely furnished with fittings executed by Messrs. Earp & Hobbs. The high altar has an open carved wood reredos and baldachino, the whole of which will be decorated later, and over it is a painted window executed by Mr. Westlake, and given by the Duke of Norfolk in memory of his sister, Lady Margaret Howard. The choir is accommodated in stalls, with open parlous screens at the back separating the chancel from the side chapels. To afford additional accommodation, a large gallery is provided at the end of the church. All the woodwork, together with that of the whole of the roofs, is of unvarnished pitch pine. Accommodation is provided for about 500 persons, and the cost of the building has been about £12,000. The heating and ventilation of the church have been arranged and carried out by Mr. J. Jeffreys, of Westminster, the electric lighting by Messrs. Seth Brothers, of Shepherd's Bush, and the contractors for the work are Messrs. James Smith & Sons, Ltd., of Norwood. The architect is Mr. F. A. Walters, of Westminster.

ROMAN CATHOLIC CHURCH, MUSSELBURGH, EDINBURGH.—It has been decided by the Roman Catholic congregation in Musselburgh to erect a church more suited to their requirements than the building possessed by them at present. Designs have been accepted, which are the work of Mr. A. E. Purdie, architect, Canterbury. The new Gothic architecture, the new church will be cruciform, having a nave measuring 98 ft. long by 34 ft. broad, transepts, chancel, organ chamber, baptistry and two sacristies, which will provide direct communication with the presbytery or priest's house, which is also to be erected. In memory of the ancient shrine and chapel destroyed by the townsfolk of Musselburgh in 1540, the new church, the building will be styled the Church of our Lady of Loretto, and will be erected on the site of the present chapel in Wonder-street, Musselburgh.

PRIMITIVE METHODIST CHURCH, BARWELL, LEICESTERSHIRE.—A new Methodist church, situated on the Shilton-road, Leicester, has just been opened. The contractor for the church was Mr. Bennett, of Shilton, Mr. Harper, of Nottingham, being the architect. The church will accommodate about 500 persons, and the cost has been about 2,000.

PROPOSED ALTERATIONS, ST. IVES CHURCH, CORNWALL.—It is proposed to carry out alterations on this building from the plans of the local architect, Mr. Stebbing. The alterations consist of taking up the present tiles in the aisles, sinking the floor 9 in., concreting the floor over the old flagstones (which are at present buried beneath the tiles), to reset the church (the flooring under the seats to be of block tiling); to fix adequate ventilating and heating apparatus, to take down the present east wall of the chancel and to erect a new 10 ft. towards the sea, the wall to be rebuilt precisely as at present, stone for stone; to place the organ in its original position, facing westwards, but in the extension to close up the present south entrance and open the old doorway underneath the sun-dial. By the extension the vestry will be considerably enlarged.

BURY PARK CONGREGATIONAL CHURCH, LUTON, BEDS.—The foundation-stone of this church was laid on the 31st ult. The accommodation provided is as follows:—468 adults on ground floor and sixty-five in end gallery, total 533, or a mixed congregation of about 600 persons, with possible future galleries in transepts and over vestries for 160 more sittings, or a final total of over 800 sittings in a mixed congregation. A church parlour, vestries, and other conveniences are provided. The buildings are to be faced with red brick, with Costessey brick dressings. The joinery internally will be stained transparent green and wax polished, and there will be red granite columns supporting four crossing arches. The contract is let to Messrs. T. & E. Neville, of Luton, and amounts to 4,200. The architects are Messrs. George Baines & R. Palmer Baines, Clement's-inn, Strand, London, W.C.

PRESBYTERIAN CHURCH, MUSWELL HILL.—The opening service of this church was held on Friday, the 27th inst. The building is of the Perpendicular style of Gothic architecture, and is externally with whole white flints, in combination with pressed red facing bricks and red terra-cotta dressings. A square tower, terminated by a spirelet covered with copper, forms a prominent feature at the angle of the block, the site being at the corner of Muswell Hill-road and Princes-avenue. The plan approximates to that of the Grosvenor Chapel, a gallery at the front end over the entrance lobby, and a choir gallery, slightly raised above the floor, behind the pulpit. An arch behind the

pulpit opens into an organ chamber; a specially-designed organ is to be placed here in a few months. Four grey granite columns, with stone bases and carved capitals, support the four main arches which carry the roof. The ceiling internally is vaulted in wood. The windows are filled with leaded lights. The building is lighted by a central gas pendant to assist ventilation, and four large cast-iron radiators, with other minor pendants and brackets. A self-acting air-pump ventilator and fiche crown the roof at the crossing. Heating is by low-pressure hot-water pipes and radiators. The interior is finished with sand-faced stucco. The seating is circular on plan, with panelled sloping backs, shaped ends, book racks, &c., and all radiating from the pulpit, which has a platform in front of it. Four emergency exits, with inner lobbies, are provided at the four corners, and fireproof stairs up to gallery. All internal joinery and seating is in Orham wood, wax polished. The church seats 730. Messrs. George Baines and R. Palmer Baines are the architects; and Messrs. W. Johnson & Co., Wandsworth, are the builders.

COTTAGE HOSPITAL, DUNFERMLINE.—Plans for alterations and extensions, Dunfermline Cottage Hospital, have been passed. The architects are Messrs. Sydney Mitchell & Wilson. The alterations and extensions on the buildings will cost about £3,500, and accommodation will be provided for twenty beds.

SCHOOL, ABERDEEN.—A new school is to be erected in Frederick-street by the Aberdeen School Board. The general plan of the new school may be described as a combination of the "corridor" and "central hall" plans. The total length of the new building will be 154 ft. 6 in., and the width 60 ft. The plan is based on the plan of the old school, respectively, which lead into the entrance halls, the headmaster's room being adjacent to the one and the infant mistress's room to the other. The infants' entrance is placed at the west end of the building, where their cloakroom accommodation is also provided. There are five classrooms for infants on the ground floor containing accommodation for 316 scholars, and the whole area of the top of the ground floor is situated the central hall and gymnasium, which measures 50 ft. by 32 ft. On the first floor there are situated seven classrooms, with cloakrooms for boys and girls respectively and teachers' rooms. On the second floor there are six classrooms, and also a cookery room; there is also a manual instruction room and wood store. In all, the school will accommodate for 1,100 pupils—316 infants and 784 boys and girls—seniors and juniors. In order to meet the necessity for more playground space than the limited size of the site could provide, the Board has adopted plans showing a flat roof playground. Instead of the ordinary wood framed flat roof, the roof of the whole area of the top of the building will be laid with concrete upon steel beams and joists, the concrete being ultimately covered with Limer asphalt 1 in. thick. In this way the playground space will be increased by 806 square yards. The whole of the roof playground will be enclosed by parapet walls, 9 ft. high at the lowest part, and the roof of the whole area of the top of the building will be lined with glazed tiles 4 ft. high. The school will be lighted by electricity, heated by steam from a Cornish boiler in the basement. The total cost of the school, exclusive of heating, ventilating, desks, and furnishings, will be 12,200. The school has been planned and designed by the Board's architect and master works, Mr. J. A. Allan, of Greenbank, Greenbank, Greenbank. The new works for Messrs. H. J. Packer & Co. have been erected at Greenbank. The buildings consist of three blocks, over 300 ft. long each, and containing over 140,000 ft. of floor space, and connected by glazed iron roofs, the centre one containing the engines, boilers, and machinery. The walls of all the workrooms are lined with light green glazed bricks, and the floors laid with hard wood. There are two dining-halls, each affording accommodation for 400 work-people, which are treated in a similar manner. The buildings were erected by Messrs. William Cowlin & Son, of Bristol, from the plans of Mr. Fred Shove.

COUNCIL OFFICES, EBBW VALE.—Some time ago the Ebbw Vale District Council purchased from the Ebbw Vale Steel, Iron, & Coal Co. the whole of their buildings near the old Drill-hall, formerly used as workshop and offices of the coal and mine department. These have been converted into a council-room, suite of offices, fire-station, stable, and the necessary workshops, at a cost of 2,700. The contract was carried out by Messrs. S. T. Davies & Sons, Ebbw Vale, to plans drawn by the surveyor, Mr. J. T. Thomas, and his assistant, Mr. Rosser Davies.

WORKMEN'S HOSTEL AND CLUB, LIVERPOOL.—A Workmen's Home and Club is being erected at Liverpool out of the David Lewis Trust monies, with, as one of the special features, a public hall. The plan is that of the old St. James' Market, in Great George-place. The main elevation extends 174 ft., and the side frontage in Nile-street 146 ft. The site covers 2,020 ft. by 176 ft. The facing of the chief outer walls is of a special brick and terra-cotta, with green roof slates. The public hall, which occupies the centre, will seat over 800 persons, and being in connection with the stage and green-rooms, there being a separate stage entrance from the rear, in Rathbone-street. The Social Club has a billiard-room 67 ft. by 30 ft., two committee-rooms, three



social-rooms, and a special clubroom for females. The cubicles number 380, and there is a promenade roof. The building has been erected under the supervision of the architect, Mr. J. Francis Doyle, of Liverpool.

**IMPROVEMENT AND ENLARGEMENT OF WORKHOUSE, STOWMARKET.**—A meeting of the Stow Board of Guardians was recently held at the Board Room, Stowmarket, when plans by Mr. John S. Corder, architect, of Ipswich, were considered for the proposed alterations to the workhouse.

**RUNCORN HOSPITAL.**—On the 28th ult. the Runcorn Cottage Hospital was opened by Mr. W. J. Crossley, Manchester. The hospital has been constructed after the style of the old Cheshire buildings, and is situated at Higher Runcorn. It stands on a portion of 2½ acres of land, and faces the south. On the ground floor there are three wards with accommodation for ten beds. The hall, with the addition of a window, becomes a dayroom for convalescent patients, and there is also a small operating-room lighted from the top and sides. On the first floor, which is reached by a staircase from the hall, is situated the matron's room, and there are also a kitchen, pantry, bathroom, &c. On the top floor there are two bedrooms. Mr. Wilding, Surveyor to the District Council, has conducted the operations as hon. architect.

**HOUSING SCHEME, EAST HAM.**—The East Ham District Council is carrying out a scheme which embraces the erection of fully 540 separate tenements, which, with land charges, formation of roads, and contingencies, will, it is estimated, involve a total cost of something like 120,000. So far, 212 of these tenements have been erected for about 2000—2500—within the estimate—and on Tuesday last the scheme was formally inaugurated by Sir William Collins. Mr. A. H. Campbell is the Council's Engineer and Surveyor.

**PUBLIC SCHOOL, BIRKENHEAD.**—The foundation stone has just been laid of new higher elementary schools for the Birkenhead School Board. The new schools are being erected in the centre of the town on a site covering 28½ sq. yards, fronting Conway-street, and adjacent to the General Post Office. The buildings provide accommodation for 350 boys and 350 girls, each school being planned in a separate block, connected by means of general rooms common to both departments. The boys' school fronts Conway-street, each school having two entrances from main streets and two from playgrounds. The boys' school consists of ten general classrooms, all grouped around a central hall; and, in addition, rooms for manual instruction, drawing, chemical and physical laboratories, and the usual cloakroom and teachers' accommodation. The girls' school consists of similar general accommodation, and also rooms for cookery, laundry, drawing, chemical and physical laboratories, &c., a lecture-room and dining-room being common to both schools. The general classrooms in both schools are kept away from main streets to ensure quiet and good light. Large open and covered playgrounds are provided at the rear. A caretaker's house is arranged on the top floor. The buildings are three stories in height, the design being Renaissance in character, freely treated. The elevations to main streets will be faced with red Ruabon bricks and buff terra-cotta, the roofs being covered with green Westmoreland slates. The floors and staircases will be of fireproof construction. The general contract is being carried out by Mr. James Merritt, of Birkenhead, for the sum of about 22,000, from the designs and under the supervision of Mr. T. W. Cubbon, architect, of Birkenhead, Mr. Henry Helms acting as clerk of works.

#### SANITARY AND ENGINEERING NEWS.

**SOUTH LANCASHIRE TRAMWAY CO.**—This tramway company opened their lines between Liverpool and Bolton on March 30. The main generating-station and car-sheds are at Atherton, St. Helens, and Prescot, sub-stations and car-sheds at Hindley, and switch and waiting-room at Huyton. The general contractors for the buildings are Messrs. Woods, of Bolton; E. Wood, of Salford, and E. F. Blakeley, of Liverpool, for the ironwork; Messrs. Diespker for terrazzo floors; and Messrs. Mellows for the patent glazing. The whole of the work has been carried out from the designs and under the superintendence of Mr. Huon A. Matear, architect, of Liverpool. Messrs. Kinsaid, Waller, Manville, & Dawson are the consulting engineers. The company was formed in 1900 for the purpose of connecting up the tramway systems of the more important towns in South Lancashire by means of electric tramways through the intervening towns and districts. The latter were practically isolated, and had long felt the need of an up-to-date system of intercommunication. The railway facilities were very limited, and the only other means of intercommunication was a system of one-horse omnibuses. The present scheme will bring all these districts into touch both with one another and with the great cities at either end of the system. The Liverpool and Prescot Light Railway, which is in the same hands, was opened in June, 1902. The first section of the South Lancashire Co.'s lines, ten miles in length, was opened for traffic on October 20,

1902, being operated from the Company's power-station at Atherton. This section establishes direct communication between Lowton, Leigh, Atherton, Tyldesley, and Bolton. The line from Atherton to Hindley was opened on February 7 of this year. The link between Hindley and Haydock is now completed, and brings Liverpool into direct tramway connexion with Bolton and Wigan through the intervening system of St. Helens. The next constructional scheme provides for the extension of the tramway system from Bolton to Salford, with a second line from Salford to Leigh and Lowton to St. Helens. In order to realise the magnitude of this undertaking, it is only necessary to state that the Company have Parliamentary powers under their various Acts to construct about 115 miles of tramway, which will give a double connexion between Liverpool and Manchester, and link together the following towns and districts:—Bolton, Wigan, St. Helens, Atherton, Tyldesley, Leigh, Lowton, Newton, Earlistown, Prescot, Rainhill, Knotty Ash, Warrington, Astley, Boothstown, Worsley, Eccles, Patricroft, Swinton, Salford, Walkden, Huyton, Hindley, Westthroughton, Abram, Golborne, Ashton-in-Makerfield, Haydock, Rochdale, &c. Altogether 550 miles of tramways will thus be interconnected, serving a population of 5,000,000.

#### MISCELLANEOUS.

**GOOD FRIDAY WEEK.**—In consequence of the Easter Holidays, next week we go to press a day earlier than usual. All communications for the Editor must reach him by first post on Wednesday morning, except lists of tenders, which will be received up to 10 a.m. of the same day.

**PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.**—Messrs. Frederick Wheeler & Lodge, architects, of Horsham and 6, Staple Inn, London, have dissolved partnership. The practice will be carried on by Mr. Frederick Wheeler solely, at both addresses. —Mr. Bertram Blount announces that, owing to the death of his late partner, Mr. W. Harry Stanger, the firm of Stanger & Blount is dissolved. The business of the late firm is being temporarily conducted at 2, Broadway, Westminster, but at an early date Mr. Blount will remove to other premises in Westminster.

**THE DIOCESE OF CANTERBURY.**—Our reference in a "Note" last week ("The Old Barbican, Sandwich") to Mr. Jennings as recently appointed Diocesan Architect to the Diocese of Canterbury appears to have been a mistake, though it has been so stated in the *Times* and other papers. Mr. Jennings has been appointed Diocesan Surveyor, in succession to Mr. Philip Day. Mr. Caroe holds the post of Diocesan Architect.

**LANCASTER MASTER BUILDERS' ASSOCIATION.**—The fifth annual meeting of the Lancaster Master Builders' Association was held recently, Councillor G. Wright (President) presiding. The Report showed a membership of seventy-eight, an increase of five. The differences between the plasterers and their employers were, it was stated, put to arbitration, Colonel R. J. Hall being chosen as arbitrator. His decision was in favour of the employers. Relations between the Association and the men's local societies continue satisfactory. It had been decided to have a one week holiday in August each year, and to curtail the usual holidays at Easter, Whit Sunday, and Christmas. The accounts showed an income of 120l., and a balance in hand of 57l. against 54l. Mr. T. Mawson was elected President; Mr. H. Walbrick, Mr. G. Wright, and Mr. R. P. Wilson, Vice-Presidents; and Mr. D. S. Cross, Treasurer.

**CAMBRIAN ARCHÆOLOGICAL ASSOCIATION.**—The Cambrian Archæological Association has decided to hold its next annual meetings at Portmadoc, the environs of which are invested with exceptional interest to the antiquarian, there being the attractions of Beddgelert, Harlech Castle, Criccieth Castle, several very ancient churches, and a plethora of cromlech, tumuli, inscribed stones, and other Iron Age remains. Mr. John E. Greaves, the Lord-Lieutenant of Carnarvonshire, has accepted the office of Chairman to the Reception Committee; and Mr. Thomas E. Morris, of the North Wales Circuit, and Mr. Charles E. Breeze have undertaken the duties of local secretaries. At the first meeting of the Reception Committee at Portmadoc on Friday, Mr. Greaves presiding, it was stated that the Association, which purports making its visit in the third week in August, last visited the Vale of Madoc in 1868. The districts it was now proposed to inspect were Penmorfa, Llanystumdwy, and Criccieth on the first day; Harlech and Llanfair (the Roman steps), the second day; Treceiri, where excavations are now proceeding, the third day; and Beddgelert on the fourth, it was stated. The arrangements also provide that the President, Mr. R. H. Wood of Rugby and Trawsfynydd, will deliver his inaugural address on the first night, and at the subsequent public meetings or during the excursions papers will be read probably by Professor Anwyl, Professor J. E. Lloyd, Professor John Rhys, Professor Kuno-Meyer, and Professor Boyd-Dawkins.—*Liverpool Courier.*

**EAST LANCASHIRE BUILDING.**—The second day of the present series of the Rhind Lectures in Archaeology was given on the 25th ult. in the National Portrait Gallery, Queen-street, Edinburgh, by Mr. Thomas

Ross, architect, the subject being "The Brochs, Underground Houses, and Roman Architecture." The brochs, Mr. Ross said, were the most outstanding and distinctive of all the buildings ever erected in Scotland, and they had no parallel among the buildings of defence anywhere in the British Isles. They were of great size and existed in great numbers, and their distribution throughout Scotland was remarkable, while the total oblivion in which they were enveloped until about the middle of last century was almost incredible. Yet they knew that they existed to the number of about 400 in the district of Scotland beyond Loch Ness. They were round towers of about 30 ft. internal diameter, with walls about 15 ft. thick, having an entrance on the ground floor and no other opening to the exterior. The tower contained a few chambers on the ground floor, entering from the courtyard, which was open to the sky. There was a series of galleries all round in the upper floors, which were reached by a continuous stair in the centre of the wall. The buildings were in that part of Scotland which was held by the Norsemen, and were probably built between the departure of the Romans and the eighth and ninth century by the people as a protection against the Northern pirates. The Roman buildings, of course, could not be regarded as pre-historic in the same sense, but still they had no specific information of the erection of any individual building, except those of purely military works. Excavations conducted in recent years had resulted in disclosing buildings displaying considerable architectural merit. The building which stood on the banks of the river Carron, known as "Arthur's Oon," taken down in the eighteenth century, was considered by antiquarians of that day to be the grandest Roman building in the country, and for many drawings of it had been preserved. It was circular in shape, with a dome, and lighted from the top, and was of small dimensions. Although they might never expect to find any building in such a state of completion as "Arthur's Oon," large quantities of architectural details had been found. Mr. Ross mentioned that the excavations now being undertaken along the Antonine wall were being looked forward to with considerable interest.

**SCHOOL OF ARCHITECTURE AND APPLIED ART, UNIVERSITY COLLEGE, LIVERPOOL.**—The special art scholarship of 60l. given by the City Council through the Technical Instruction Committee has been awarded this year to Miss C. E. Martin, of the School of Architecture and Applied Art, University College. The scholarship is tenable for one year at London or some art centre on the Continent.

**SHEFFIELD MASTER BUILDERS' ASSOCIATION.**—The annual dinner of this Association was held on the 26th ult. at the Building Trades' Exchange, Cross Burgess-street. There were about seventy guests. Mr. A. J. Forsdike (President) occupied the chair. After the loyal toast, Mr. J. Birgin proposed "The Corporation, City, and Trade of Sheffield." He commended the Works Construction Department, which, he said, it was impossible to work to the advantage of the ratepayers. Mr. Robert Jackson, in responding, spoke of the success of the municipal undertakings. He believed that such things as water and electric light should be supplied by the Corporation, but at the same time it was dangerous to trespass too much on the enterprises of private traders engaged in those and other directions. Mr. J. Longden further responded. He should not object to the Works Construction Committee if it competed for work the same as private firms. All Corporation work should be let by contract, and it would be done cheaper than it was at present. The Corporation should not interfere with house building, unless public enterprise failed to supply sufficient accommodation. He denied that the Corporation could put up buildings as reasonably as builders who had had experience all their lives. The Corporation made mistakes, and ratepayers had to pay for them. Mr. W. G. England gave "The National Association and the Yorkshire Federation." Mr. J. Dawson, in reply, said the National Association had done good work in the past, and was now doing still better work. It was on a broader, firmer, and more business-like foundation than ever. In all towns there was a kindlier feeling between builders themselves, and between builders and architects, than was the case a few years ago. He eulogised the work of the Yorkshire Federation in settling trade disputes. The other toasts were "Architects and Surveyors," proposed by Mr. H. L. Martin, and responded to by Mr. Edward Holmes; "The Sheffield Master Builders' Association," given by Mr. E. M. Gibbs, and acknowledged by the President, who congratulated those present on the prosperous condition of the society; and "The Visitors," submitted by Mr. J. D. Cook, and replied to by Messrs. D. R. Snowden, J. J. Parker, and J. R. Wheatley.

**COURT OF COMMONS.**—The usual Court of Common Council was held in the Guildhall on Thursday last week. On the recommendation of the Streets Committee it was decided that the contracts with the Limmer Asphalt Company for maintaining the pavements of the under-mentioned streets be extended as follows:—Asphalt carriageways: Warwick-lane, for five years at 6d. per yard per annum, an increase of 3d. per yard super per annum on the existing contract; Giltspur-street, for five years at 9d. per yard per annum, an increase of 6d. per yard super per



annum on the existing contract; Hayne-street, Ave Maria-lane, and Amen Corner, for five years at 6d. per yard super per annum; Windmill-court, Primrose-street, Falcon-street, and Falcon-square, for five years at 3d. per yard super per annum; Asphalt footways: Token-vue-yard, for five years at 9d. per yard super per annum; Lombard-street, for five years at 6d. per yard super per annum; and Cannon-street, for ten years at 4d. per yard super per annum. On the recommendation of the same Committee it was decided to construct an underground convenience for men and women on the site of the existing aboveground urinal at the southern end of St. Martin's-le-Grand, at an estimated cost of 4,700l. On the recommendation of the Sanitary Committee it was agreed to appoint the Chairman of the Committee, Mr. R. W. Edwards, and the Medical Officer of Health, Dr. W. Collingridge, as delegates to represent the Corporation, as the Sanitary Authority for the City of London, at the Annual Congress and Exhibition of the Sanitary Institute, to be held at Bradford from July 7 to 11.

**NORWICH MASTER BUILDERS' ASSOCIATION.**—The annual dinner of the Norwich and District Master Builders' Association was held recently at the Maid's Head Hotel. The chair was taken by the President (Mr. James S. Smith), who was faced by the Vice-President (Mr. John Youds). The usual loyal and patriotic toasts having been honoured, the President proposed "The Mayor, Sheriff, and Corporation of Norwich," in the course of which he incidentally passed a high eulogium upon the City Engineer and the whole of the engineering department. Touching on the housing question, he said that if the Corporation would try their "prentice hand at building cottages, by all means let them do so; but on no account let them fall into the error of building flats, for which there was no demand in Norwich. The Mayor responded, referring to the importance of imparting some ornamentation to all buildings, however humble. The Sheriff also proposed Mr. G. E. Hawes in proposing "The Architects and Surveyors," paid a tribute to the memory of John Bond Pearce, who for over thirty years had practised in Norwich. He greatly missed Mr. Pearce's genial face and commanding figure, and he was sure that all the builders of Norwich profoundly sympathised with the widow and family. The toast was acknowledged by Mr. E. T. Boardman and Mr. A. C. Havers. The other toasts on the list were "The Merchants of Norwich," proposed by Mr. W. Stacey Daws and acknowledged by Mr. C. Cunneil and Mr. R. Jewson; "The Norwich and District Master Builders' Association," proposed by Mr. E. Reeve and responded to by the President; and "The Visitors," proposed by Mr. B. E. Scaries.

**THE LEEDS SCHOOL OF ART.**—Last Saturday afternoon the Building Construction classes in connexion with the Leeds School of Art visited the new market hall and shops now in course of erection in Vicar-lane for the Leeds Corporation. The classes, which number altogether 170 students, assembled at the markets at 2.30, and were conducted over the building by Mr. James Neill (teacher). Owing to the courtesy of the architects, Messrs. Leeming & Leeming, the students were enabled to inspect the working drawings, and were shown all the practical portions of building construction which appeal most to these students, who are chiefly drawn from the architectural profession and the different building trades in the city. The details of construction, which on this extensive range of buildings are very numerous, were fully explained by Mr. Neill.

#### CAPITAL AND LABOUR.

**BRICKLAYERS' WAGES LEIGH, LANCASHIRE.**—The Leigh, Atherton, and Tyldesley Master Builders' Association met recently to consider the application of the operative bricklayers for an increase of wages from 9d. to 10d. per hour, and for a revision of the working hours. It was resolved to reduce the hours in winter so that work shall take place only between light and dark, but to refuse any advance in wages, on the ground that the state of trade does not warrant it.

**PAINTERS' STRIKE AT PRESTON.**—Operative painters of Preston struck work on Wednesday in consequence of the masters refusing to advance wages from 8d. to 9d. per hour. During last year, when trade was good, the masters conceded an extra half penny, but subsequently served notice upon the men intimating that they would revert to the old rate at the end of six months. This reduction the men accepted, but on the expiration of the term served notice on the masters for an increase of one penny, making the rate 9d. per hour. The masters declare their utter inability to pay the advance, having regard to the present state of trade.—*Daily News*.

**THREATENED STRIKE OF ST. HELENS CARPENTERS.**—A private meeting of the St. Helens branches of the General Union of Carpenters and Joiners and the Amalgamated Union of Carpenters and Joiners was held at the Sefton Arms, Baldwin-street, St. Helens, recently. The meeting was convened, it is said, to take into consideration the action of certain master-builders of the town. A short time ago three joiners in the employ of a

certain firm refused to fix up foreign-made window sashes, and for this they were dismissed. They found employment elsewhere, but it is alleged by the Carpenters' and Joiners' Associations that their new employer on learning of their action in their last employment also dismissed them. The matter was fully discussed for upwards of three hours, it having been contended by certain members of the Association that the other society men in the same shop should have "struck" at their dismissal. Eventually it was decided to suspend any action in the matter pending communication with the master-builders with regard to the matter, as a result of which it is hoped there will be an amicable settlement.—*Leeds Mercury*.

#### LEGAL.

##### ACTION BY AN ARCHITECT.

THE case of Adams v. Kynochs, Ltd., came before Mr. Justice Wright and a special jury in the King's Bench Division last week. It was an action by the plaintiff, Mr. Stephen Isaac Adams, an architect, to recover from the defendants 299l. 14s. for fees and commission.

It appeared that in 1898 the defendants, wishing to erect a hotel at a village called Kynochstown, in Canvey Island, plaintiff was called in to prepare plans of the proposed building to place before the Licensing Justices. The plans were prepared, and a provisional licence granted, it being stated at the time that it was intended to erect a building costing at least 5,000l. The plaintiff claimed 25l. for his attendances before the Licensing Justices. Subsequently the defendant company formed a subsidiary company called the Kynoch Estates, Ltd., this company taking over the erection of the hotel. The Estates Co., to save expense, decided not to employ a contractor, but that the building of the hotel should be carried through by themselves, the plaintiff being employed to see to the work. The building operations were carried out in accordance with this arrangement, and the plaintiff claimed 5 per cent. commission on the cost of the work 272l. 14s., and the 25l. before mentioned, making a total of 299l. 14s. The Estates Co. afterwards went into liquidation, and Mr. Willis, secretary of the company, was appointed the liquidator. On January 17, 1902, plaintiff wrote a letter addressed to "The Secretary, Kynochs, Ltd., and saying that he understood a transfer of the assets and liabilities of the Estates Co. had been made to the defendant company, and asking, if this was so, that his claim be put before the defendant company. Mr. Willis received this letter, and as liquidator of the Estates Co. replied to plaintiff on January 20 to the effect that the defendant company had taken over the liabilities of the Estates Co. Mr. Willis did not send on this letter to the defendant company. Plaintiff afterwards brought the present action. The main defence was that there had been no novation of the debt.

In the result his Lordship ruled that there was no evidence to go to the jury. He said the plaintiff, by his pleadings, had pinned himself down to certain documents, and could not go beyond these. He held that the letters of January 17 and 20 did not affect defendants. There was no evidence that Willis had authority to conclude any contracts for defendants, and none that the letter of January 17 ever reached them. None of the letters went to prove that the creditors of the Estates Co. held any direct claim against the defendant company. There was nothing to show any assent by defendants to the plaintiff's claim. He accordingly gave judgment for the defendant, with costs, the plaintiff to be at liberty to take out of Court the 272l. paid in by the defendants in satisfaction of the first part of his claim.

His Lordship refused to grant a stay of execution with the view to an appeal. Mr. Arthur Powell, K.C., and Mr. J. Ernest Saunt appeared for the plaintiff, and Mr. Reginald Bray, K.C., and Mr. Boydell-Houghton for the defendants.

##### ARCHITECT'S SUCCESSFUL ACTION.

MR. JUSTICE WALTON last week in the King's Bench Division delivered a considered judgment in the case of Waterman v. the London (Riverside) Cold Storage Co., Ltd., an action brought by Mr. W. H. Waterman, an architect and surveyor, of Collier-street, E.C., against the defendants for wrongful dismissal and for 1,108l. 9s. 11d. balance of fees for work done and money expended for and on behalf of the defendants.

It appeared that the plaintiff had acted as defendants' architect for some time, and on a dispute arising as to the underpinning of a wall at Symons Wharf, plaintiff was dismissed from the employment by defendants on the ground that he had committed a breach of duty.

His Lordship, however, held that the defendants had failed to establish any such breach of duty by the plaintiff, and gave judgment for the plaintiff for 953l. 11s. 9d., after deducting certain payments made by defendants and calls due from the plaintiff to the defendants, and which formed the subject matter of an action by the London (Riverside) Cold Storage Co. against Mr. Waterman, the two actions being consolidated.

Mr. English Harrison, K.C., and Mr. R. W. Turner appeared for the plaintiff; and Mr. Gore-Browne, K.C., and Mr. F. Shewell Cooper for the defendants.

##### EMPLOYERS' LIABILITY ACT:

##### ARE "HOUSEHOLD STEPS" DEFECTIVE AS "BUILDERS' STEPS"?

At the Brompton County Court (London) on Monday, before Judge Stonor and a jury, William Davis, a carpenter, 25, Selwood-street, Rotherhithe, S.E., brought an action under the Employers' Liability Act, against Messrs. Kirk & Randall, builders and contractors, Warren-lane Works, Woolwich, claiming maximum damages in respect of personal injuries, said to have been sustained owing to negligence on the part of the defendants or their servants.

Mr. G. W. Moyes, counsel, appeared for the plaintiff, and Mr. A. Willis, counsel for the defence. Plaintiff's counsel explained that in January last his client was working for the defendants upon the new Post Office Savings Bank buildings in Blythe-road, Hammersmith. In order to reach his work he was using a very light pair of steps, such as were used for household purposes. The man had previously worked on the same scaffolding, formed with trestles and planks, but these had been taken away by one of the foremen, who told plaintiff to use the steps in question instead. While plaintiff was working from the top of these steps on January 21, a knot of one of the cords near the bottom of the steps came through the hole in the side, and the consequent jerk caused plaintiff to fall to the ground. It appeared that the man's injuries included three broken ribs, and there was some doubt as to his being able to resume his ordinary class of work.

The plaintiff bore out his counsel's opening statement. He added that the cord used in the steps was not proper sash-cord, but only cheap clothes-line, costing only for three or four yards.

In cross-examination, plaintiff said that he had been working upon the steps in question during the fortnight preceding the accident, but it never occurred to him to examine to see that they were safe, for it was not usual for workmen to do so. The defendants had offered to meet him under the Workmen's Compensation Act.

Thomas Banks, a painter working on the job, said that although he had sometimes seen the cheap clothes-line used in steps, the proper thing for the purpose was good sash cord.

Mr. Samuel C. Griffiths, architect and surveyor, stated that he considered the cheap, common line used in the steps insufficient for a step, but that for anything for the purpose was sash-line. The steps in question were not proper builder's steps, but of a lighter make, as used in the household.

The judge said it was for the jury to say whether the defendants or the foreman were guilty of negligence in allowing the plaintiff to use the steps in question in the state in which they were said to be, or that they would probably answer this in the affirmative; if so, the next question would be as to the amount of the damages.

The jury returned a verdict in favour of the plaintiff, assessing the damages at 134l.

His Honour gave judgment accordingly, and allowed costs.

##### DRAINAGE OF INDUSTRIAL DWELLINGS.

At the Southwark Police-court, on the 20th ult., Mr. C. Chapman gave his decision in the thirty-three summonses issued by the local Borough Council against the Metropolitan Industrial Dwellings Co., the owners of Pensonby Buildings. The facts were reported in the *Builder* of the 14th ult. The magistrate said he had come to the conclusion that the contention of Mr. Dodd was right—that he had no power to consider any questions except the application of the by-laws and their practicability. The by-laws admitted of no exception in the case of new buildings which contained a system of drainage where there was no probability of siphonage, and he did not think he was at liberty to create such an exception in the case of old buildings, to which the by-law applied. If this were possible, a dispute might be raised on each case and the by-laws rendered practically valueless. He set aside, therefore, the decision of the magistrate, and held that the by-law was necessary or even useful in this particular case. Then, as to its practicability, he did not think there was any evidence that compliance with the by-law was not practicable. Two other questions remained—Were these by-laws under Section 202 *ultra vires* of the Act, and were they unreasonable? On the first he was of opinion that they were not, and on the second he was of opinion that they were not. As to the second question, if he felt justified in pronouncing an opinion as to the reasonableness of the by-law as applied to this building, he should have great hesitation in deciding the case. He did not, however, feel so justified, but generally he could not hold that they were unreasonable, although there was some evidence to the contrary in the case where it was proved that there was practically no danger of siphonage. He had no alternative but to convict the defendants, and there would be a fine of 40s. and 10s. 6d. each of the first summonses, and 2s. costs on each of the



others. In reply to an application on behalf of the appellants, Mr. Chapman agreed to state a case.

# UNSUCCESSFUL APPEAL BY THE LONDON COUNTY COUNCIL.

IN the Court of Appeal, composed of Lords Justices Vaughan Williams, Stirling, and Mathew, the 31st ult. judgment was delivered in the case of the London County Council v. Mayor, &c., of the Metropolitan Borough of Wandsworth. This was an appeal by the London County Council against an order of the Divisional Court affirming a decision of Mr. Plowden, the police magistrate sitting at the South-Western Court, who had held that the appellants were liable as the owners of land abutting on a new street to contribute towards expenses that had been incurred in connexion therewith by the respondents, who were the highway authority for the Borough of Wandsworth.

The appeal was heard on March 12, when judgment was reserved.

From the special case stated by Mr. Plowden at the instance of the appellants, it appeared that the street in question, was a new street in the parish of Streatham, and was bounded on the eastern side by a row of houses and on the western side by Tooting Bec Common for a length of 474 ft. Under a scheme sanctioned in 1873, the lands now forming what is known as Tooting Bec Common, which formerly were waste lands belonging to the manor of Tooting Bec, were purchased and dedicated to the public as a recreation ground and were eventually vested for that object in the London County Council. They, in order to make the common a more popular resort, erected a bandstand, provided seats and chairs and some refreshment-rooms, from which they received some 30*l.* a year. The appellants contended that they were not liable because, although they were trustees of the common, and in that sense "owned" it, yet they were not "the owners" within the meaning of that term in Section 150 of the Metropolitan Management Act, 1855, because the common was not capable, by reason of its dedication to the public, to be ever let by them "at a rack rent," and it was only persons who owned property that was capable of giving to its owner a rent that was liable to contribute to the assessment to which the Local Authority desired to make the L.C.C. pay its apportioned share, which, in this instance, was 1*l.* On the other hand, it was said that the L.C.C. were receiving "some" rent from the common, and could very well make more out of it without contravening any of the provisions of the Acts under which they held it as a public pleasure resort.

Mr. Avory, K.C., and Mr. Ryde appeared for the L.C.C.; Mr. Mattinson, K.C., and Mr. Earle for the City Authority.

Lord Justice Vaughan Williams, in giving judgment, said the opinion he had come to was that this appeal must be allowed. When the common was dedicated to the public it became land held *ex officio*. He did not think that the London County Council, as the trustees for the public, could ever be said to be in receipt of any rent from the common in the sense that would make them "owners" within the meaning of that term in Section 150 of the Metropolitan Management Act, 1855. It was quite true, as the respondents had urged, that they might be able to get some return towards the expenses of maintaining the common from the letting off of portions to cricket clubs or from refreshment stalls, but such arrangements would be merely ancillary to the main object of the land, which was to maintain the common as a free open space for the use of the public at large, and could only exist so far as they in no way interfered with the enjoyment of the public.

Lords Justices Stirling and Mathew read judgments to the same effect, and the appeal was accordingly allowed with costs.

## PATENTS OF THE WEEK:

APPLICATIONS PUBLISHED.\*

17,232 of 1902.—J. E. WILLIAMS: *Reversible Casement*.  
Metal or wood casement, comprising three frames joined together in such manner as shall allow the fixed frame to have the face of the glass, which is usually outward, turned towards the inside, and so making the casement equivalent to one opening on the left hand or the right hand, as may be desired, by enabling both sides of the glass to be cleaned in one and the same room.

17,234 of 1902.—W. BRIGGS: *Water Supply and Waste Preventing Apparatus*.

According to this invention, within the cistern a siphon, or other suitable vessel, containing a siphon employed. The said cylinder or vessel comprises two compartments, an inner compartment for receiving the water, and an outer compartment for compressed air. From the outer, or compressed-air, compartment a pipe is provided leading to a rubber siphon or bulb, which is enclosed within a perforated or other suitable case having a hinged fly lid or

\* All these applications are in the stage in which provision to the grant of Patents upon them can be made.

a sliding push plate or disc. The operation of the apparatus is as follows:—On the water rising within the cistern to the inlet of the cylinder or vessel, the air is compressed in the air compartment so that it inflates the bladder or bulb, forcing back the lid or push-plate and leaving it ready for operation. On pressing the lid or push-plate, the air forces the water over the long leg of the siphon and starts the discharge.

8,295 of 1902.—E. BEAUCHAMP and C. G. DALBONI: *Dining and other such like Tables*.

A dining or such like table so constructed and arranged that by drawing out the end thereof an additional leaf, which lies normally in a folded condition beneath the said end, is raised, opened out, and deposited automatically in the gap beneath such drawn-out end and the other part of the table, and by pushing in the said end the said additional leaf is removed from the gap, folded up, and lowered into its normal position automatically.

5,393 of 1902.—S. DEARDS: *Glazing Roofs and Structures*.

A system of dry glazing in which wood sashes or bars are employed to support the glass, the formation of said sashes with a groove along each side or on the top edge and a raised rib between said grooves, said rib, and when desired said grooves, being covered by a metal cap, which serves also to hold the glass in position, and said sash being provided either with or without channels in its lower edge, for the purpose of collecting moisture which may collect on the sash.

5,625 of 1902.—J. C. BERRY: *Brick-making Machinery*.

This consists in the combination with a pug mill of a slide having moulds for the bricks, such moulds being fitted with sliding bottoms, which descend as the clay is delivered to the mould, and ascend to deliver the brick.

12,919 of 1902.—G. D. WANSBROUGH: *Roadways*.

The essential feature of this invention is the construction of roads by first forming a cutting or trench of suitable depth (say about 5 ft.), and then forming a skeleton roof over the same to support trays containing the materials of which the road surface is to be composed.

5,211 of 1902.—R. LAWTON and THE ALHON CLAY CO., LTD.: *Manufacture or Production of Electric Conduits, Drain-pipes, and the like*.

The manufacture of electric conduits, drain-pipes, and the like, lined with bitumen or equivalent, by applying to the exterior and other parts to which the bitumen or equivalent material is not to be applied a material which will prevent the adherence of the bitumen or equivalent material, and then immersing the lengths of conduit, drain-pipes, and the like in heated bitumen or equivalent matter.

8,505 of 1902.—A. G. HUGHES and R. D. WADDELL: *Apparatus for Screening or Separating Road Metal and the like*.

A screen for separating thin flaky pieces of road metal and similar material from the rest of the mass, having a ribbed, fluted, or corrugated surface and narrow slits or holes between the ribs, through which slits the thin pieces, being directed by the inclined projections, pass.

7,552 of 1902.—W. BELL: *Fittings for Furniture and the like*.

The construction of furniture fittings and the like, consisting in the employment of a base plate having projecting enlarged headed studs and a fixed plate having slots of substantially keyhole shape, and spring-actuated means for retaining the parts in a locked position.

12,184 of 1902.—A. SCHWARZE: *Doors*.

This consists of front and back metal plates rolled and stamped or pressed with ribs, grooves, or their like, and secured to each other.

13,857 of 1902.—T. ASTFALCK: *Cowls*.

A cowl for a chimney or a ventilating pipe, wherein annular or zone-like slots for the entrance of wind are provided in order to produce a suction action, whilst between the several slots there are provided outwardly curved zone-like ring surfaces which deflect the wind impinging thereon towards the adjacent slots.

17,237 of 1902.—H. V. JORGENSEN: *Hot-water Apparatus for Buildings*.

Hot-water heating apparatus, consisting of means for cooling the water in the top of a main rising tube, said cooling being produced by all or part of the return water or by water cooled by the return water.

25,031 of 1902.—C. J. BARHAM, H. C. BULBECK, and C. INNES-BAILLIE: *A Kiln for Drying and Burning Bricks*.

Apparatus for drying bricks, consisting in combination of a plurality of brick-drying chambers arranged side by side and one tier above another, and a plurality of brick-burning chambers arranged endwise and flankwise in relation to said drying chambers on each side thereof, the brick-burning chambers and the brick-drying chambers being constructed with communicating flues, respectively arranged and adapted to co-operate.

28,382 of 1902.—F. VISINTINI: *Lattice or Truss Girders, Columns, and the like*.

Lattice or truss girders for building purposes, the

various members of which are so arranged as to resist the tension and compression, in which members draw-bars are embedded in order to resist tensional strain.

28,812 of 1902.—E. POTT: *Tiled Roofs*.

A tiled roof comprising staggered metal under-frames connected under the tiles to the rafters, the upper edges of said frames being ridge-shaped or upwardly bent so as to replace the laths, and the lower edges of said frames engaging in the known manner over the heads of the tiles below the frames, being connected together at their longitudinal sides by means of movable bands and loops, or by metal strips engaging under the frame below.

10,599 of 1902.—H. HINZ: *Ball Centrifugal Mills*.

A ball centrifugal mill, consisting of balls of various sizes and number, which are pressed essentially by centrifugal force into an angular ring formed by two ring surfaces which rotate relative to each other, so that the balls roll freely between two ring surfaces.

7,637 of 1902.—J. C. SELLARS: *Manufacture of Building Blocks, Bricks, and other Articles*.

The manufacture of building blocks, bricks, and other articles by combining and mixing together waste material or materials and hydraulic lime, and supplying water in regulated quantities to the articles made from such composition and "curing" lime, and subsequently filling or charging the blocks, bricks, or other articles with tar, pitch, resin, or the like, by supplying such tar, pitch, or the like to the articles in solution.

9,029 of 1902.—W. JAMES: *Manufacture of Leaded Glass*.

This consists of cakes for leaded glass composed of lead or other soft metal or alloy, and having a wire or rod alixed thereto.

24,508 of 1902.—R. LEGGOTT: *Casement Windows*.

This invention has for its object the combination with window casements and sashes of apparatus so arranged that the opening sash of the window casement supported in accordance with this invention may be opened in the same way as a "French window sash," and when desired the window sash may be liberated and swung to a position so that the outside surface of said window sash may be turned to the inside of the room and held parallel to the fixed casement, so that the opening through the fixed casement is for the most part, if not entirely closed, thereby affording means for facilitating cleaning of the outside surface of the window without leaving the room, and at the same time practically closing the opening through the fixed casement.

20,481 of 1902.—M. BRANDT: *Adjustable Wash Basins and Baths*.

The object of this invention is to provide an attachment for stationary washstands by means of which the wash-basins may be raised and lowered to any desired position, and at the same time to provide means for draining the basin. This consists of a wash-basin mounted on the piston of an hydraulic ram, means for supplying pressure and exhaust to the cylinder of the hydraulic ram, the piston being hollow to drain the basin.

28,217 of 1902.—C. E. LONG and J. C. IRVINE: *Sliding Bolt Fastenings*.

Sliding bolt fastenings wherein the slide bolt carries a radially extending key operated lock adapted to be specially levelled along with the bolt when in its locking position to bring the lock into engagement with its lock plate: consisting in providing a box-like structure fixed to the door or frame by which the bolt is to be carried, through which box the bolt is capable of sliding and which is in a position to receive the key-operated lock when the bolt is in engagement to form a lock-plate and to surround the key-operated lock upon its back and side box.

2,773 of 1903.—F. R. WRIGHT: *Combined Dining and Billiard Tables*.

In combined dining and billiard tables, the combination of a crosspiece connected at each end of the table in combination with another crosspiece, which latter is fixed to the telescopic portion of the legs, so that such latter crosspiece may slide up and down by the action of screws.

2,043 of 1903.—H. INGRAM: *Hinges*.

A hinge having a knuckle projecting downward beyond one edge of its leaf or strap, the projecting part of the said knuckle being crossed by a V-groove, and the said knuckle having an opening at each end free to move vertically in sockets, the upper end of the lower one of which is crossed by a groove corresponding to that in the downward projecting part of the knuckle, but at right angles thereto.

2,093 of 1903.—F. NUSCH (Messrs. Knauth & Co.): *Chimney Cowls*.

A chimney cowl comprising in combination a tube of rectangular cross section inserted into the upper edge of the chimney, a flange of said tube resting on the upper edge of the chimney, a roof with open sides composed of two inwardly inclined plates fixed on the upper edge of said tube, inwardly and downwardly inclined deviating plates of rectangular shape fixed beneath the upper edge of the roof, a mantle of oval cross section fixed on the upper end of the tube, a cover of the shape of a truncated cone fixed at some distance above the upper edge of the oval



mantel by means of suitable supports, and opening on the top of said cover and openings in the sides of the oval mantel opposite the inwardly inclined plates forming the roof.

2,175 of 1903.—W. PIRE: *Chimney-tops and Ventilating-cowls*.

A chimney-top or ventilating-cowl, having an inclined uptake portion and an outlet end curved approximately to the form of a semi-circle, the inclination of the one portion and the curvature of the other being in the same vertical plane and towards opposite sides of the vertical centre of the flue or ventilating shaft, and the outlet orifice being downwardly directed and situated in an horizontal plane.

24,095 of 1902.—H. J. HADDAN (A. O. Crozier): *Roadways*.

This consists in the combination with the bed of the roadway, of a track for a vehicle wheel, which track is composed of artificial stone and provided at the top with a path for a vehicle wheel and a cable arranged within and extending longitudinally of the track.

24,872 of 1902.—J. H. DOYLE: *Apparatus for Flushing Sinks and the like*.

A device for flushing drain pipes, comprising means connecting the source of water supply and the drain pipe, and means for controlling the flow of water through such connecting means.

7,215 of 1902.—G. C. HURRELL: *Insulating and Protecting Underground Cables*.

An arrangement of pipes or casings for the reception of cables or conductors consisting in the provision and fitting of bearing blocks of a fibrous or yielding nature by forcing them into the pipe or casing away from the pipe joint by pressure.

7,796 of 1902.—E. P. HOOLEY: *Means for and the Method of "Tarring" Broken Slag Macadam and Similar Material*.

A coating mixture composed of tar, pitch, Portland cement, and resin.

8,960 of 1902.—J. B. BRADSHAW: *Saws Suitable for Stone*.

Saws for cutting stone and the like, consisting in forming the cutting edge of the blade wholly or partially of a series of contiguous surfaces at a slight angle to one another, and to the plane of motion of the blade as a whole.

## MEETINGS.

FRIDAY, APRIL 3.

*Architectural Association*.—Mr. Banister F. Fletcher on "Palladio." Illustrated by lantern views. 7.30 p.m.

*Royal Institution*.—Lecture by the Right Hon. Lord Rayleigh. 9 p.m.

*Institution of Civil Engineers*.—Students' Visit to the New River Company's Reservoirs and Pumping-station in course of construction at Kempton Park (train from Waterloo Station to Sunbury, 2.35 p.m.).

*Junior Institution of Engineers*.—(1) Mr. H. E. Yarow on "Evaporative Trials of one of the Water Tube Boilers for the Chilian Iron-ore Locomotive." (2) Mr. W. Paterson on "Greasy Condensation Water as Boiler Feed." 8 p.m.

SATURDAY, APRIL 4.

*Incorporated British Institute of Certified Carpenters (Carpenters' Hall, London-wall)*.—Mr. W. Middleton on "Arches and Centring." 6 p.m.

*Royal Institution*.—Right Hon. Lord Rayleigh, M.A., F.R.S., on "Light: its Origin and Nature." VI. 7 p.m.

*The Sanitary Inspectors' Association*.—Ordinary general meeting, Carpenters' Hall, London-wall. 6 p.m. Discussion will be opened by Mr. W. H. Glegg on "The Factory and Workshops Act, 1901."

*Northern Architectural Association*.—Excursion Meeting to the School Board Offices and the School of Cookery.

MONDAY, APRIL 6.

*Society of Engineers*.—Mr. R. J. Thomas on "Road Maintenance and Administration." 7.30 p.m.

*Liverpool Architectural Society (Incorporated)*.—Second annual general meeting to receive and adopt the Report of the Council; to elect the President and officers for next session, and to elect seven Fellows and two Associates to form the Council; to consider an alteration to Clause 14 to the Schedule of Charges, proposed by the Council, and to hear the President's closing address. 6 p.m.

TUESDAY, APRIL 7.

*Institution of Civil Engineers*.—Paper to be further discussed, "American Locomotive Practice," by Mr. P. J. Cowan. 8 p.m.

*Glasgow Architectural Association*.—Mr. F. H. Newbury on "Ideals." 8 p.m.

*Institute of Builders*.—Finance Committee. 3.30 p.m. Council. 4 p.m.

WEDNESDAY, APRIL 8.

*Edinburgh Architectural Association*.—Mr. J. D. Trail on "Woodwork of Louis XIV, XV, and XVI," illustrated by limelight views. 8 p.m.

*Institute of Sanitary Engineers, Ltd.*—Examination and Literary Committee 3.30 p.m. General Purposes and Finance Committee 4.15 p.m. Election Committee at 4.15 p.m.

## SOME RECENT SALES OF PROPERTY.

### ESTATE EXCHANGE REPORT.

March 17.—By W. H. & J. A. EADON (at Sheffield).

Sheffield, Yorks.—Baker's Hill, the Queen's Cutlery and Plate Works, area 2,080 yds., f. p., £13,000.

March 19.—By FULMER, MOON, & FULLER (at Croydon).

Thornton Heath.—173, 175, and 177, Moffat-rd., f. p., w. 747. 25. 740

By Wm. KING (at Bristol).

Wington, Somerset.—Corner Pool Farm, 165 a. f. p., 10 p. f., £3,600

Corner Pool Cottage and 39 a. f. p., 115

Barrow Gurney, Somerset.—New Ditch, 450

March 20.—By PAXTON & HOLIDAY (at Bicester).

Bainton, Oxon.—Freehold farmhouse and 143 a. f. p., 12 p. f., 1,050

By VERNON & SONS (at High Wycombe).

Lane End, Bucks.—Freehold iron foundry and land, area to a. 3 p. 4 p., 1,400

Park Lane Farm, 17 a. 3 p. 9 p. f., 755

Enclosure of meadow land, 2 a. 3 p. 8 p. f., 395

Two freehold cottages, with range of building, w. 13 p., 630

Bourne End, Bucks.—New rd., Quarry 1 a. 6 p., 300

March 21.—By MACQUEEN & MERRY (at Northampton).

Killingbury, Northants.—Hill Farm, 115 a. f. p., 4,200

March 22.—By MAY & ROWDEN.

Scho.—27, Old Compton (S.), f. p., 2,350

42, Frieth-st. (S.), f. p., 3,100

4, Rupert-st., f. p., 574. 45. 350

Portman-sq., 8, George-st. (Chelsea), f. p., 1,650

Westminster, St. St. Edmund Hall and 17, Snowdon (building site), f. p., 1,100. f. 1,150

Pimlico.—91 and 93, Lupat-st. (S.), u. 25 yrs., 1,450

Algate.—12, Mansell-st., f. p., 1,200

By WALTER VINCENT.

Marylebone.—19, Exeter-st. (S.), u. 18 yrs., g. r. 71. 25, w. r. 497. 85. 150

Kilburn.—89 and 91, Kingsgate-rd. (S.), w. r. 83. 150

also plot of building and garden, area 831. 58 yrs., g. r. 341. 235

Portman-sq.—23, King-st., and 8, Little George-st., u. 30 yrs., g. r. 261. 150

Kenish Town.—81 and 83, Westmoreland-rd., u. 56 yrs., g. r. 121. 125, w. r. 621. 105. 575

March 24.—By C. W. DAVIES & SON.

Islington.—17, Annet-st., u. 331 yrs., g. r. 61. 7. 745

26, Prebend-st. (S.), u. 24 yrs., g. r. 41. 45. 7. 421

37, 38, and 39, Dean-st., u. 24 yrs., g. r. 154. 57. 51. 525

Caledonian-rd.—16, Nailour-st., u. 49 yrs., g. r. 105. 150

Holloway.—13, Mayton-st., u. 62 yrs., g. r. 61. 125. 125. 375

By DEBENHAM, TEWSON, & CO.

Bloomsbury.—43 to 49 (odd), Gower-st., u. 2 yrs., g. r. 163. 150

57, Gower-st., u. 28 yrs., g. r. 401. 150

71, 72, 73, 74, and 83, Gower-st., u. 21 yrs., g. r. 1601. 150

6A and 8, Ridgmont-st. (builder's workshops, stores, &c.), area 10,207 ft., u. 7 yrs., g. r. 1251. 1,200

City of London.—Cannon-st., f. p., 9151, reversion in 281 yrs. 40,000

By H. DONALDSON & SON.

Mill End.—58 and 12, Blomfield-rd., u. 631 yrs., g. r. 94. 7. 741. 750

Dalston.—23, Gayhurst-rd., u. 46 yrs., g. r. 51. 350

By FLEURBAEY & SON, ADAMS.

Dulwich.—72 to 88 (even), Darrell-rd., f. w. r. 3801. 150

244, Underhill-rd. (S.), f. p., 554. 120

246, 248, and 250, Underhill-rd., f. w. r. 1,171. 940

By HOLLIDAY & STANCER.

Streatham.—Oakdale-rd., Dunraven, Lexington, Oakdene House, Rosemont, Conston, and Weston Lea, u. 941 yrs., g. r. 884. 40. 150

3751. 3,405

Stanthorpe-rd., Cloughton, u. 94 yrs., g. r. 94. 105. 575

17, Hopton-rd., u. 78 yrs., g. r. 501. 330

By JOSEPH STOWER.

Hackney.—104, Grovela, c. w. r. 521. 671

By G. TROLDOW & SON.

Kennington.—571, Earle Court-sq., u. 701 yrs., g. r. 401. 1,500

By FREDK. WARMAN.

Canonbury.—18, Marquess-rd., u. 42 yrs., g. r. 61. 105. 421

Holloway.—6, St. John's Pk., u. 48 yrs., g. r. 71. 7. 51. 675

Bowes Park.—5, Whittington-rd., u. 76 yrs., g. r. 61. 151. 201. 250

By BELLAU & CO. (at Waltham Green).

Fulham.—40, Rostrevor-rd., u. 85 yrs., g. r. 61. 105. 421

South Kensington.—3, Ifield-rd., u. 45 yrs., g. r. 101. 61. 601. 450

Hampstead-rd.—33, Werrington-st., u. 46 yrs., g. r. 71. 7. 51. 375

By ORGILL, MARKS, & LAWRENCE (at Masons' Hall Tavern).

City of London.—Paternoster-row, the Chapter Coffee House (a.h.), u. 63 yrs., g. r. 401. 21,450

with goodwill. 1,075

By J. C. PLATT (at Hammersmith).

Hammersmith.—13, 14, 15, and 16, Mattheus-st., u. 71 yrs., g. r. 121. 151. 615

167, The Grove, u. 73 yrs., g. r. 111. 61. 601. 615

March 25.—By JOHN BOTT & SONS.

Peckham.—81, Ryela (S.), u. 55 yrs., g. r. 111. 151. 615

99 and 101, Ryela (S.), u. 561 yrs., g. r. 241. 4,240

Ryela, l.g. r. 511. u. 561 yrs., g. r. 111. 1,150

reversion. 1,150

By MESSRS. CRONK.

Westminster, Kent.—High-st., The Pheasantry (S.), l. g. r. 601. 1,000

By DYER, SON, & HILL.

Eltham, Kent.—Court-rd., Fryern House, u. 87 yrs., g. r. 101. 7,420

Court-rd., Oak Lodge, u. 87 yrs., g. r. 101. 1,350

Lee.—3 and 5, Birch gr., u. 78 yrs., g. r. 181. 5 p. 1151. 950

15, St. Mildred's-rd., u. 78 yrs., g. r. 121. 105. 1,600

Blackheath.—24, Lewisham-hill, u. 38 yrs., g. r. 121. 150

By ERNEST OWERS.

Hampstead.—6, Sherford-rd., f. e. r. 851. 1,300

98, Abbey-rd., u. 50 yrs., g. r. 101. 950

By RAVENSHAM & MASSY.

Hanwell.—147 and 149, Uxbridge-rd. (S.), f. p., 4,750

143 and 145, Uxbridge-rd. (S.), f. p., 2,735

1 and 4, Broadway (S.), f. p., 3,001. 3,775

1 and 2, Milford-villas, f. p., 151. 2,800

Brixton.—87, 89, 91, and 93, Brixton-hill (S.), u. 76 yrs., g. r. 1501. 1,250

Paddington.—5 and 6, South Wharf-rd., u. 18 yrs., g. r. 101. 350

8, York-rd., u. 241 yrs., g. r. 51. 125

By E. W. RICHARDSON.

Southwark.—2, Falmouth-rd., u. 71 yrs., g. r. 31. 145

20 and 22, Union-sq., u. 111 yrs., g. r. 101. 260

By R. TINEY & SON.

De Beauvoir Town.—28, De Beauvoir-rd., u. 14 yrs., g. r. 41. 241

Highgate.—27 to 35 (odd), Retcar-st., u. 77 yrs., g. r. 251. 1,335

By F. C. WATKINS & CO.

Eritb, Kent.—South-rd., f. g. r. 601. reversion in 45 yrs. 1,620

By FULLER, MOON, & FULLER (at Totting).

Tooting.—12, Angel-cot., f. w. r. 441. 45. 1,185

1 to 5, Red Lion-cot., f. w. r. 751. 145. 735

1 to 6, Spring-cot., f. w. r. 101. 25. 1,185

Mitcham, Surrey.—2 and 4, Phipps Bridge-cot., and plot of garden ground, f. w. r. 314. 45. 485

1 to 6, Church-rd., and plot of land adjoining, f. p., 1251. 45. 1,400

Phelps Bridge-rd., two blocks of building land, March 25.—By CHRISTERTON & SONS. 595

Kennington.—Avonmore-rd., Avonmore-mansions (flat), u. 61 yrs., g. r. 21. 6,500

46, Argyle-rd., u. 51 yrs., g. r. 121. 1,580

By C. RAWLEY CROSS & CO.

Shepherd's Bush.—25 and 27, Ethelton-rd., u. 78 yrs., g. r. 121. 350

By FARRBROTHER, ELLIS, & CO.

Kennington.—6 and 8, Glazbury-rd., u. 731 yrs., g. r. 21. 1,595

By S. GOULDING.

Pimlico.—13, St. George's-rd., u. 23 yrs., g. r. 121. 1,270

19, Gloucester-st., u. 26 yrs., g. r. 101. 730

Beckenham.—107, Southend-rd., u. 55 yrs., g. r. 121. 1,000

By KEMBLEY.

Chadwell Heath, Essex.—Romford-rd., Eagle House and 6 a. 2 p. 5 p. f. p. 2,125

By C. C. & T. MOORE.

Bethnal Green.—54 and 56, Fuller-st., u. 71 yrs., g. r. 351. 1,710

Lincoln.—18 and 88, Eastfield-st. (S.), f. w. r. 541. 25. 440

Bow.—358 and 360, Old Ford-rd., u. 501 yrs., g. r. 61. 600

By STIMSON & SONS.

Kennington.—67, Marlowe-rd., u. 47 yrs., g. r. 71. 980

Camberwell.—12 and 19, Dagmar-rd., u. 55 yrs., g. r. 121. 775

1 to 5, Canal Bank, u. 831 yrs., g. r. 251. 700

1151. 145. 500

Peckham.—182, 184, and 186, Summer-rd., f. w. r. 981. 151. 1,000

188, Summer-rd. (S.), f. e. r. 601. 430

170, 172, and 174, St. George's-rd., u. 50 yrs., g. r. 101. 735

Brixton.—26, Titern-st., u. 72 yrs., g. r. 61. 75. 601

Kennington.—67, St. Agnes-pl., u. 65 yrs., g. r. 61. 305

61. 65. 305

Brookley.—67, Tressilian-rd., u. 69 yrs., g. r. 31. 615

Tottenham.—18 and 19, Albert-rd., u. 74 yrs., g. r. 501. 1,500

By J. A. & W. THARR.

Walworth.—186 (even), Faraday-st., u. 49 yrs., g. r. 571. 1,685

Bethnal Green.—230 and 232, Vallance-rd., f. p. 750

By MAYNIE & LOCKING.

Chingford.—13, Buxton-rd., u. 78 yrs., g. r. 71. 475

Enfield.—Bush Hill Pk., 63, Wellington-rd., u. 72 yrs., g. r. 61. 2,701

By WESTON & SONS.

Barnes.—50, 52, 54, and 56, Lonsdale-rd., f. p. 1,350. 1,520



## PRICES CURRENT OF MATERIALS.

\* Our aim in this list is to give, as far as possible, the average prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

## BRICKS, &amp;c.

£ s. d.	
Hard Stocks	1 14 0 per 1,000 alongside, in river.
Rough Stocks and	
Grilles	1 12 0 " " "
Facing Stocks	2 12 0 " " "
Shippers	2 5 0 " " "
Flettons	1 7 6 " " at railway depôt
Best Wire Cut	3 12 0 " " "
Best Fareham Red	3 12 0 " " "
Best Red Pressed	
Rubon Facing	5 0 0 " " "
Best Blue Pressed	
Staffordshire	4 5 0 " " "
Do. Bullnose	4 12 0 " " "
Best Stourbridge	
Fire Bricks	4 8 0 " " "
GLAZED BRICKS.	
Best White and	
Ivory Glazed	
Stretchers	13 0 0 " " "
Headers	12 0 0 " " "
Quoins, Bullnose,	
and Flats	17 0 0 " " "
Double Stretchers	12 0 0 " " "
Double Headers	10 0 0 " " "
One Side and two	
Ends	19 0 0 " " "
Two Sides	
one End	20 0 0 " " "
Splays, Chamfered,	
Squints	20 0 0 " " "
Best Dipped Salt	
Glazed Stretchers	12 0 0 " " "
Quoins, Bullnose,	
and Flats	14 0 0 " " "
Double Stretchers	13 0 0 " " "
Double Headers	14 0 0 " " "
One Side and two	
Ends	15 0 0 " " "
Two Sides	
one End	15 0 0 " " "
Splays, Chamfered,	
Squints	14 0 0 " " "
Second Quality	
White and Dipped	
Salt Glazed	8 0 0 " " less than best.
Thames and Pit Sand	7 0 0 per yard, delivered.
Thames Ballast	6 0 0 " " "
Best Portland Cement	30 0 0 per ton, delivered.
Best Ground Blue Lias Lime	22 0 0 " " "

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... ros. 6d. per yard, delivered.  
Stourbridge Fire-clay in sacks 27s. 6d. per ton at rly. depôt.

## STONE.

£ s. d.	
Ancestor in blocks	1 12 per ft. cube, deld. rly. depôt.
Bath	1 7 " " "
Faleigh Down Bath	1 1 " " "
Beer in blocks	1 6 " " "
Grinshill	1 10 " " "
Brown Portland in blocks	2 " " "
Dartford in blocks	2 4 " " "
Red Corshill	2 5 " " "
Clooseburn Red Freestone	2 0 " " "
Red Mansfield	2 4 " " "
YORK STONE.—Robin Hood Quality.	
Scrapped random blocks	2 10 per ft. cube, deld. rly. depôt.
in sawn two sides landings to sizes (under 40 ft. super.)	2 3 per foot super. " "
in Rubbed two sides	
Ditto, Ditto	2 6 " " "
in sawn two sides	
slabs (random sizes)	0 11½ " " "
in 24 in. Sawn one side slabs (random sizes)	0 7½ " " "
18 in. to 24 in. ditto	0 6 " " "
Best HART YORK—	
Scrapped random blocks	3 0 per ft. cube " "
landings to sizes (under 40 ft. super.)	2 8 per ft. super. " "
in Rubbed two sides	
Ditto	" " "
in sawn two sides	
slabs (random sizes)	2 2 " " "
in self-faced random	
flags	5 0 " " "
Hopton (Hard Bed) in blocks	2 3 per ft. cube, deld. rly. depôt.
" " " 6 in. sawn both sides landings	2 7 per ft. super. deld. rly. depôt.
" " " 3 in. do.	1 2½ " " "

## SLATES.

£ s. d.	
10 x 10 to best blue Bangor	13 2 6 per 1000 of 1200 at rly. dep.
10 x 12 " "	13 7 6 " " "
10 x 10 to best seconds	12 15 0 " " "
10 x 12 " "	13 10 0 " " "
10 x 8 best blue	7 0 0 " " "
10 x 10 to best blue Portma	
do.	12 5 0 " " "
10 x 8 best blue Portmadoc	6 5 0 " " "
10 x 10 best blue	
fading green	15 2 6 " " "
10 x 12 " "	17 2 6 " " "
10 x 10 " "	12 10 0 " " "
10 x 8 " "	10 5 0 " " "
10 x 10 to permanent green	11 0 0 " " "
10 x 10 " "	9 5 0 " " "
10 x 8 " "	6 10 0 " " "

## PRICES CURRENT (Continued).

TILES.	£ s. d.
Best plain red roofing tiles	48 0 per 1,000, at rly. depôt.
Hip and valley tiles	3 7 per doz. " "
Best Broseley tiles	50 0 per 1,000 " "
Do. Ornamental Tiles	52 6 " " "
Hip and valley tiles	4 0 per doz. " "
Best Rubon Red, brown or	
brindled Do. (Edwards)	57 6 per 1,000 " "
Do. ornamental Do.	60 0 " " "
Hip tiles	4 0 per doz. " "
Valley tiles	3 0 " " "
Best Red or Mottled Staff-	
ordshire Do. (Penkes)	52 0 per 1,000 " "
Do. Ornamental Do.	54 6 " " "
Hip tiles	4 2 per doz. " "
Valley tiles	3 8 " " "
Best "Rosemary" brand	
plain tiles	48 0 per 1,000 " "
Do. Ornamental Do.	50 0 " " "
Hip tiles	4 0 per doz. " "
Valley tiles	3 8 " " "

## WOOD.

At per standard.	£ s. d.	£ s. d.
Deals: best 7 in. by 11 in. and 4 in. by 9 in. and 11 in.	15 10 0	16 10 0
Deals: best 3 by 9 in.	14 10 0	15 10 0
Battens: best 2½ in. by 7 in. and 8 in. and 3 in. by 7 in. and 8 in.	11 10 0	12 10 0
Battens: best 2½ by 6 and 3 by 6	10 0 0	less than best
Deals: seconds	10 0 0	less than best
Battens: seconds	10 0 0	" " "
2 in. by 4 in. and 2 in. by 5 in.	9 0 0	9 10 0
2 in. by 4½ in. and 2 in. by 5½ in.	8 10 0	9 10 0
Foreign Sawm Boards—		
1 in. and 1½ in. by 7 in.	10 0 0	more than battens.
3 in.	12 0 0	
Fir timber: Best middling Danzig or Memel (average specification)	4 10 0	5 0 0
Seconds	4 5 0	4 10 0
Small timber (8 in. to 10 in.)	3 12 6	3 15 0
Small timber (6 in. to 8 in.)	3 0 0	3 10 0
Swedish balks	2 15 0	3 0 0
Pitch-pine timber (26 ft. average)	3 5 0	3 75 0
JOINERS' WOOD.		
White Sea: First yellow deals, 3 in. by 11 in.	23 0 0	24 0 0
3 in. by 9 in.	21 0 0	22 10 0
Battens: 2½ in. and 3 in. by 7 in.	17 0 0	18 10 0
Second yellow deals, 3 in. by 11 in.	18 0 0	20 0 0
Battens: 2½ in. and 3 in. by 7 in.	17 0 0	19 0 0
Third yellow deals, 3 in. by 11 in. and 9 in.	15 10 0	16 10 0
Battens: 2½ in. and 3 in. by 7 in.	12 10 0	13 10 0
Petersburg: first yellow deals, 3 in. by 11 in.	21 0 0	22 10 0
Do. 3 in. by 9 in.	18 0 0	19 10 0
Battens	13 10 0	15 0 0
Second yellow deals, 3 in. by 11 in.	16 0 0	17 0 0
Do. 3 in. by 9 in.	14 10 0	16 0 0
Battens	12 10 0	13 10 0
Third yellow deals, 3 in. by 11 in.	13 10 0	14 0 0
Do. 3 in. by 9 in.	13 0 0	14 0 0
Battens	10 0 0	11 0 0
White Sea and Petersburg—		
First white deals, 3 in. by 11 in.	14 10 0	15 10 0
" " 3 in. by 9 in.	13 10 0	14 10 0
Battens	11 0 0	12 0 0
Second white deals 3 in. by 11 in.	13 10 0	14 10 0
" " 3 in. by 9 in.	12 10 0	13 10 0
" " battens	9 10 0	10 10 0
Pitch-pine: deals	10 0 0	11 0 0
Under 2 in. thick extra	10 10 0	11 0 0
Yellow Pine—First, regular sizes	31 0 0	upwards.
Oddments	22 0 0	24 0 0
Seconds, regular sizes	24 10 0	26 10 0
Yellow Pine Oddments	20 0 0	22 0 0
Kauri Pine—Planks, per ft. cube	0 3 6	0 4 6
Danzig and Stettin Oak Logs—		
Large, per ft. cube	0 2 6	0 3 6
Small	0 2 7	0 2 6
Waincoat Oak Logs, per ft. cube	0 5 0	0 5 6
Dry Waincoat Oak, per ft. sup. as inch	0 0 7	0 0 8
3 in. do. do.	0 0 6½	" " "
Dry Mahogany—		
Honduras, Tabasco, per ft. sup. as inch	0 0 9	0 0 11
Selected, Figury, per ft. sup. as inch	0 1 6	0 2 0
Dry Walnut, American, per ft. sup. as inch	0 0 10	0 1 0
Teak, per board or V-jointed boards	16 10 0	20 0 0
American Whitewood Planks—		
Per ft. cube	0 4 0	" " "
Prepared Flooring—		
1 in. by 7 in. yellow, planed and shot.	0 13 6	0 17 6
1 in. by 7 in. yellow, planed and matched.	0 14 0	0 18 0
1½ in. by 7 in. yellow, planed and matched.	0 16 0	1 1 6
1 in. by 7 in. white, planed and shot.	0 11 6	0 13 6
1 in. by 7 in. white, planed and matched.	0 12 0	0 14 0
1½ in. by 7 in. white, planed and matched.	0 14 6	0 16 6
1 in. by 7 in. yellow matched and beaded or V-jointed boards	0 21 0	0 23 6
1 in. by 7 in. do. do.	0 14 0	0 18 0
1 in. by 7 in. white do. do.	0 20 0	0 22 6
1 in. by 7 in. do. do.	0 12 6	0 13 6
6 in. at 6d. to 9d. per square less than 7 in.		

## WOOD.

At per standard.	£ s. d.	£ s. d.
Deals: best 7 in. by 11 in. and 4 in. by 9 in. and 11 in.	15 10 0	16 10 0
Deals: best 3 by 9 in.	14 10 0	15 10 0
Battens: best 2½ in. by 7 in. and 8 in. and 3 in. by 7 in. and 8 in.	11 10 0	12 10 0
Battens: best 2½ by 6 and 3 by 6	10 0 0	less than best
Deals: seconds	10 0 0	less than best
Battens: seconds	10 0 0	" " "
2 in. by 4 in. and 2 in. by 5 in.	9 0 0	9 10 0
2 in. by 4½ in. and 2 in. by 5½ in.	8 10 0	9 10 0
Foreign Sawm Boards—		
1 in. and 1½ in. by 7 in.	10 0 0	more than battens.
3 in.	12 0 0	
Fir timber: Best middling Danzig or Memel (average specification)	4 10 0	5 0 0
Seconds	4 5 0	4 10 0
Small timber (8 in. to 10 in.)	3 12 6	3 15 0
Small timber (6 in. to 8 in.)	3 0 0	3 10 0
Swedish balks	2 15 0	3 0 0
Pitch-pine timber (26 ft. average)	3 5 0	3 75 0
JOINERS' WOOD.		
White Sea: First yellow deals, 3 in. by 11 in.	23 0 0	24 0 0
3 in. by 9 in.	21 0 0	22 10 0
Battens: 2½ in. and 3 in. by 7 in.	17 0 0	18 10 0
Second yellow deals, 3 in. by 11 in.	18 0 0	20 0 0
Battens: 2½ in. and 3 in. by 7 in.	17 0 0	19 0 0
Third yellow deals, 3 in. by 11 in. and 9 in.	15 10 0	16 10 0
Battens: 2½ in. and 3 in. by 7 in.	12 10 0	13 10 0
Petersburg: first yellow deals, 3 in. by 11 in.	21 0 0	22 10 0
Do. 3 in. by 9 in.	18 0 0	19 10 0
Battens	13 10 0	15 0 0
Second yellow deals, 3 in. by 11 in.	16 0 0	17 0 0
Do. 3 in. by 9 in.	14 10 0	16 0 0
Battens	12 10 0	13 10 0
Third yellow deals, 3 in. by 11 in.	13 10 0	14 0 0
Do. 3 in. by 9 in.	13 0 0	14 0 0
Battens	10 0 0	11 0 0
White Sea and Petersburg—		
First white deals, 3 in. by 11 in.	14 10 0	15 10 0
" " 3 in. by 9 in.	13 10 0	14 10 0
Battens	11 0 0	12 0 0
Second white deals 3 in. by 11 in.	13 10 0	14 10 0
" " 3 in. by 9 in.	12 10 0	13 10 0
" " battens	9 10 0	10 10 0
Pitch-pine: deals	10 0 0	11 0 0
Under 2 in. thick extra	10 10 0	11 0 0
Yellow Pine—First, regular sizes	31 0 0	upwards.
Oddments	22 0 0	24 0 0
Seconds, regular sizes	24 10 0	26 10 0
Yellow Pine Oddments	20 0 0	22 0 0
Kauri Pine—Planks, per ft. cube	0 3 6	0 4 6
Danzig and Stettin Oak Logs—		
Large, per ft. cube	0 2 6	0 3 6
Small	0 2 7	0 2 6
Waincoat Oak Logs, per ft. cube	0 5 0	0 5 6
Dry Waincoat Oak, per ft. sup. as inch	0 0 7	0 0 8
3 in. do. do.	0 0 6½	" " "
Dry Mahogany—		
Honduras, Tabasco, per ft. sup. as inch	0 0 9	0 0 11
Selected, Figury, per ft. sup. as inch	0 1 6	0 2 0
Dry Walnut, American, per ft. sup. as inch	0 0 10	0 1 0
Teak, per board or V-jointed boards	16 10 0	20 0 0
American Whitewood Planks—		
Per ft. cube	0 4 0	" " "
Prepared Flooring—		
1 in. by 7 in. yellow, planed and shot.	0 13 6	0 17 6
1 in. by 7 in. yellow, planed and matched.	0 14 0	0 18 0
1½ in. by 7 in. yellow, planed and matched.	0 16 0	1 1 6
1 in. by 7 in. white, planed and shot.	0 11 6	0 13 6
1 in. by 7 in. white, planed and matched.	0 12 0	0 14 0
1½ in. by 7 in. white, planed and matched.	0 14 6	0 16 6
1 in. by 7 in. yellow matched and beaded or V-jointed boards	0 21 0	0 23 6
1 in. by 7 in. do. do.	0 14 0	0 18 0
1 in. by 7 in. white do. do.	0 20 0	0 22 6
1 in. by 7 in. do. do.	0 12 6	0 13 6
6 in. at 6d. to 9d. per square less than 7 in.		

## JOISTS, GIRDERS, &amp;c.

In London, or delivered.	£ s. d.	£ s. d.
Railway Vans, per ton.		
Rollad Steel Joists, ordinary sections	6 5 0	7 5 0
Compound Girders	8 2 6	9 5 0
Angles, Tees and Channels, ordinary sections	7 17 6	8 17 6
Flat Plates	8 5 0	8 15 0
Cast Iron Columns and Stanchions including ordinary patterns	7 2 6	8 5 6

## PRICES CURRENT (Continued).

## METALS.

Per ton, in London	£ s. d.	£ s. d.
Iron—		
Common Bars	7 15 0	8 5 0
Staffordshire Crown Bars, good merchant quality	8 5 0	8 15 0
Staffordshire "Marked Bars"	10 10 0	" " "
Mild Steel Bars	9 0 0	9 10 0
Hoop Iron, basis price	9 5 0	9 10 0
" galvanised	16 0 0	" " "
(* And upwards, according to size and gauge.)		
Sheet Iron, Black—		
Ordinary sizes to 20 g.	10 0 0	" " "
" " 22 g. and 24 g.	11 0 0	" " "
" " 26 g.	12 10 0	" " "
Sheet Iron, Galvanised, flat, ordinary quality—		
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 30 g.	12 15 0	" " "
" " 22 g. and 24 g.	13 5 0	" " "
" " 26 g.	14 5 0	" " "
Sheet Iron, Galvanised, flat, best quality—		
Ordinary sizes to 30 g.	16 0 0	" " "
" " 22 g. and 24 g.	16 10 0	" " "
" " 26 g.	18 0 0	" " "
Galvanised Corrugated Sheets:—		
Ordinary sizes, 6 ft. to 8 ft. 20 g.	12 15 0	" " "
" " 22 g. and 24 g.	13 5 0	" " "
" " 26 g.	14 5 0	" " "
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g.	12 0 0	" " "
" " and thicker	13 0 0	" " "
" " 22 g. and 24 g.	13 0 0	" " "
" " 26 g.	14 5 0	" " "
Cut nails, 3 in. to 6 in. (Under 3 in. usual trade extras.)	9 5 0	9 15 0

## LEAD, &amp;c.

Per ton, in London.	£ s. d.	£ s. d.
LEAD—Sheet, English, 3 lbs. & up.	15 15 0	" " "
Pipe in coils	16 5 0	" " "
Soil pipe	18 15 0	" " "
Compo Pipe	18 15 0	" " "
ZINC—Sheet—		
Vincille Montagne	28 5 0	" " "
Silesian	28 0 0	" " "
COPPER—		
Strong Sheet	0 0 10½	" " "
Thin	0 0 11½	" " "
Copper nails	0 0 11½	" " "
BRASS—		
Strong Sheet	0 0 10	" " "
Thin	0 0 11	" " "
TIN—English Ingots	1 5 0	" " "
SOLDES—Plumbers'	0 0 6½	" " "
Timber's	0 0 8½	" " "
Blowpipe	0 0 9½	" " "

## ENGLISH SHEET GLASS IN CRATES.

2½ d. per ft. delivered.	£ s. d.
15 oz. thirds	2½ d.
" fourths	2½ d.
21 oz. thirds	3½ d.



## COMPETITIONS, CONTRACTS AND PUBLIC APPOINTMENTS.

(For some Contracts, &amp;c., still open, but not included in this List, see previous issues.)

## COMPETITION.

Nature of Work.	By whom Required.	Premiums.	Designs to be delivered
* Girls High School, Stockton-on-Tees .....	The Governors .....	25d., 15d., and 10d. ....	May 13
* Public Baths .....	Colingham (Kent) U.D.C. ....	20d., 10., and 5d. ....	May 30

## CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c., supplied by	Tenders to be delivered
Alterations to Factory, Queen's-road, Halifax .....	Messrs. J. Mackintosh & Co., Ltd. ....	M. Hall, Architect, 1, Harrison-road, Halifax .....	April 7
Hospital, (Bridges-road) .....	Hampton U.D.C. ....	S. H. Chambers, Surveyor, Public Offices, Hampton, Middlesex .....	do.
Flags, Kerbs, &c., near Manchester .....	Worsley U.D.C. ....	J. T. Proffitt, Surveyor, Council Offices, Worsley .....	do.
Gravite Road Metal, &c. ....	Canford U.D.C. ....	H. Bird, 11, The Parade, Chingford .....	do.
Sewers, Clonsilla .....	Chester R.D.C. ....	F. E. Priest, Civil Engineer, 15, Harrington-street, Liverpool .....	do.
* Wood Paving Works .....	Willesden District Council .....	Council's Engineer, Public Offices, Kilburn, N.W. ....	do.
Gravite Road Metal .....	Woodhall Spa U.D.C. ....	J. E. Chatterton, Horncastle, Lincs .....	April 8
* Sewer Work and New Public Lavatory .....	Holborn Borough Council .....	Council's Surveyor, 197, High Holborn, W.C. ....	do.
Public Convenience, Reddish-road .....	Stockport Corporation .....	J. F. Curwen, Architect, 26, Highgate, Kendal .....	do.
Gas-holder Tank .....	Stanmer (N.B.) Gas Co. ....	J. Atkinson, Civil Engineer, St. Peter's-gate, Stockport .....	April 9
School Buildings, near Mansfield .....	Pleasley School Board .....	W. G. Belford, Dunbar House, Stranraer .....	do.
Road Making, Trants-road, &c. ....	Chelmsford R.D.C. ....	J. Porritt, Architect, Main-street, Shirebrook .....	do.
Reservoir, near Macclesfield .....	Billingdon U.D.C. ....	H. G. Waine, Surveyor, Market-road, Chelmsford .....	April 10
Enlargement of Chapel, Blagowar .....	Harrogate & Knaresboro' Hos. Bd. ....	W. H. Radford, Civil Engineer, King-street, Nottingham .....	April 11
* Isolation Hospital at Thistle Hill, Knaresborough .....	Aldershot U.D.C. ....	J. M. Jones, 21, King Edward-street, Blagowar, Glam. ....	April 13
Reservoir Works, Crosshaven .....	Manchester Corporation .....	C. E. Hutchinson, Architect, 11, John-street, Bedford-row .....	April 14
* Erection of Cottages on Blackley Estate .....	Midsomer Norton (Somerset) U.D.C. ....	R. Evans, Civil Engineer, 53, South Mall, Cork .....	April 15
Road Materials .....	Barrow-in-Furness Corporation .....	City Architect, Town Hall, Manchester .....	do.
Church Restoration, Winterton, Lincs .....	Ratland County Council .....	Surveyor, Council Offices, Midsomer Norton .....	do.
Cast-iron Pipes, &c. ....	Prosser Corporation .....	C. H. Fowler, Architect, The College, Durham .....	April 16
Refuse Destructor, Stabling, &c. ....	Rowley Regis (Staffs) School Board .....	A. H. Strongtham, Civil Engineer, Barrow .....	do.
Infirmary Superstructure, Parkside Asylum .....	Islington Borough Council .....	R. A. Adam, Council Offices, Durham .....	April 18
Schools .....	Tottenham U.D.C. ....	H. B. Aweek, Architect, 21, New-gate-street, Chester .....	do.
* Underground Conduits, Offord-road .....	Dumfries Borough Council .....	Merdith & Pritchard, Architects, Kidderminster .....	April 20
* Making-up Roads .....	Commuters of H.M. Works .....	Council's Engineer, Town Hall, Upper-street, N. ....	do.
* Water Supply, &c., Works .....	do. ....	Council's Engineer, 712, High-road, Tottenham .....	April 21
* New Sorting Office, Manor Park, E. ....	do. ....	Council's Engineer, The Moot Hall, Daventry .....	do.
* Portman's Sorting Office, William Green .....	do. ....	H.M. Office of Works, Storey's Gate, S.W. ....	do.
* Fire Main and Hydrants, South-Eastern Hospital .....	Metropolitan Asylums Board .....	do. ....	April 22
* Ironwork for Ornamental Gates, &c. ....	Braford Corporation .....	Office of the Board, Embankment, E.C. ....	do.
Drainage Works, Balfron .....	Stirling County Council .....	Town Clerk's Office, Bradford .....	April 23
* Making-up, Paving and Lighting Roads .....	Hanwell U.D.C. ....	A. Lyles, 16, Buchanan-street, Glasgow .....	do.
* Painting and Repairs to Workhouse, &c., Endell-street .....	St. Giles-in-the-Fields Guardians .....	Council's Surveyor, Hanwell, W. ....	April 27
Electrical sub-station, Wilekham street .....	Sindri and Corporation .....	The Clerk, 57, Broad-street, Bloomsbury, W.C. ....	April 28
* Municipal Buildings .....	Camden Borough Council .....	F. C. Snell, Civil Engineer, Town Hall, Sunderland .....	May 1
* Public Baths and Underground Conduits .....	Messrs. Hargreaves Bros. & Co. ....	Council's Engineer, Town Hall, Camberwell .....	May 11
Offices, &c. ....	Newport (Mon) Co-op. Society .....	J. B. Thompson, Architect, 15, Parliament-street, Hull .....	May 12
Two Houses, Moor road, Hunstet, Leeds .....	Stanwell Parish Council .....	J. R. Road, Architect, Estate Office, Waterloo-road, Hunslet .....	No date.
Shops, Warehouse, &c. ....	Crow Corporation .....	Swash & Bain, Architects, Midland Bank Chambers, Newport, Mon. ....	do.
Cemetery Chapel, Stanwell, Middlesex .....	do. ....	R. Low, Architect, Clarence-street, Staines .....	do.
* Proposed Municipal Offices .....	do. ....	Borough Surveyor, Municipal Offices, Crow .....	do.

## PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
* District Surveyors (four) .....	London County Council .....	See advertisement .....	April 24

Those marked with an asterisk (\*) are advertised in this Number.

Competitions iv.

Contracts, iv. vi. viii. x. &amp; xxi.

Public Appointments, xvii.

## TO CORRESPONDENTS.

J. C. C. (Amounts should have been stated).

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and giving addresses.

Any communication to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

## TENDERS.

\* \* Next week communications for insertion under this heading must reach us not later than 10 a.m. on Wednesday, as, owing to the Easter holidays, we go to press a day earlier than usual.

† Denotes provisionally accepted.

ABERFAU (Wales).—For the erection of thirty-three cottages for the Building Club. Mr. R. Edwards, architect, Treherbert, Wales. £175 per house.

Lewis Davies, Abercynon .....

CURRAGH CAMP (Ireland).—For the erection of a

manse, for the Army and Navy Committee of the

Methodist Church of Ireland. Mr. Geo. F. Beckett,

architect, 97, Stephen's-green, S. and Mr. S. H. Bolton,

C.E., surveyor, 2, Hume-street, Dublin. 1.

Hamilton &amp; Co., Ltd., 1, 133d 0 0

J. File .. 1,595 0 0 J. &amp; R. Thomp-

G. Langley .. 1,683 0 0 son .. 1,348 0 0

Collen Bros. .... 1,650 0 0 McKee &amp; Mc-

Shendan .. 1,567 8 J. Kidd .. 1,318 0 0

O'Mahony .. 1,417 0 0

[The lowest tender representing more than the Committee

wished to lay out, the project was abandoned.]

COTFORD.—For additions to the Cotford Asylum

(Somerset and Bath Asylum), near Taunton. Messrs.

C. T. Hine &amp; Co., architects, 35, Parliament-street,

S.W. ....

Ellis &amp; Son .. £47,944 19 10 W. E. Blake £32,510 0 0

Pethick Bros. 37,444 0 0 Shillitoe .. 35,000 0 0

Whitcomb Bros. 36,331 0 0 Son .. 35,000 0 0

Broad, Ltd. 35,859 0 8 A. N. Coles .. 31,872 9 7

Howe &amp; Co. 35,577 16 0 Pollard &amp; Co., Ltd. .... 31,437 0 0

Westcott, Moss &amp; Son, &amp; Co., Ltd. .... 30,937 15 7

White .. 34,399 0 0 Hayward &amp; Weston .. 30,844 0 0

Spiller &amp; Son 34,281 0 0 Wilcock .. 30,560 0 0

McCormick &amp; Son .. 33,544 0 0 Stephens &amp; Son, Ltd. .... 30,355 0 0

Dart &amp; Pollard 33,000 0 0 King &amp; Son .. 30,227 0 0

D. W. Davies 33,047 0 0 H. W. Pollard, Bridgegate .. 29,470 0 0

A. J. Beaven 33,000 0 0

St. James .. 32,651 0 0

Bastow &amp; Co. .... 32,651 0 0

† Recommended for acceptance.

DONEGAL (Ireland).—For the erection of a creamery

for the Co-operative Dairy Society. Mr. Roberts, archi-

tect, Mr. Fant, engineer. 1.

James Woods .. £528 0 0 James Mullin, Do-

Patrick River .... 533 0 0 negal .. £528 0 0



**COMERSAL (Works).**—For the erection of an engine-house, Upper Spem Mills. Mr. T. Leadley, architect, 3, Coleridge-place, Bradford:—  
*Masonry and Joinery.*—Wilkinson & Sons, East Parade, Bradford ..... £1,596  
*Plumbing.*—Herbert H. Bentley, Cleckheaton ..... £1,596  
*Plastering.*—T. Barber, Comersal .....  
*Slating.*—Nelson & Son, Bradford .....  
*Foundry.*—Lees & Sons, Comersal .....  
**GRAY'S (Essex).**—For the erection of the Carnegie Free Library in Orsett-road, Grays. Mr. Christopher M. Shiner, architect, 6, 7, and 8, Crutched Friars, E.C., and Grays, Essex:—  
W. Potter ..... £2,765 o W. Potter ..... £2,687 o  
J. Brown ..... £2,726 5 H. J. Carter ..... £2,573 o  
R. Rons ..... £2,685 o Sheffield Bros. .... £2,557 o  
Hammond & Son ..... £2,643 o S. E. Moss\* ..... £2,336 4  
G. Prentis ..... £2,533 o

**GRAY'S (Essex).**—For the erection of a dwelling-house in Orsett-road, Grays. Mr. Christopher M. Shiner, architect, 6, 7, and 8, Crutched Friars, E.C., and Grays, Essex:—  
W. Potter ..... £1,089 o G. Prentis ..... £1,040 o  
G. Brown ..... £1,075 to Hammond & Son ..... £1,034 o  
J. J. Lawrence ..... £1,041 15 J. Brown\* ..... £1,013 o

**ILFORD.**—For the erection of eight houses, Grove-road, Chadwell Heath, Essex, for Messrs. T. & A. Goodey, Messrs. Verlyck & Dunn, architects, Adelaide-chambers, Ilford, E.:—  
C. North ..... £3,430 o R. Stroud ..... £2,239 12  
F. Willmott ..... £2,750 o M. Polhill ..... £2,176 o  
F. Gowen ..... £2,420 o A. Taylor ..... £2,023 o  
A. Symes ..... £2,400 o J. Gregory ..... £2,000 o  
A. H. Lovett ..... £2,480 o Thompson & Co.\* ..... £1,920 o

**KESTON (Kent).**—For additions, alterations, &c., at Woodside, for Mr. A. C. Norman, J.P. Messrs. Swan & Norman, architects, 8, Clifford's-inn, Temple Bar. Quantities by architects:—  
Crossley & Son ..... £1,475  
F. G. Minter ..... £1,423  
Smith & Sons ..... £1,393  
Kiddle & Son ..... £1,333  
Johnson & Co. .... £1,300  
Arnold & Son ..... £1,248  
F. P. Duthoit ..... £1,181

**LARGS (N.B.).**—For the erection of clear water-wheel to hold 100,000 gallons, and various other works, for St. Andrew's District Committee of the County Council of Fifeshire. Mr. H. Bruce, C.E., 67, Crossgate, Cupar, Fifeshire. Quantities by engineer:—  
W. Craggie ..... £1,504 6 Mitchell & Son ..... £981 2 2  
Morrison & Son ..... £1,223 8 Brebner & Co. .... £135 8  
J. Martin ..... £1,181 2 5 A. White ..... £93 6 2  
J. & J. Farmer ..... £1,121 17 3 John Mackay, .....  
W. Chalmers ..... £1,077 0 Broughty .....  
Mackay & Son ..... £1,039 15 1 Ferry ..... £54 17 9

**LITTLE ILFORD.**—For the erection of buildings for a crematorium at the City of London Cemetery, for the Corporation:—  
B. E. Nightingale\* ..... £6,886 o o  
*Supplying and Fixing Furnaces.*  
Symons, Ltd. .... £660 to o

**LONDON.**—For the demolition and rebuilding of premises, Nos. 16, 17, and 18, Union-street, and Nos. 1 and 2, Candover-street, W., exclusive of sanitary, electrical, and gasfitters' work. Messrs. H. Fuller Clark & Percy A. Knight, architects, 30, John-street, Bedford-row, W.C.:—  
Langdale & Hallett ..... £9,800  
Burman & Sons ..... £9,936  
Smith & Son ..... £9,169  
A. A. Webber ..... £9,403  
Anhey & Son ..... £9,086  
Smith & Co., Mount-street, W.\* ..... 8,950

**LONDON.**—For pulling down and re-erecting Nos. 372 and 374, Oxford-street, 2, 4, 6, James-street, and portions of 8, James-street and 14 and 15, Gee's-court, for Mr. T. S. Atkinson. Messrs. Willey & Gale, architects, 33, New Bridge-street, E.C. Quantities by Mr. Alfred Howard, 225, Strand, W.C.:—  
Thompson & Beve-ridge ..... £12,693  
Martin, Wells, & Co. .... £11,667  
Carmichael ..... £11,810  
Patman & Fotheringham ..... £11,523  
Lawrence ..... £11,499  
Kinglee & Sons ..... £11,397  
Hibberd ..... £11,275  
Holliday & Green-wood ..... £11,147  
Smith & Sons ..... £11,111

**LONDON.**—For hydraulic penstocks and gear, Southern Outfall sewer enlargement, for the London County Council. Armstrong, Whitworth, & Co., Ltd. .... £75,970  
Waller & Son ..... £11,975  
Stewart & Co. .... £9,972  
Blakeborough & Sons ..... £8,793  
Fullerton, Hodgart, & Barclay, Ltd. .... 8,368  
Glenfield & Kennedy, Ltd.\* ..... 8,020

**LONDON.**—For electric light and electric bell installations, Mile End Station, for the London County Council:—  
Jackson Bros. .... £2,305 8 o  
Clover & Co. Ltd. 330 o  
The National Electric Wiring Co. Ltd. .... 325 10 o  
Drake & Gorham, Ltd. .... 318 10 o  
Coleby & Co. .... £2,305 8 o  
Clark & Co. .... 299 15 o  
Sunderland & W. H. John-son\* ..... 229 13 6

**LONDON.**—For forming cellar for storage, loading stages, &c., Gardiner-lane, Putney, S.W. Messrs. Foulsham and Herbert Riches, architects, 3, Crooked-lane, King William-street, London, E.C., and Bromley-by-Bow, E. Quantities supplied:—  
Burman & Son ..... £3,450  
F. & T. Thorne ..... 3,350  
Todd & Newman ..... 3,268  
Sheffield Bros. .... 3,211  
Parsons & Co. .... 3,166  
Courtney & Fairbairn ..... £3,149  
Adamson & Sons ..... 3,127  
Green & Smith ..... 3,105  
W. R. Williams\* ..... 2,997

**LONDON.**—For repairs at the Clarendon Hotel, Tidal Basin, E. Messrs. Foulsham & Herbert Riches, architects, 3, Crooked-lane, King William-street, London, E.C., and Bromley-by-Bow, E.:—  
J. T. Robey ..... £385  
A. W. Derby ..... 379  
Salt & Sons\* ..... 315

**LONDON.**—For outside painting work and repairs at the Milkwood Tavern, Loughborough, S.E. Messrs. Foulsham & Herbert Riches, architects, 3, Crooked-lane, King William-street, London, E.C., and Bromley-by-Bow, E.:—  
F. & H. F. Higgs ..... £298  
Osborn & Sons ..... 285  
Courtney & Fairbairn ..... £279  
J. Hooper\* ..... 264

**LONDON.**—For reinstating damage done by fire to stabling at Ilford, E. Messrs. Foulsham & Herbert Riches, architects, 3, Crooked-lane, King William-street, E.C., and Bromley-by-Bow, E.:—  
Fred Willmott\* ..... £135

**LONDON.**—For addition to house, South Woodford, N.E. Mr. Herbert Riches, architect, 3, Crooked-lane, King William-street, E.C.:—  
Sheffield Bros.\* ..... £300

**LONDON.**—For decorations, &c., to house, Wanstead, N.E. Mr. Herbert Riches, architect, 3, Crooked-lane, King William-street, E.C.:—  
H. A. Barnes\* ..... £183

**LONDON.**—For decorations to offices, Fenchurch-avenue, E.C. Mr. Herbert Riches, architect, 3, Crooked-lane, King William-street, E.C.:—  
Hawtry & Sons\* ..... £120

**PLYMOUTH.**—For the construction of a covered reservoir, Blackdon Asylum, Wrangaton, for the Lunatic Asylum Committee. Mr. P. Haworth, C.E., Municipal Buildings, Plymouth:—  
A. N. Coles ..... £3,800 o o  
H. B. Neal ..... £2,053 o o  
G. B. Andrews ..... £1,697 17 12  
D. Hart & Pollard ..... £1,691 o o  
E. Pike ..... £1,676 57 3  
Laphorn & Ply-mouth\* ..... £1,625 o o

**REIGATE.**—For the erection of an addition to The Knowes, Reigate, Surrey, for Mr. W. Lawson Peacock. Mr. C. E. Salmon, architect, Bell-street, Reigate:—  
A. B. Apter ..... £498 16 3  
Bageley & Sons ..... 488 o o  
Sons, Reigate\* ..... £447 o o

**STIFFORD (Essex).**—For the alteration of the existing schools, a new infants' school, and two houses for the headmaster and caretaker, for the Stifford School Board. Mr. Christopher M. Shiner, architect, 6, 7, and 8, Crutched Friars, E.C., and Grays, Essex:—  
J. Brown ..... £7,350 o o  
J. S. Hammond ..... £7,050 o o  
Wm. Smith ..... £6,977 o o  
S. P. Parmenter ..... £6,957 o o  
Davey, Ltd. .... £6,914 o o  
Wm. Potter ..... £6,842 o o  
E. West ..... £6,781 o o  
H. R. Rons ..... £6,567 o o  
S. E. Moss ..... £6,349 13 o  
Pavitt & Son ..... £6,225 12 8  
C. Watt ..... £6,050 o o  
H. J. Carter\* ..... 5,755 o o

**TILBURY.**—Shop, Tilbury. Mr. C. M. Shiner, architect, London:—  
J. J. Lawrence ..... £415  
S. E. Moss ..... 385  
J. Brown ..... £399  
G. Brown\* ..... 315

**TILBURY DOCK (Essex).**—For the erection of five shops in Dock-road, Tilbury Dock. Mr. Christopher M. Shiner, architect, 6, 7, and 8, Crutched Friars, E.C., and Grays, Essex:—  
J. S. Hammond ..... £2,380 o o  
S. E. Moss ..... £2,000 15  
J. Brown ..... £1,971 o o  
J. J. Lawrence ..... £1,925 o o  
G. Brown\* ..... 1,675 o o

**WALLINGTON.**—For villa, Grosvenor-avenue, Wallington, for Mr. J. Garstone. Mr. Arthur L. Dartnell, architect and surveyor, 62, High-street, Croydon:—  
Page & Son ..... £995 o o  
Simmonds & Co. .... 950 o o  
Cronek & Richardson ..... 787 o o  
W. Roberts\* ..... 599 o o

**WALLINGTON.**—For pair of villas, Grosvenor-avenue, Wallington, for Mr. F. Flatman. Mr. Arthur L. Dartnell, architect and surveyor, 62, High-street, Croydon:—  
Smart & Son ..... £1,050  
W. Roberts ..... £900  
Truett & Steel\* ..... £800  
Gowman ..... 967  
Cronek & Richardson ..... 792

LONDON SCHOOL BOARD TENDERS

At the last meeting of the London School Board the Works Committee submitted the following lists of tenders. Mr. T. J. Bailey is the Board's Architect:—

\* Recommended for acceptance.

**BUILDING IN OLD KENT-ROAD** (to be known as the Townsend-street School for the Deaf).—Adaptation of premises for various purposes. Plans have been prepared for adapting these premises for the following purposes:—(a) Ground floor.—(i) Physically Defective Centre consisting of three classrooms, with hall 30 ft. by 26 ft. (in lieu of the Centre previously proposed to be provided at the Surrey-square School); (ii) Rooms for the accommodation of the Official Correspondent for the South-western Division. (b) First floor.—Day Centre for Deaf Children consisting of seven classrooms, with hall 34 ft. by 26 ft. (in lieu of accommodation previously proposed to be provided in connexion with the Peacock-street and "Alma" Schools). (c) Second floor.—Rooms for the Divisional Superintendent and Staff, and office for the local clerk of works for repairs (the office of the clerk of works is at present situated in the Townsend-street School). (d) Third floor.—Store-rooms. (e) Portion of the basement to be adapted for the accommodation of the caretaker:—  
Lathley Bros. .... Schedule + 178 per cent.  
Johnson & Co. .... Schedule + 10  
Marland & Sons ..... Schedule + 5  
W. Downs ..... £4,887  
J. & C. Bowyer ..... £4,160  
Hooper & Son ..... £2,955  
Bulled & Co.\* ..... 3,885

**CHELSEA (Ashburnham).**—Accommodation: boys, 150; girls, 150; total, 300. Senior school of two stories on arches, and playground for boys on top of school. Halls: boys', 46 ft. 6 in. by 26 ft.; girls', 46 ft. 6 in. by 26 ft. Class-rooms: boys', 40, 40, 40, 30; girls', 40, 40, 40, 30. Removing old cookery centre and providing a new one. Heating by low-pressure hot-water apparatus. Removing girls' and infants' water-closets and rebuilding them. Providing wash-house and water-closet for school-keeper:—  
Martin, Wells, & Co., Ltd. .... £11,814 + £200  
General Builders, Ltd. .... 10,595 + 103  
Fattman and Fawcett, Ltd. .... 10,393 + 175  
Gough & Co. .... 10,273 + 150  
Treasure & Son ..... 10,177 + 138  
Leslie & Co., Ltd. .... 10,167 + 152  
King & Son ..... 10,157 + 132  
Spencer, Santo, & Co., Ltd. .... 9,998 + 130  
E. Triggs ..... 9,940 + 177  
Johnson & Co., Ltd. .... 9,932 + 170  
J. & M. Patrick ..... 9,583 + 134  
Stimpson & Co.\* ..... 9,500 + 124  
† If walls of classrooms and halls are plastered, add

**CHELSEA (Beaufort House).**—Accommodation boys 25; girls, 250; infants, 253; total, 728. Graded school, on three stories. Halls: boys', 50 ft. 9 in. by 26 ft. 4 in.; girls', 50 ft. 26 ft. 4 in.; infants', 50 ft. 50 ft. 48 in. Class-rooms: boys', 56, 50, 48, 48, 48; girls', 55, 50, 48, 48, 48; infants', 56, 50, 50, 48, 48. Drawing classroom and science room, 1,070 ft. area. Heating by low-pressure hot-water apparatus. Schoolkeeper's house:—  
Leslie & Co., Ltd. .... £20,142  
Moseley & Sons ..... 19,570  
McCormick & Sons ..... 19,345  
Longley & Co. .... 19,130  
Treasure & Son ..... 19,184  
(London) Ltd. .... 18,805  
Martin, Wells, & Co., Ltd. .... 18,747  
Macey & Sons, Ltd. .... 18,700  
Lathley Bros. .... 18,692  
Garrett & Son ..... £18,638  
King & Son ..... 18,640  
C. F. Kearley ..... 18,545  
Marland & Sons ..... 18,551  
Johnson & Co., Ltd. .... 18,532  
F. & H. F. Higgs ..... 18,398  
J. & C. Bowyer ..... 18,295  
Lawrence & Sons ..... 18,289  
W. Downs ..... 18,173  
J. & M. Patrick ..... 17,948  
Stimpson & Co.\* ..... 17,900

**CITY (Gravel-lane).**—Building an additional story to house at present occupied by laundry centre and school-keeper in order to provide accommodation for a house-wifery centre:—  
Staines & Son ..... £999  
F. & J. Wood ..... 797  
T. L. Green ..... 779  
Williams & Son ..... £710  
Johnson & Co.\* ..... 593

**COLLEGE-LANE, HOMERTON.**—For adaptation of ground floor of back building for physically defective children. The front building on the Homerton College site in the possession of the Board facing High-street, Homerton, is at present being used as a residential deaf school. The back building on the site, which has a frontage to College-lane, is at present being used as a manual training room with a gymnasium on the ground floor, and a deaf centre, consisting of six classrooms on the first floor. The Board instructed the Works Committee to adapt the ground floor of this latter building as a school for physically defective children, consisting of two classrooms for twenty children each, a manual-room for the deaf children, and a hall 60 ft. by 27 ft., at a total estimated cost of £601. The plans of these works include:—the provision of new offices and urinal for the cripple children, new entrance porches, partitions to form enclosures for kitchen and lavatories on both ground and first floors; open fire stoves for warming the rooms, altering boundary-wall in order to form approach and entrance for ambulance:—  
Marchant & Hirst ..... £1,096  
Belcher & Co., Ltd. .... £1,498  
Lawrence & Sons ..... 1,338  
Williams & Sons ..... 1,410  
Stevens Bros. .... £1,334  
J. Stewart\* ..... 1,300

**GREENWICH (Stanley-street).**—Rebuilding the male and female infants' offices, refitting urinal and girls' offices, refitting boys' offices on roof playground, and providing new drainage scheme to the old portion of the school building:—  
Martin, Wells, & Co., Ltd. .... £3,140 o o  
Ashby & Horner ..... 3,100 o o  
Johnson & Co. .... 3,045 o o  
G. Parker ..... 2,934 o o  
R. P. Beattie ..... 2,933 3 7  
J. & C. Bowyer ..... 2,879 o o  
W. V. Goad ..... 2,825 o o  
Leney & Son ..... 2,720 o o  
W. Downs ..... 2,567 o o  
Walker & Sons ..... 1,997 o o

[See also next page.]



**HACKNEY (Tottenham-road).—**Providing and fixing auxiliary heating in each of the eleven classrooms of the P.T. and J.M. departments, with the necessary main and branch pipes, and of auxiliary heating connections, forming a scheme of auxiliary heating throughout the school, with the exception of the halls:—  
The Brightside Foundry and Engineering Co., Ltd. £212 0  
Stevens & Sons ..... 206 0  
Essex & Son ..... 205 10  
Palowkar & Sons ..... 179 6  
Bates & Sons ..... 174 0

**JESSOP-ROAD SCHOOL, HERNE HILL.—**For partitions, &c., in boys' and girls' departments:—  
J. F. Ford ..... £738 0  
Maxwell Bros., Ltd. .... 639 0  
Lathey Bros. .... 597 0  
G. Kemp ..... 588 0  
Garrett & Sons ..... £538 0  
J. & C. Bowyer ..... 389 0  
Bulled & Co. .... 497 0  
E. Triggs ..... 434 0

**MARLBOROUGH (Cromer-street School).—**Accommodation: Boys' and girls' (mixed), total, 206. Hall: boys' and girls', 51 ft. by 25 ft. Classrooms: boys' and girls', 60, 56, 50, 50, 40, 40. Drawing classroom, 633 ft. area. Science-room, 502 ft. area. School for mentally defective children, three classrooms of 20 each. Hall, 21 ft. by 24 ft. Heating by low-pressure hot-water apparatus. Existing house to be retained for use of school-keeper:—

Makin & Sons .....	£13,779 0 0
Gregar & Son .....	13,951 0 0
Grover & Son .....	13,816 0 0
T. L. Green .....	13,177 0 0
L. H. & R. Roberts .....	13,150 0 0
F. & H. F. Higgs .....	13,150 0 0
W. M. Dabbs .....	13,126 0 0
C. Cox .....	13,108 0 0
Williams & Son .....	13,068 0 0
Macey & Sons, Ltd. ....	13,058 0 0
F. & J. Wood .....	13,042 0 0
Simpson & Son .....	13,023 0 0
A. Porter .....	12,982 12 8
McCormick & Sons .....	12,789 0 0
Lawrance & Sons .....	12,764 0 0
Putman & Fotheringham, Ltd. ....	12,713 0 0
Treasure & Son .....	12,450 0 0
Chessum & Sons* .....	12,382 10 0

**ST. BARTHOLOMEW'S (Temporary).—**Cleaning and painting:—  
C. Wales ..... £229 6 0  
Deering & Son ..... 279 0  
Macey & Sons, Ltd. .... 238 0  
A. Porter\* ..... £193 0 0  
T. Wilson ..... 185 0

**SOUTHWARK (Page's-walk).—**Providing and planting trees and shrubs, &c.:—  
J. Russell ..... £89 10 0  
R. Neal ..... 71 10 0  
W. C. Benedict £64 10 0  
G. Footer\* ..... 25 19 0

**TOWER HAMLETS (Dalglish-street).—**Enlargement (66) and improvements. Providing halls for each department, 44 ft. by 24 ft. 3 in.; new staircase for girls; providing new cloakrooms and lavatories and teachers' rooms for each department; providing new classroom of 48 for boys and girls and one classroom of 54 for the infants; re-stepping one classroom for boys and girls; providing new covered playgrounds for boys, girls, and infants. Revised accommodation: boys, 284; girls, 284; infants, 209; total, 867:—  
F. & H. F. Higgs .. £7,965 0  
Munday & Sons .... 7,939 0  
Perry & Co. .... 7,748 0  
Holliday & Green-wood, Ltd. .... 7,712 0  
Gregar & Son ..... 7,684 0  
Lawrance & Sons .... 7,517 0  
Longley & Co. .... 7,517 0  
Treasure & Son ..... 7,125 0  
Chessum & Sons .. £7,045 0  
McCormick & Sons 6,991 0  
Bulled & Co. .... 6,859 0  
Johnson & Co. .... 6,813 0  
Wallis & Sons ..... 6,666 0  
J. & C. Bowyer .... 6,593 0  
Greenwood, Ltd. .... 6,382 0  
T. D. Leng\* ..... 6,379 0

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Mitchell & Son .....	£23,049 0
Johnson & Co., Ltd. ....	22,780 0
Lathey Bros. ....	22,700 0
F. & H. F. Higgs .....	22,611 0
Martin, Wells, & Co., Ltd. ....	22,601 0
Holliday & Green-wood, Ltd. ....	22,446 0
Appleby & Sons .....	22,169 0
Lawrance & Sons .....	22,000 0
W. Downs ..... 21,760 0	
J. & M. Patrick .. £21,543 0	
Smith & Son ..... 21,453 0	
Marsland & Sons .. 21,295 0	
Holloway Bros., London, Ltd. .... 20,948 0	
J. & C. Bowyer .. 20,732 0	
Smith & Sons, Ltd. 20,650 0	
Garrett & Son ..... 20,466 0	
Wallis & Sons ..... 20,466 0	
John Greenwood, Ltd.* ..... 20,315 0	

## WIRTEMBERG-STREET SCHOOL, CLAPHAM.

—For partition, &c., in infants' department:—  
Maxwell Bros., Ltd. £301 0  
W. Hammond ..... 299 0  
Appley & Sons ..... 285 0  
E. Triggs ..... 230 0  
Garrett & Sons ..... £219 0  
Lavey & Son ..... 198 0  
E. B. Tucker ..... 194 17  
Hooper & Son\* .... 175 0

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# The Builder.

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APRIL 11, 1902.

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Giaccomelli; and Palazzo Chiericati..... From Photographs.  
"Robert Hall" Memorial Chapel, Leicester..... Mr. Walter Brand, A.R.I.B.A., Architect.  
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## Romanesque Architecture.



THE Principles of Romanesque and Gothic Ecclesiastical Architecture forms the title of one number of the comprehensive work, "A Handbook of Architecture," published by Kröner, Stuttgart, which deals with this art in all its branches—artistic, scientific, practical, and historical. This exhaustive work, of which some numbers have reached their third edition, and some are yet in course of preparation, should prove of the greatest interest to architects, engineers, builders, and students of architecture. Each of the four parts, dealing with science, styles, construction, and design, respectively, is divided up into several volumes, which are further sub-divided into numbers, each of which is complete in itself and to be purchased separately.

Herr Hasak is the author of the present number.\* The object with which the book is written is to analyse the principles on which mediæval architects worked; to see how far these masters provided satisfactory solutions for the then existing problems, and how far they may claim to be called individual and reasonable. The result of these searching investigations and of repeated comparisons with modern principles, is to strengthen the recognised position which the builders of the Middle Ages hold; a position denied only by the few who hold Semper's view, *i.e.*, that mediæval art is no art, only the results of inadequate workmanship.

In the book the author has endeavoured to prove how mediæval architects worked on the only sound system; how they appropriated the knowledge of their predecessors, continuing their successful methods, while rejecting those which had been found wanting; for progress can only result from

a knowledge of past facts, with a just appreciation of their value, and a better application of them. He demonstrates how innovations crept in gradually and were always the result of necessity: the necessity of meeting and satisfying new requirements on the part of the public, and the necessity of yielding to the quality of the material, to the peculiarity of the craft, to the nature of the individual. An architect himself, Herr Hasak appeals to architects to forsake the paths trodden nowadays and to work in the same spirit of reasonableness that actuated their forefathers. He compares the mediæval practical training with the two modern schools of design. The one which sacrifices all individual judgment to a narrow-minded, slavish imitation of classic work, and the other, which neglects the training of the intellect, lest the "Godly spark of genius be dimmed," with the result that "the brain brings forth monstrosities and freaks," whose only claim to a passing attention is that they have never been seen before. The latter school cannot hope to produce the much-desired new style, for enduring innovations will not be created till the artist recognises the truth that human reason must transform that which already exists and has been handed down, and that we "can only rise on stepping-stones of our dead selves to higher things."

Another object with which the book is written is to correct popular fallacies entertained as to the lines on which mediæval architecture progressed.

Three very interesting chapters are devoted to the examination of mediæval working drawings, statics, and status of architects. The author, contrary to the generally accepted view, maintains that working drawings were used from the earliest times, and scouts the idea that buildings grew up haphazard, so to say. He shows from ancient records that the constructors did not trust to chance for the stability of their buildings, but displayed the greatest scientific knowledge, based on matured theories. He emphatically denies the "legend" of the ecclesiastical architect of Romanesque times, and of his Gothic brother, the master-mason, and he demon-

strates the existence of a class of men, whose training and functions correspond with the modern acceptance of the word architect.

These assertions hardly open up new questions, for forty years ago Mr. Street announced, as the result of his studies of Gothic in Spain, that with one exception, which Herr Hasak does not acknowledge, all Spanish mediæval architects were laymen and formed a distinct class.

Viollet-le-Duc also specifies the functions of architects from the thirteenth century onwards, describing them as laymen who were much esteemed and highly honoured by their employers. He also mentions the drawings on vellum of Notre Dame, Strasbourg, which are still to be seen, and date from the thirteenth century, some of the details being drawn out full size. Herr Hasak quotes several other existing examples of mediæval working drawings, but accounts for their rarity by the fact that few modern architects would be able to produce their drawings of twenty years back; much less, then, should we expect drawings of 1,000 years back to have survived. He does not agree with Viollet le Duc's ingenious hypothesis that mediæval designs were based on the theory of triangles. He certainly believes that "help lines" were used for working out a design, but these were diagonals. The eye is not satisfied, he says, with parallels in horizontal and vertical lines only, for we see more than one story and more than one bay in a glance. Consequently, parallelism must exist in the oblique lines as well, drawn, so to say, through every capital, base, and important point, the angle of inclination being determined by the chord of the arch. Each pair of diagonals will form two sides of Viollet-le-Duc's triangle, but the latter is a side issue, and the diagonal is the real "help line."

As to the mystery which hovers round the person of the mediæval architect, Herr Hasak explains that the ecclesiastical architect owes his existence to mistranslations: that the word "operarius," usually carelessly translated as "architect," really refers to the canon or monk responsible to the com-

\* "Die Baustile: Historische und Technische Entwicklung." 4. Band: "Die Romanische und Gotische Baukunst." 3. Heft: "Der Kirchenbau." Von Max Hasak. A. Kröner, Arnold Bergstrasser, Verlagsbuchhandlung, Stuttgart.



munity for the expenses incurred on a building, and that "magister operis," "magister fabricæ," or "caput magister" is the corresponding term for the modern architect. Similarly the master-mason-architect owes his existence to a misunderstanding. The term mason was applied to artist and artisan alike, in the same indefinite way as the word painter is now used. The term master-mason, on the other hand, was used to describe only the artisan; architects and sculptors adding simply mason to their names. As late as 1610 we find the splendid Renaissance monuments of Magdeburg Cathedral, of which any modern sculptor might be proud, signed "Bastian Ertle, mason."

Herr Hasak further produces documentary evidence as to the employment of the lay architect, evidence which antedates Viollet-le-Duc's by three centuries. A MS. of the tenth century, now in the Imperial Library in Vienna, mentions a layman—Master Odo, of Metz—as being the architect of Aachen Minster. In the obituary notices of St. Michaelsberg, Bamberg, 1121, the architect Richolf is specified as being a layman. In the agreement of Master Raymundo, architect of Lugo Cathedral, 1129, indirect evidence is given by the stipulation that the son shall complete the building in the event of the father's death. About a score of Italian and German names are mentioned of Romanesque architects, together with the records describing them as laymen.

Two other points Herr Hasak is eager to refute. The one is the mason's mark, which he says has enjoyed such undeserved consideration. It was believed at one time that every mason designed and signed the work he carried out; as the author observes, no practical person could have believed this theory. Indeed, half a century ago Fergusson distinctly said that in no instance was a mason of any grade called upon to design as well as to execute his work. The second fallacy which Herr Hasak exposes is that the art of the mason was a secret, the betrayal of which was a punishable offence—not only a secret, but a kind of philosopher's stone which enabled simple artisans, after five years of stone hewing, to build the magic halls of Gothic cathedrals. There is no evidence in support of this theory. On the contrary, in the very detailed regulations of the Ratisbon guild of masons, drawn up in 1459, though the strictest rules are laid down for the training and admission of candidates, no prohibition is imposed forbidding members revealing their art.

The arrangement of the book is most clear and methodical. Ecclesiastical buildings are classified into parish, monastic, collegiate, and cathedral churches. Their planning as a whole is first discussed; their evolution throughout the Gothic world is traced, and practical reasons are advanced for the adoption of peculiar forms. The modern practice of modelling large parish or monastic churches on the plan of a cathedral is strongly condemned, for the problem to be solved in each class of church is a widely different one. The solution which satisfies the requirements of episcopal functions must fail when applied to the needs of a monastic or parochial community.

The text is illustrated by over 300 drawings, taken chiefly from German examples. Herr Hasak contends that the Romanesque style ought to be really called the Germanic style for it was developed on Roman terri-

tory, only after the invasion by the Germans; that from Southern Spain to the Baltic provinces, from Sweden to Southern Italy, wherever the ubiquitous German was found, the style bore the same features. Romanesque being then proved the national style, one naturally expects to find its noblest exposition in Germany, and one's admiration for the reticent, grave sobriety of German Romanesque cannot be too strongly expressed. On the other hand, we cannot accept the indiscriminate appreciation shown by the author for every development of Gothic in Germany. In opposition to historical evidence, Germans are apt to claim the credit of the invention of a style, so little assimilated by them, that it proclaims itself to be a copy and no national development. Herr Hasak, indeed, freely acknowledges that Gothic was not a style indigenous to Germany, but that it was imported from France. He is, however, so intent on proving that the mediæval masters were ever practical in their conclusions, and truly themselves, that he ignores the æsthetic defects which, owing to the misunderstanding of a foreign style, arose on German soil. He lavishes unstinted praise on that German peculiarity, the Hallenkirche, of which one of the most famous examples is St. Stephen's, Vienna. He cherishes a weakness for this interior, with its aisles and nave of the same height, as opposed to the basilica section with its low aisles and heavy nave walls. But in these Hallenkirchen, not only is the effect, to less partial eyes, marred by absence of contrast in height, the plan is equally wanting in variety by the three aisles being almost of the same width. The interior of these churches, qualified as "bright, airy, roomy," where the horizontal line predominates, is a striking proof that Gothic is not only foreign to Germany but that its ideals have never been appreciated by German builders.

Even in the Romanesque style, which Germans may lay claim to have invented, and which possesses distinctive characteristics of great beauty, we find sins against artistic propriety. For instance, one of the leading German characteristics is the double-apsidal arrangement of the plan, seen at Laach. This may have been very convenient for ceremonial observances, but it defies obvious æsthetic principles. The external effect is puzzling, while the internal effect is destroyed, by the attention of the spectator being attracted simultaneously by two main features lying in opposite directions. Similarly, the western transepts and lateral entrances, resulting from these western apses, detract from the effect produced by the grouping round the high altar.

Yet another characteristic is the German delight in executing *tours de force* in stone; this erratic self-indulgence of the later Gothic being a strange contrast to the reserve of the Romanesque. The famous openwork spires, of which one of the finest is found at Friburg in the Brisgau, illustrate the discord so noticeable in German Gothic between the design and the material in which it is executed. But for the glory of overcoming constructional difficulties, these spires might, like the central spire of Rouen Cathedral, be executed in metal. A still more striking example of the want of fitness is the dainty veil of tracery spread over the façade of Strasburg Cathedral, which, in Herr Hasak's opinion surpasses in beauty the west front of Rheims, "the most fairy-

like French example of the thirteenth century." But he omits to add that this frail screen of masonry is only held together by a network of iron ties.

It is perhaps hardly to be wondered at that, when such extensive ground had to be covered in such limited space, England does not come in for much notice. Notwithstanding the partiality of the author, which makes him practically ignore English examples, the book is of great interest, and contains much useful matter. We are told that in the next number the architects of the Gothic period will be dealt with, together with details such as doors, windows, painting, sculpture, and furniture.

#### ABOUT SPIRALS.



HE spiral in nature is admittedly a great subject. Men of science, if one speaks to them of the spiral, shake their heads as on the threshold of a theme too large for common talk; and one must therefore admire courage, as much as any other quality, in the man who seeks to give the world a book on this topic. Mr. Cook, in his book on the subject,\* to be fair to him, sets out with the acknowledgment that he is only an amateur in the four sciences and one art which are indispensable to the handling of his theme, so that his public can utter no grudge against him for rushing in where specialists walk delicately; and we may admit that the mere airing of the subject—the mere half-opening of doors on a matter of such interest and magnitude gives a pleasure, and, so to speak, an invitation, for which any reader might well offer the writer his thanks.

What we like least in the book is Mr. Cook's main argument. That argument, to put it briefly, and, as we hope, fairly, is: that the well-known *escalier à jour* at Blois was copied from a shell; that the shell in question was *voluta vespertilio*, the spiral of which is so generally dextral that a sinistral specimen is as rare as, or rarer than, a left-handed man; that Leonardo da Vinci, who was probably in France at the time when this staircase was built, was not only a student of spirals, and, in particular, of shells, but was himself left-handed; and that therefore (this is the culminating *ergo*) the painter of the "Vierge aux Rochers" was probably the designer of this sinistral staircase. That Leonardo, "the Italian brother of Faust," a man of genius so omnipotent that we should call it demoniac if it were not so often divine, should be imagined or proved to be the author of this pleasure-giving work, could only be a satisfaction to the students of art; but such a supposition and such a proof could never lie along the lines of Mr. Cook's logic. That there is something in common between all newel staircases and all spiral shells we readily admit, but such an admission is rather a disproof than a support of the notion that the architect of this staircase went straight to a shell form for his model; and, indeed, it there existed a man in the sixteenth century who was ready to base the design of a cylindrical spiral on a natural object which was a spiral indeed, but one of proportionately increasing radius, we hardly think that man was Leonardo da Vinci. On

\* "Spirals in Nature and Art." By Theodore Andrea Cook, M.A. F.S.A. London: John Murray. 1903.



reflection one realises that there is no functional analogy between the helix of a shell and that of a newel staircase. The latter is no more than our old friend the inclined plane (the simplest device for the cheating of gravitation in ascent) disposed for economy of space around a central axis; while the shell, sharing nothing with the staircase but progressive rotation, is nature's device for protecting in the smallest of areas a long and growing body.

The more we study Mr. Cook's idea the more confident do we become of its unreasonableness. From an architectural standpoint it is distinctly weak, and, indeed, when we read his chapter on masonry, and follow his theory as to the genesis of the spiral staircase, we are led to hope that for the honour of his book the author's hold on the four sciences is tighter than his grip of the one art which he has studied for his purpose. His quotation, for example, from the "Century Dictionary" does not really support his view, and "the modern architects" who told Mr. Cook that "no workman would pin a step into the outer wall without supporting it by a beam from beneath" were sad rogues to so deceive a fellow-creature in search of knowledge. Mr. Cook asks that his architectural critics will deal with his biology, and leave the art problems to the mathematicians; we will, therefore, say no more on this head than that it must have been Mr. Cook's lot many times in the thirteen years of his research to have gone upstairs and down by such steps as his architect friends have deemed impracticable. He might, it is true, have been referring, in his allusion to "a beam from beneath," to a temporary mason's expedient during the process of fixing; but he makes it probable that this is not his intention by the astonishing statement that with the discovery of the newel (the outcome of overlapping steps) "the outer wall fell into its true position of a mere protective shell." Even if we ignore the principle of the cantilever, the "protective shell" cannot abandon its function as a bearing.

The study of spirals is obscured by two rather curious difficulties. One is that the dextral helix of ordinary parlance is known to the man of science as "leiotropic," while by consequence the dextrotropic is the sinistral. The sense of this lies in the fact that if a staircase turns the same way as a normal corkscrew or the ordinary right-handed screw of joinery, a man walking up it turns, as he walks, ever to the left. And here is the other puzzle. A right-handed screw, such as a wire screw-spring, is dextral from whichever end you consider it; or, to take another example, a rifle twist is sinistral whether it is viewed down the muzzle or up the breach. But yet the dextral staircase is apparently such that it is leiotropic on the way up and dextrotropic on the way down. You have, in fact, your left hand on the newel in ascending, your right in descending. The answer to this riddle (which is sometimes a stumbling block) is that a man in descending, though he turns his face and body round, does not really reverse the conditions of ascent. To truly prove the dextrality of the staircase one has just ascended, one should descend head downwards, and walking, not on the treads, but, like a fly, on the soffit!

We have no space to consider here Mr. Cook's survey of the spiral in vegetable growth, nor his very interesting studies of

the same form in other spheres, but we should wish to make it clear that the failure, as we think it, of his main contention does not by any means nullify the value of a readable discourse on a subject so wide and so elusive as to almost defy straightforward treatment. We put the book down at the end with a renewed sense of reverence for its great theme.

Coupling as it does the mystery of rotation with the mystery of progression, and adding thereto in the case of some organisms the perhaps greater mystery of logarithmic property, the spiral is indeed a force in the universe to be approached with uncovered head.

#### NOTES.

Municipal Trading.

It is some satisfaction that the Government has carried the motion for the appointment of a Select Committee of the House of Commons to act in conjunction with a Committee of the House of Lords in considering the principles which should govern the powers conferred on Municipal Authorities for industrial enterprise within and without the area of their jurisdiction. This being merely an application for a Committee to be appointed to give this important question what may be termed judicial consideration and to report to the House, the attitude adopted by the partisans of municipal trading in their speeches against the motion appeared symbolical of a certain distrust in their cause which, according to their own view, appears to be one in which inquiry spells condemnation. However this may be, the Prime Minister in an impartial speech pointed out some of the chief questions on which information especially was required—the desirability of allowing municipalities to employ their own constituents, the tendency where municipalities employ machinery and plant to stagnation and want of enterprise and competition—a tendency having no operation in their original sphere of enterprise, viz., road and street improvements, show the improvements are in their nature permanent—and the importance of determining the area of enterprise of the various municipalities. It is obvious that in many classes of enterprise the rigidly defined areas will lead to want of economy and waste of power. Mr. Balfour himself specified tramway enterprise as one as to which he entertained considerable doubt whether it should be in the hands of municipalities, and in this connexion we would point out that the London United Tramways, whose new system to Hampton Court was opened last Thursday, furnishes a concrete example of the advantages to be obtained by having such enterprises in private hands. Their system now passes through the jurisdiction of more than one Municipality, extending in all thirty miles, and although the new section only comprises some seven or eight miles, to obtain this extension the Company have had to expend some 200,000*l.* on public improvements; unremunerative works, which in the hands of a Corporation would have been done at the ratepayers' expense.

The Housing Question in the House of Commons.

The debate last week in the House of Commons on the Housing Question was extremely futile and ill-judged. Mr. Hay brought forward a motion censuring the

Local Government Board for not showing greater energy in connexion with this question. As we have very often said, the Local Authorities are the bodies which, at the present time, need to show more activity and interest in this matter, and especially in the rural districts. Mr. Hay gave an example of the shortcomings of the Local Government Board which, if it was of any value at all, was evidence of the cumbrous state of the law and of the slowness of action of the Local Authorities. The Local Government Board has, by the legislation, been placed in a very peculiar position in relation not only to housing, but to sanitary and other matters. It has, as one may say, to stimulate and also to censure local bodies; but it is the latter in whom both the power of the purse and the power of action exists, and the Local Government Board has the delicate duty of having to keep the local bodies up to the mark by exhortation, and not by punishment. There is no doubt whatever that this duty is very well performed by this Department, and we cannot understand why the Member for Hoxton wasted the time of the House of Commons with a motion which was quite wrongly directed, which received very little support, and the discussion of which was without any practical value.

Tramways on the Embankment.

THE House of Commons last week threw out that part of the London County Council's Tramway Bill which would have empowered them to construct a tramway across Westminster Bridge and along the Embankment. The ostensible ground of this refusal was the fact that the Government Commission is now sitting to consider the question of the London traffic, but so far as Westminster Bridge is concerned the recommendation of the Commission need not be waited for. Every one admits that the north and south of the Thames must be connected, and unquestionably it would be more convenient that the tramways should be brought over the bridge so that passengers could be put in communication with the Metropolitan Railway. As this railway runs under the Embankment, the only other scheme can be a tramway on the Embankment, and the existence of the Commission seems only an excuse for delaying the building of a tramway, which must sooner or later take place. Nothing is more remarkable than the selfishness of the well-to-do population of London, of whom the House of Commons is a very good representative, in regard to locomotion for the artisan and working class. We trust that the Commission, when it reports, will emphasise the need for the better means of transit for the bulk of those who use the streets, especially in the West End.

Engineering Standards Committee.

In a recent article upon the useful work of this Committee, we mentioned the probability that financial support might be afforded by Government, and we are now pleased to learn that, in response to a request made through the Board of Trade, the Treasury have expressed their willingness to include in the Board of Trade vote for 1903-4 a sum of 3,000*l.* as a contribution to the funds of the Engineering Standards Committee, but with the proviso that they shall not be thereby pledged to continue the grant in later years. It is always pleasant



to find a Government Department, and especially the Treasury, ready to support work of the kind undertaken by the Committee, but considering the fact that the labours of that body include the preparation of standard specifications for engineering works, and the standardisation of parts of locomotives and electrical appliances, in addition to the final standardisation of structural iron and steel, it does not appear that the grant is in any way of extravagant proportions. In addition to the deliberations of the various sectional committees, a vast amount of clerical work has to be performed, and endless mathematical details have to be calculated before the various tests can be published. These can only be completed by the aid of money, and the more money there is at the disposal of the Committee, the more rapidly can the standard schedules be finished and placed in the hands of the public. We therefore express the hope that the Government grant will not only be renewed next year, but will also be increased in amount. We are glad to observe that the Board of Trade are thoroughly alive to the immense value the new standards will possess for the country at large.

#### Building Construction.

To say that construction is a necessary part of true design is merely to state a truism, but unfortunately it is still the case that correct constructional methods are sometimes avoided by those responsible for the design of buildings. One or two recent cases, which have not been and probably never will be reported, may serve to make clear the present point. The first case relates to some business premises, lately erected in the North of England, having bay windows above the ground floor. During construction the architect noticed that the front of the building appeared to be coming down, and, being unable to discover the cause, he called upon a civil engineer for advice. No satisfactory information was available as to the exact details of the foundations, but examination of the failing front showed at once that the projecting windows were supported on cantilever brackets bolted to the girder over the shop front. It then became perfectly clear to the structural expert that the girder was actually beginning to rotate about its longitudinal axis, owing to the weight and leverage of the projecting work, and to the absence of any adequate counterbalancing force. When the disturbing cause was once discovered, the remedy was quickly applied, and the building was rendered safe. The second case refers to a municipal building in another northern city, which is founded on alluvial soil of very yielding character. This being so, it is naturally to be expected that some slight settlement will occur when a new building is erected, and also that those who build will be aware of this phenomenon. In the case of the building to which we now refer, it does not seem to have occurred to any one responsible that the settlement of one structure might cause injury to an older structure adjoining. The result is that one wall of the latter has subsided some 3 in. or 4 in., and the stone front is damaged from top to bottom for a width of 4 ft. or 5 ft. A little judicious underpinning and the application of half a dozen screw-jacks would have saved the heavy cost now necessary to restore the damaged building and to com-

pensate the owners. Examples such as these are probably exceptional, but they certainly serve to show how important it is that the rising generation of architects should be thoroughly grounded in the principles of mechanical science.

#### Concrete and Mortar Beams Under Flexure.

A BRIEF, but useful, paper, bearing upon the co-efficient of elasticity of concrete and mortar beams, is now before the American Society of Civil Engineers for discussion. The results quoted by the author relate to beams tested to the point of failure, and they are of more than ordinary value, as the beams tested were seven years old. Four beams, measuring 4 in. square by 38 in. long, were tested; two of gravel-concrete, 1, 2, 4 and 1, 3, 5, and two of cement mortar, 1, 3 and 1, 2. The beams were first broken by weights applied at the centre of 36-in. spans, and afterwards each half was broken by weights applied at the centre of 16-in. spans. It appears that the strain of deflection consisted of two parts, one apparently permanent and the other elastic, the latter disappearing upon removal of the load. The co-efficient of elasticity was computed by using the difference between the two deflections thus found, and the deflection was shown to vary almost exactly as the centre load. The co-efficient of elasticity for the concrete beams was found to vary from 387,000 lbs. to 1,591,000 lbs. per square inch, the average being 1,083,000 lbs., and for the cement mortar beams it varied from 597,000 lbs. to 2,440,000 lbs. per square inch, the average being 1,357,000 lbs. Similarly, the extreme fibre stresses were, for concrete, from 208 lbs. to 315 lbs., averaging 255.4 lbs. per square inch; and for cement mortar, from 294 lbs. to 636 lbs., averaging 471 lbs. per square inch. As usual in experiments upon such materials the variations are rather wide, but the results now obtained agree fairly well with those of other investigators.

#### The Properties of Radium.

THE discovery recently made by M. and Mme. Curie that barium chloride containing radium emits heat continuously without itself undergoing any appreciable change, has naturally caused a stir in the scientific world. Radium is an element which was discovered a few years ago, and is obtained from the mineral known as "pitchblende," which is an oxide of uranium, found in comparatively small quantities in Cornwall and in some other parts of the world. A ton of pitchblende contains only a few grains of radium, and up to the present date the total weight of radium compound extracted in the entire world probably does not exceed 1 oz. Very little is yet known about radium, but it has already been discovered that (1) it emits heat without undergoing combustion and without undergoing any measurable change in weight, (2) it maintains itself at a temperature higher than that of surrounding bodies, (3) it emits invisible rays which rapidly blister and destroy the human skin, and (4) it causes substances with which it comes in contact to become luminescent in the dark. Energy cannot be created; it can merely be converted from one form into some other form, and the power possessed by radium of perpetually emitting heat is supposed to be due to its power of converting into heat some form of energy which has not yet been discovered. Sir William

#### East Retford Sewage Works.

An illustrated pamphlet describing the sewerage and sewage disposal works at East Retford, and apparently written by the engineer, Mr. J. C. Melliss, M.Inst.C.E., has been sent to us. An interesting feature of the sewerage is the use of Shone's pneumatic ejectors for the purpose of raising the sewage from a low-lying portion of the district, and again at the outfall works. The method of disposal is chemical precipitation, followed by filtration through land. The precipitants are said to be "crude sulphate of alumina, carbon, and lime," and two tons of pressed sludge are produced daily. It seems to us that the scheme is a costly one, considering that the population of the district is only 13,000, and that the sewage is chiefly of a domestic character. The initial outlay was about 52,000*l.*, and the annual cost of carrying on the works is estimated at 594*l.*

#### Inconsistent Iconoclasts.

THE Town Council of Bedford decided last week to demolish the structure known as the Floral Hall—the last remaining building disfiguring the fine open space in the centre of the town, adjoining St. Paul's Church. The hall in question, originally erected as a Corn Exchange, was superseded by a more suitable building some years since. This very sensible action on the part of the Council is being vigorously protested against by a section of the inhabitants, and, according to the local press, the leaders of the opposition are the very people who insisted on the demolition of the venerable remains of the old Greyfriars Priory! It may be remembered that we joined in the ineffectual plea for the preservation of this interesting old relic, which has now entirely disappeared, the site being given over to the public as a recreation ground. It may be added that the gift was so abused that it was at one time an intolerable nuisance to the neighbourhood, and the cause of a disturbance almost amounting to a riot. The removal of the "Floral Hall" will have a very different effect, and will leave the statue of John Howard and St. Paul's Church in sole possession of St. Paul's square.

#### A Memorial to Bede.

A COMMITTEE have been constituted for the erection, at a cost of 500*l.*, towards which they ask for subscriptions, of a memorial to the Venerable Bede. The proposed monument, in the form of an Anglian cross, will be set up at Koker Point, Monkwearmouth, on a site that formerly appertained to the united monasteries of St. Peter and St. Paul at Wearmouth and Jarrow. Bede, as he himself says, was born in that territory, which two years before his birth in 673 had been granted by Ecfred, King of Deira and Bernicia, to his thane Biscop, afterwards Abbot Benedict. Benedict founded St. Peter's convent on the north bank of the Wear, and subsequently in 682 established that of St. Paul at Jarrow by the Tyne, five miles distant, where Ecfred had given him forty hides of land. When but seven years



old, Bede was placed under Benedict's care at Wearmouth, and then, still a youth, went to St. Paul's at Jarrow under Ceolfrid, its first abbot. There he passed all the rest of his studious life, with the exception of a few visits into Yorkshire and Kent, and, as some maintain, albeit upon very slender grounds, a journey to Rome and a term of residence as a professor at Cambridge. St. Cuthbert relates in a letter to Cuthwim the manner of his death, which happened on May 26, 735. His remains were stolen by Elfred, a priest of Durham, and, having been preserved in secret in St. Cuthbert's tomb, were removed by Bishop Hugh Pudsey or Puiset, who occupied the see in 1153-1179, into a magnificent shrine, which was despoiled *temp.* Henry VIII. The two monasteries suffered grievously at the hands of the Danes, and in 1083 were converted by Bishop William de Carlepho into cells of St. Cuthbert's at Durham, the rebuilding of which he began ten years afterwards.

At the Mart, on the 1st inst., Wine Office-court, Fleet-street, were sold, for 1,275*l.*, the house, No. 6, and its site, for rebuilding purposes, and No. 9, a corner house, for 2,800*l.* Two adjacent houses, opposite the time-honoured Cheshire Cheese, are also to be rebuilt. No. 6, on the west side, was the London home during nearly four years of Oliver Goldsmith. He removed thither in the autumn of 1760 from his lodgings at No. 12, Green Arbour-court (since demolished), between Farringdon-street and Old Bailey. The house belonged to a relative of Newbery, who had given him more regular and profitable employment. Goldsmith's sojourn in Wine Office-court, where he rented two rooms, is memorable for the circumstance that whilst living there he first made acquaintance with Dr. Johnson, whom on May 31, 1761, Dr. Percy took to sup with Goldsmith, as Percy relates in the biographical memoir compiled by various writers for the edition of the poet's miscellaneous works, and with Beaulieu, Burke, Reynolds, Tom Davies, Hogarth, and Boswell. He occupied the rooms until the spring of 1764, when he removed to some chambers on the library staircase in the Temple; in the meantime he occasionally sought quiet retreat in "country" lodgings at Islington. During the interval we mention he wrote his "Life of Beau Nash," began for James Dodsley a "Chronological History of the Lives of Eminent Persons of Great Britain and Ireland," commenced the "Traveller" and the "Vicar of Wakefield," wrote for Newbery a "Compendium of Biography," and a "History of England," and was elected one of the original twelve members of The Club, which after Garrick's death was named the Literary Club.

The New English Art Club. The exhibitions of the New English Art Club vary very much; sometimes one finds eccentricity and ugliness quite in the ascendant; at other times, as in the present instance, among a good many eccentric and unfinished sketches there is a fair proportion of works of real interest. The effort to convey impressions of light, colour, and atmosphere in landscape, rather than realism of detail, is finely illustrated and perfectly successful in the various works by Mr.

Mark Fisher and (not so far behind him) Miss Alice Fanner; Mr. Bellingham-Smith's "Tea-party" (69) conveys admirably the effect of light struggling through trees; even "The Golden Valley" (56) of Mr. Wilson Steer, an impressionist who often misses (or goes beyond) his mark, is really successful in conveying the impression of sunlight, though not of much else. Mr. Steer also exhibits a large sketch of a wall decoration, hardly decorative enough save in the ornamental framework of the picture. Some interior studies with figures vex one from the unnecessary ugliness of the personages introduced, as in Mr. Muirhead's "The Sisters" (53), a good piece of interior effect marred by the mean heads of the two women. Mr. Dodd, in "Afternoon" (61) interests us by a truthful rendering of character and colour in all the accessories without giving way to any of the hard glitter which reduces painting to a mechanical imitation; the same praise is due to Mr. W. W. Russell's interior scene "Reference" (93); here the figure is of some dignity, though the same artist in "Prints" (65) is content with a figure absolutely devoid of charm. Personal beauty is at a discount in the Club, Mr. Johnstone Douglas's charming face under "The Grey Veil" (70) forming the one exception. Mr. Furse's large portrait group at the head of the room is hardly one of his best efforts; in the portrait group called "The Song" (98) there is character enough, and a bold painting of the black silk dress, but the lady who wears it strikes one as very short in proportion to the scale of her head. Undoubtedly the most artistic piece of work among the figure subjects is Mr. Orpen's half-length seated figure "The Red Scarf" (103); not an agreeable face, but the whole full of character and colour. Among other things to be mentioned are Mr. Homer Watson's powerful though loaded landscape, "The Edge of the Plateau" (80); Mr. Duff's "Winter Lambs" (86); Mr. Thornton's "Scene on the Arno" (77), with its glimmering buildings on the further bank; and two still-life studies (94 and 106), by Mr. Orpen and Miss Cornish respectively.

A COLLECTION of small landscapes from Italy by Mr. Kerr-Lawson's Italian Landscapes. Lawson, at Messrs. Dowdell's Gallery, is of interest from their individuality of style and treatment. They are mostly city landscapes, in which buildings figure largely, and the artist seems to aim at conveying the essential architectural character and colour of the scene in slightly executed and rather flatly-tinted studies which nevertheless give the impression of careful and conscientious observation; what is omitted is omitted from choice and selection. The first in the catalogue "Venice," with the groups of buildings rising from an untouched expanse of water, is very effective; so is "The Zattere, Venice" (8), and "The Piazza, Siena" (18); "The Salute, Venice" (26) a little grey drawing giving a new idea of a celebrated architectural group; and a delicately-handled little moonlight scene, "Vallombrosa from Rovezzano" (35).

At the Modern Gallery are a large number of small paintings of Irish scenery, "The Land of the Shamrock," by Mr. Alexander

Williams, R.H.A.\* The general quality of these is very good; the artist is more particularly successful in coast scenery. No. 2, "The Loaded Winds Bring in the Gathering Storm," is a really fine picture on a small scale, very wild and stormy in effect. In "Ireland's Eye, Dublin Bay" (103), the fresh bright impression of the rough sea is admirable. In Nos. 53 and 110 the barren seaside foregrounds, sand and rushes in one case, gorse in the other, are painted with great truth; "A Shore Sketch" (75) shows a fine effect of calm with cloud reflections. Many others, including inland scenes, are worth attention, but it is in coast scenery that Mr. Williams is at his best.

IN our Note last week headed "Proposed Lambeth Bridge," by a printer's error which escaped notice we were betrayed into saying that we did not see why the Thames Conservancy should be allowed, by over-stringent requirements, "to deprive us of any more bridges of ornamental character." The word intended and written was not "ornamental," but "monumental," which is a very different thing. We have never asked for "ornamental" bridges; we want monumental bridges—i.e. solid architectural structures, not steel girders.

#### TELE-PHOTOGRAPHY, A MEANS OF SECURING PHOTOGRAPHS OF ARCHITECTURAL DETAILS.

BY ERNEST MARRIAGE, F.R.P.S.

THE difficulty, or rather the impossibility, of obtaining photographs of the interesting architectural details about or inside large public buildings must be familiar to every architect. General views of small interest can almost always be bought in the town, but go where you will, photographs of important structural details cannot be found. The local photographer has insufficient enterprise, or the public demand is not large enough to warrant the outlay involved in the making of the necessary negatives. Prior to the introduction of tele-photography (about the year 1892) it was often only possible to take large scale photographs of detail by the use of staging, and the expense of such a method is prohibitive to a travelling photographer. The tele-photographic lens makes it possible to record a piece of detail on a building from a greater distance; its height above ground level is a matter of less consequence to the tele-photographer, so long as there is a fair amount of space in front of the subject.

An illustration will make this point clear to the reader. The illustration marked A in the lithograph plate is a view in the atrium of the church of St. Ambrose in Milan, taken with a 6-in. lens. The lens was fifteen yards away from the second pillar—not the nearest one, but that next to it, and about the middle of the photograph. These pillars are 15 ft. or 16 ft. high, and a staging some 10 ft. from the pavement would be required if the capitals were to be taken with an ordinary lens. The camera should be nearly on a level with the subject if a near point of view is chosen, and a near standpoint is essential if the capital is to be photographed with an ordinary lens, unless a minute scale will suffice. The capital on the nearest column gives an idea of the alteration in perspective brought about by a nearer point of view. B is a tele-photograph taken from the same spot as the previous example; the same 6-in. lens was used, but a tele-photographic attachment was added to it, and the scale of picture multiplied by twelve. As A and B have been equally reduced in making the half-tone blocks, the exact gain in size due to the use of a tele-photographic lens is shown. In this atrium there are eighteen

\* "Royal Hibernian Academy," not "Royal Horse Artillery," as the affix is sometimes read in England; a mistake which carries with it the inference that the artist is an amateur.



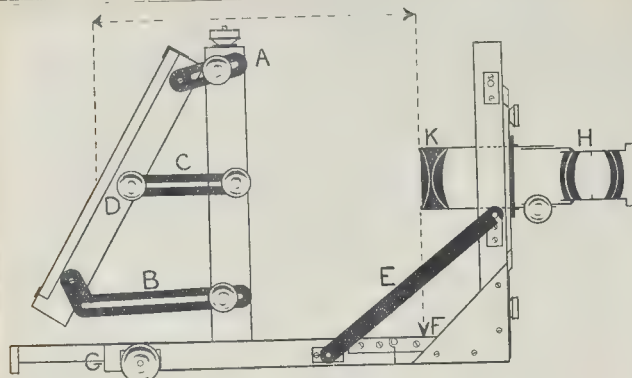


Fig. 1.



Fig. 2.



Fig. 3.

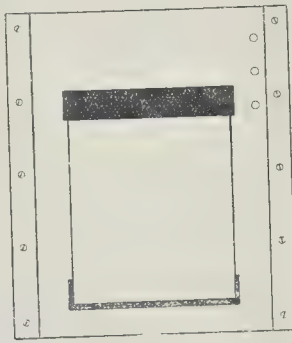


Fig. 4.

free pillars, with capitals carved on the four sides, similar to those which are reproduced; the subjects are varied, no two being exactly alike. C, also a tele-photograph, shows the treatment of animals in Romanesque carvings. The capitals to the pilasters against the walls are also worthy of note; there are over twenty of these, including the capitals to the doorways on the west front. It will be seen what a large field of usefulness tele-photography opens out in the study of design and decoration to the architect and sculptor.

For architectural tele-photography an expensive lens is not required, the negative attachment can be fitted to any good ordinary lens at a cost of from 3*l.* to 5*l.* A tele-photographic lens has another great advantage over ordinary lenses, besides the increased scale of the photographs, viz., that the focal length can be altered at will. In buying a telephotographic attachment, you have secured a number of lenses in one.

The camera and tripod should be strong, even at the cost of some increased weight. The size is a matter for individual choice. I use a 7½ in. by 5 in. camera (of which fig. 4 is a scale drawing) but would recommend a whole plate camera in preference, as 7½ in. by 5 in. plates are not quite so easy to get, and the shape is rather narrow for architectural subjects. The half-plate camera has less extension, and is on that account less suitable for tele-photography; upon the length to which the camera will rack out depends the scale of the tele-photograph. The most suitable type of camera has square parallel bellows, and fixed front; triple extension is very undesirable. The camera outlined in fig. 1 (I omit the bellows for the sake of clearness) is of the usual design, the chief difference being in the method of swinging the back. The common pattern only allows a slight amount of swing to be obtained, whilst for tele-photography a range of 30 deg. should be practicable. The brass stays A and B explain themselves; B is crooked in order that it may not project when

the camera is closed. The front strut E must be bent outwards slightly in the middle to clear the screw D under the same condition. The screw D and the stay C are of special form, better shown in fig. 2. The slot in C ends in a round hole, and there is a shoulder on the screw D, shaded in the plan, which fits into this hole; the shoulder is a trifle deeper than the thickness of the stay, so that the screw cannot bind the back swings until it is clamped in position by the binding screws on the stays A and B. Turning again to fig. 1, H and K represent a tele-photographic lens. H is an ordinary rectilinear lens, and K the negative lens of the tele-photographic attachment. Focussing is performed by moving H by means of the rack and pinion further from or nearer to K.

The point F on the base marks the distance the negative lens projects inside the body of the camera. The distance between the negative lens and the screen, indicated at the top of the plan by a dotted line and arrow heads should always be noted before making an exposure. A pocket measure should be carried for this purpose if suitable scales do not form part of the camera. In a camera of this pattern, the back is clamped to two stout brass strips running along the base; these can be engraved with scales; ¼ in. gradations will be sufficiently small, or, if the metric system is preferred, 5 of a centimetre. Fig. 3 shows a convenient form of the scale; it is marked in half-inches. F and G refer to the points so marked in fig. 4. J is the break in the continuity of the strip, which comes at the hinge of the camera. The scale on the right starts from the end of the fixed base-board at G, using G as an index, the length to which the camera has been racked is read off. The other scale to the left shows the distance that the back has been moved along the guides from a given starting-point, the bottom of the swing back, if it is closed against the upright, marks the extension, and the addition of the two

measurements gives the total extension. If the scales are intended solely for use with one tele-photographic lens, zero of the left-hand scale should be placed at the point F, but if they are to be used with other tele-photographic lenses which do not project inside the camera to the same extent, or with ordinary lenses, the outside face of the flange on the camera front is probably the best starting-point.

A camera that is to be used for architectural photography with ordinary lenses should have a wide range in the rising front. A useful plan for increasing the extent of this movement is shown in fig. 4. The drawing represents the front of my camera with the rising and cross front removed. The black slip is rabbetted into the camera and is movable. When rise is required it is placed as shown, if it is desirable to lower the front as much as possible, the slip is taken out and placed at the top, where it fits into the space indicated by the heavy line. The slot in the front itself should be long and protected with a brass plate, and several screw-holes for the binding screw should be made in the body of the camera; one is insufficient.

Whether or not the architectural photographer takes up tele-photography, his outfit is incomplete without a tilting table. It is not possible to tilt the camera to any great extent by means of the tripod and at the same time maintain stable equilibrium, whilst photographs of floor or roof detail are impossible without a tilting table, or some bulkier substitute. For architectural tele-photography a tilting table is absolutely essential, because the lens should be kept in the centre of the camera front. Raising the lens by means of the rising front to any appreciable extent will result in the plate being imperfectly covered, especially when the distance between the negative lens and the plate is short, and, further than this, it is very ineffective, as the alteration in the field of view is slight.

Mention has been previously made of the fact that the scale of the tele-photograph depends, other things being equal, upon the extension of the camera; as the scale increases the requisite exposure increases. The exposure should be directly proportional to the square of the magnification. By magnification is meant the linear increase in the size of the image in the tele-photograph compared with a photograph taken with the ordinary lens alone; compare A and B in the plate. As B is an example of twelve magnifications, the exposure should have been 144 times that necessary for the part of A which it represents, using the same stop in the ordinary lens in each case.

Without some means of finding out the magnification, exposures would be largely a matter of guess work. To find the magnification, divide the distance from the negative lens to the screen by the focal length of the negative lens and add one; the result is the magnification. For example, the focal length of the negative lens is 4 in., the distance between it and the screen 12 in.; then the magnification is 3 + 1, or 4 times, and the exposure must be sixteen times what you would give if the ordinary lens alone were used at the same aperture, say *f*/16.

Another way of increasing the magnification and scale is to use a negative lens of shorter focal length. The illustrations E, F, G, in the lithograph were photographed from the beautiful north porch of Charles Cathedral. E was taken with an ordinary lens, F with a tele-photo lens and a moderate camera extension, 13 in. from negative lens to screen; for G a shorter negative lens was used, and the distance increased to 16½ in. From this spot, and with the same camera and lenses, the scale of the tele-photographs could have been varied to any extent between the limits shown in examples F and G.

There is one fault which a beginner is almost certain to make in work of this kind—he does not see that his plate is properly covered; there is detail in the centre of the negative, but its corners are transparent and print out black. The natural tendency at first is to keep the camera too close to the object which is to be tele-photographed; then the camera extension must be short or the detail will be too large for the plate. With a shortened camera extension the covering power of a tele-photograph lens is diminished. To remedy the defect the camera is moved away from the object and the extension increased, to make up for the consequent loss in size; with



the increased extension of the camera, the plate will be found to be properly covered. One of my earliest attempts at tele-photography had three obvious defects. Failure to cover the plate, because the lens was probably raised above the centre of the plate, hence the upper corners were more devoid of detail than the lower ones. The lens was not focussed sharply; this was owing to the fact that the capital was on the dark side of the arch, but the difficulty might have been overcome by placing a candle on or close to the capital and focussing either on the flame itself, or by the light cast upon the capital. A piece of bold type placed on the object is often very useful in a case of this sort. The third defect was that the perpendicular lines of the columns diverged, which is evidence that the camera was tilted, but the back was not swung, and consequently was not perpendicular at the time of exposure.

The following advice may be useful to the novice. All photographs of detail should be taken in diffused light if possible. If the sun is shining, sometimes an obliging cloud will obscure it for a time sufficiently long to enable an exposure to be made in diffused light. If a series of photographs is to be made of a large building or cathedral, begin work in the morning on the south side and go to the west as soon as the sun interferes; the north side may be safely left to the afternoon, when any exposures should also be made upon the east end. The final focussing of the tele-photograph should be made with the same stop in the front lens as that which is used for making the exposure. Do not take tele-photographs of detail against the sky if it can be avoided.

Somewhat different conditions come into force when more distant views of buildings are the objects to be portrayed. In many cases sunlight will be helpful, especially if the sun is not too high and overpowering. Example D on the plate is a tele-photograph taken just as the sun was breaking through thin cloud; the soft touch of sunlight on the flying buttresses helps to throw these into prominence and to accentuate what is the main point of interest to the architect.

#### THE ARCHITECTURAL ASSOCIATION.

An ordinary general meeting of the Architectural Association was held on Friday last week in the Meeting-room of the Royal Institute of British Architects, No. 9, Conduit-street, Regent-street, Mr. H. T. Hare, President, in the chair.

Mr. A. J. Healey having been elected a member of the Association,

Mr. R. S. Balfour, hon. secretary, proposed a vote of thanks to Mr. W. E. Riley for kindly conducting a party of members over the London County Council estate at Tottenham on the 21st ult.\* This having been agreed to,

Mr. Balfour announced the following classes, commencing—April 8, "Land Surveying," Professor H. Adams, lecturer; April 23, "Quantity Surveying," Mr. H. J. Leaning, lecturer.

It was also announced that a meeting of the Discussion Section will be held on April 29, when a paper will be read by Mr. H. Cotman, entitled "A Tour in Gloucestershire," also that a paper by Mr. E. T. Hall, on "Hospitals," will be read before the Royal Institute of British Architects on April 20.

The Chairman read the list of officers nominated for session 1903-4\*, and the following gentlemen were appointed to act as scrutineers for the occasion, i.e., Messrs. W. J. H. Leverton, L. Simmons, T. C. Yates, A. Potter, and A. S. Taylor.

#### Andrea Palladio: His Life and Work.

Mr. Banister F. Fletcher then read the following paper:—

Of the early life and parentage of Andrea Palladio there exists but little information.

All his biographers, with the exception of Paolo Gualdo, describe him as having been born in the year 1518. The latter, however, informs us that he was born in 1508, thus making him just ten years older; but, unfortunately, there is no further confirmation of this statement. Palladio's father was a mason at Vicenza, where he died in 1545.

Though we should much like to know some of the circumstances of his boyhood and the various influences and episodes which contributed to his success in after years, all we are

privileged to learn is from Palladio himself, for he tells us that he early possessed a great love and natural inclination for architecture, and that, as a boy, he read Caesar's "Commentaries," and imagined and designed the bridge over the Rhine from Caesar's written description, afterwards utilising this over the Bacchiglione, near Vicenza.

Gualdo mentions that Palladio also seriously studied mathematics, which he considered an essential part of an architect's education. His humble birth is corroborated by Leoni, who describes him as of "mean extraction," adding, "that in consideration of his great abilities, and as a reward for the honours he did his native city, he was made free of same, and received into the body of the nobility." But this honour only came to Palladio when his fame was established throughout the whole of Northern Italy. It is evident that his early life was a studious one, and we naturally infer that a most excellent education was conferred upon him by his father, the mason Pietro, who, in all probability, sacrificed much to secure his son's future. The latter appears to have soon deserted sculpture for architecture, meanwhile also studying the works of Vitruvius, Alberti, Michelozzi, Cronaca, Serlio, and San Gallo.

In accordance with the custom of the times, Palladio possessed a patron in Gian Giorgio Trissino. It was with this patron that he first visited Rome in 1541, when he was thirty-three years of age. He must have been exceedingly industrious during this visit, as his drawings of the Classic buildings in his treatise testify.

He visited at various periods Ancona, Rimini, Naples, Capua, Pola in Istria, and Nimes. In May, 1547, we also hear of his visiting Tivoli, Palestrina, Porto, and Albano, returning to Vicenza in July, and taking with him nine books, entitled "L'Italia liberata dai Goti." In 1551 he is for the third time in Rome, "in the company of Venetian gentlemen."

His time there was spent in earnest researches among the ruins of her temples and edifices; a time of hard labour, of measuring minutely, and theorising, the results of which he has handed down to posterity in his valuable writings on architecture.

He says, "I began, with the utmost accuracy, to measure every minute part by itself, and, indeed, I became so scrupulous an examiner of them, not discovering that anything of this kind is performed without the justest reason and the finest proportion, that I afterwards, not once but very often, took journeys to several parts of Italy, and even out of it, that I might be able from such fragments to comprehend what the whole must needs have been, and to make draughts accordingly. I thought this an undertaking worthy of a man who considers that he was not born for himself only, but likewise for the good of others."

During his stay in the ancient city no doubt he came often in contact with many of the great artists of the day. Here he could gaze upon the great achievements of Bramante, such as the Cancelleria and Girand Palaces, and the little Temple of S. Pietro in Montorio, and upon the works of Raphael, who died in 1520; could study the progress of the cupola of St. Peter under the masterly direction of Michelangelo, and see this great master's work on the Palazzo dei Conservatori on the Capitol.

The work of Baldassare Peruzzi at the Palazzo Pietro Massimi and of Antonio San Gallo at the Farnese Palace were also completed at the time of his first visit to Rome.

In Palladio's writings we find interesting information regarding the architects and painters of his day. Especially does he eulogise Vasari, whom he styles "a painter and architect of great merit." We also find mention made of Sansovino, who died in 1570, accompanied by much praise of the buildings erected by him. Other contemporaries are mentioned, amongst these being San Micheli, the great military architect of the Renaissance whose special work is evidenced in his fortresses and palaces at Verona.

We have no information regarding Palladio's marriage, neither do we find any mention made of his wife. He had a family of four sons and one daughter. The eldest son, Marc Antonio, became a sculptor, like his father; we find him living at Venice in 1588, and he died in 1600. Leonidas, who assisted his father, died about 1574. We read of his directing the building of the dome at Montagnana in 1566. Orazio, the third son, studied law in Padua in 1564 and died in 1574. Silla, the youngest, was an architect, and, assisted by Scamozzi,

completed the Teatro Olimpico, upon which his father was engaged at the time of his death and died about 1627. Zenobia married Della Fede, a goldsmith, whose name appears inscribed in the guild at Vicenza.

Before the year 1564 Palladio was in legal documents called "of Vicenza" and "inhabitant of Vicenza." In those relating to the marriage of his daughter he appears as "civis Vicentine," a distinction worthy of mentioning in the days of the Republic.

None of the honours conferred upon Palladio can exceed the publication of his works which was undertaken with much courage and diligence by Ottavio Bertotti Scamozzi, who measured, drew, and restored his buildings. This book contains most interesting engravings and commentaries, showing much learning and scholarship. It embraces four large volumes, of which many editions have appeared both in Italian and French.

Though infirm for a long time, Palladio nevertheless continued to take an active part in the building of his edifices, and when finally the end came it found him at work upon one of his finest efforts, the Teatro Olimpico, finished after his death by his son Silla and Vincenzo Scamozzi.

Palladio's death was a great grief and loss to his loyal native city, which revered him not only for his genius, but for his many other virtues—for he was both amiable and benevolent, and beloved by his workmen.

#### Principles.

His principles are best exemplified in his buildings, but a striking point about many of them lies in the fact that he was not slavishly bound by his own rules as to the proportions of the classical columns and their entablatures.

Like many another, he was an exemplar of the saying that a genius can be above rules. Although he refers in detail to the various parts of a building and their proportions, he has left no information as to the design and composition of structures as a whole.

In his use of the orders he was full of resource, and no particular method seems to have been peculiarly his own.

It has been held that he was specially in favour of obtaining size and dignity in his composition by including two stories of his façades within one order. This has been said to have influenced English architecture in contrast with the precepts of Vignola which were followed in France; but Palladio employed both methods equally, while he was also fond of marking his ground story with rusticated blocks of masonry, expressing his first floor (piano nobile) by an order, and his upper (or attic) story by flat pilasters.

He also employed the attic story, seldom used by other masters, in lieu of a great crowning cornice.

His style has been defined as a mean between the severe use of ancient forms and the licentious style of those who reject all rule whatever.

Speaking generally, the plans of his buildings were suitable to the requirements of the Venetian nobility for whom they were erected.

The fact that they are not well suited to our present requirements cannot detract from their stateliness and convenience when considered in relation to the age in which they were erected, and the climate of Italy.

The disposition and proportion of his apartments in regard to each other are often exceedingly happy and effective.

Some have found fault with the magnificence and display which are observed in some of Palladio's façades, but here, again, we must remember for whom and for what purpose they were built. His clients were Venetian noblemen, eager to display their power and position by the erection of grandiose buildings, which he provided in his spacious columned vestibules, grand staircases, galleries, libraries, and colonnades.

His architecture was essentially columnar and not fenestral, and his entablatures were proportioned to the column with which they were associated, whereas his predecessor, Sansovino, occasionally employed an entablature disproportionate to the columns, as at St. Mark's Library, in which windows are placed in a deep frieze. In addition to the methods referred to, our master frequently used two orders of different scale in the same façade; one comprising the whole height of the building and the smaller subordinate "order" being only one-half or two-thirds of

\* See our issue for March 28.



the larger one. In every case except that of the facade of S. Giorgio Maggiore both orders rise from the same plinth level. In the Palazzo del Capitano and the Basilica the difference in height between the two orders is as ten to sixteen and a half, while in the Palazzo Valmarano it is as ten to twenty and a half.

Professor Cockerell attributes a great part of the magnificence of Palladio's buildings to the employment of this principle.

Our master also had a great preference for a pediment to the central part of the principal facade, and says, "In all the houses which I have built in the country, and also in some (very few) of those which I have made in towns, I have always placed a pediment where the chief entrance is, because it makes the principal entrance to the house more conspicuous, and contributes very much to the magnificence and grandeur of the building. This gives the entrance facade a great advantage over the others, as it must for that reason be made higher; besides, it is much more proper to put the arms of the owner there, and they are generally placed in the middle of the pediment."

Columns were sometimes placed on pedestals in order to give additional height, sometimes not so. The pedestals never seem to have been decorated with panels, sunk or raised, although this feature is so treated in Palladio's book. Fluting is generally omitted from the columns, and this was probably due to the fact that they were frequently formed of brick and stucco, materials which were unsuitable for fluting in long lengths.

Palladio's knowledge of the details of ancient Roman architecture was extraordinary, yet his inventive genius was considerable, and we seldom find that he repeated any of his designs. On the contrary, his facades abound with various dispositions of the orders, in addition to which he obtained effect and contrast by the judicious use of plain and rusticated walling and the use of arcades.

His rustication is often excellent in design and scale, and gives considerable character to his buildings, not in an excessive way, as at Florence, but as a set-off to his columns and their entablatures. In the design of his arcades, he appears to have preferred the larger order embracing two stories, with small pilasters placed behind them to carry the floor of the upper gallery.

In these arcades, semi-circular arches usually rest on piers in conjunction with a trabeated arrangement adopted from ancient baths. A favourite arrangement (of the Basilica), however, was one in which he divided the interval between two piers in three parts by small piers, or columns, with an arch only covering the central aperture, a combination which seems to have been copied from some colonnades at Diocletian's palace at Spalato.

In the design of his doors, windows, and niches, simplicity seems generally to have been sought after. Fewness in number and largeness in size was his aim. The openings were generally crowned by pediments, alternately angular and circular; but these were never broken—a roccoco feature in which he did not indulge.

On these pedimented openings he occasionally placed reclining sculptured figures, probably copied from Sansovino or Michelangelo.

The entablature to his orders are generally unbroken, but happy effects are sometimes obtained, as at the Basilica, at Vicenza, by projecting the columns beyond the main face of the wall and breaking the entablature around these projections.

In the profile of mouldings he was specially careful; the architraves and friezes were generally plain, the latter being sometimes pinnated, and his cornices have the consoles and other ornaments carefully centred over each other.

Interior decoration seems to have been somewhat neglected, owing, no doubt, to want of funds.

In regard to his church designs, instead of returning to the regulation forms of heathen temples, he was probably obliged, for ecclesiastical reasons, to keep to the Basilican or Lombard type, and his endeavour was to adapt the Roman orders to this type. The nave, being considerably higher than the side aisle, had to be treated independently of it, and instead of tiers of arches, he adopted a single order of columns placed on a plinth or on pedestals, and supporting an entablature with

pediment over. The aisles have their inclined roofs marked with half pediments.

Their proportion of basement to the order which it supports and the attic over, of window to wall space, and the relation of column to entablature and the various parts of the design are excellent.

Palladio had a lofty ideal in regard to architecture as applied to public edifices, for he says that "because they consist of larger dimensions, and that they are beautified with more curious ornaments than private ones as serving for the use and convenience of everybody, princes have a most ample field to show the world the greatness of their souls, and architects are furnished with the fairest opportunity to demonstrate their own abilities in excellent and surprising inventions."

He then refers to the "fatigue and long watching" he had endured in drawing out the ancient examples, and "hopes that the lovers of antiquity may reap pleasure from the same, and the studios of architecture receive benefit, especially seeing that much more is learnt in a little time from good examples of originals, by measuring of them and by seeing entire edifices with all their parts described on a little piece of paper, than from words," &c.

#### Bridges.

Leaving aside the wooden bridges which he erected, and dealing with stone bridges, he mentions four special points, viz, the abutments at the banks, the piers in the river, the arches, and the pavement.

He considers the piers should be of an even number, "as well because we see that Nature has produced from this number all those things which, consisting of more than one part, are to bear any weight, as the feet of men and all other animals may convince us."

Such an arrangement is also to be preferred because it leaves the middle of the river free from obstruction, where the current is naturally most rapid, and, it might be added, in which boats would naturally be.

The front of the lower portion of the piers, known to modern engineers as "starlings" or "spurs," i.e., the side that faces the stream are to be made angular, in order that they may divide or break the water, and prevent floating matter from lodging against them.

Palladio produced amongst others a design which was evidently intended for the Rialto Bridge at Venice. It was not carried out, the present bridge being erected in 1588-1591 from the designs of Antonio da Ponte.

#### Public Buildings.

The arcades surrounding the three sides of the Gothic Consiglio or Town Hall at Vicenza (also known as the Basilica or Palazzo della Ragione) are probably the most important of Palladio's works. Riccio in 1496, Spaventa in 1498, Sansovino in 1538, Serlio in 1539, and Giulio Romano in 1542 were all engaged at various times on the faulty Gothic arcades of the original structure. Finally, fresh designs were prepared by various architects and were submitted to the vote.

Three were chosen, one each by Spaventa, Giulio Romano, and Palladio, with the result that the latter's design was finally adopted by ninety-nine votes against seventeen.

This is the design as executed, and it was commenced in 1550 and completed in 1614. It was constructed in stone brought from Piovone, and this stone has weathered in a remarkable manner, and gives to the building a beauty which Palladio's stucco designs do not possess and will never attain.

It is curious that he himself says very little about the Basilica, except that: "There is another of them in Vicenza, of which alone I have given the draughts, because the porticoes around it are my own invention, and this I make no doubt but that this edifice may be compared to the ancient fabrics and to be reckoned among the noblest and most beautiful buildings erected since the time of the ancients, as well on account of its largeness and ornament as of its matter, which is all hewn stone, extremely hard, joined and bound together with the utmost care."

The hall around which the arcades are arranged is 171 ft. long by 68 ft. wide. It has a semi-circular roof covered with lead, hipped at each end. The ground story supports an upper one by means of vaulting, the upper story to the roof being about 70 ft. By referring to the plan we see at once that the width of the arcade bays is determined by that of the

piers of the Gothic hall which they surround, these piers dividing the interior of the ground story into seven compartments in length and three in width. With these measurements (height and width), which could not be departed from, it is easy to see that Palladio had to decide on a design controlled and influenced by these data. He marked each story by an order, the Doric to the ground story and the Ionic to the upper one, these being formed as half columns backing on to a wall of considerable thickness, and their entablature returned back to this wall at each column, thus giving a vertical expression and preventing the squat proportion which would have resulted had the cornices been continued round the facade without a break.

Furthermore, the height of the ground-floor arches, on the facade had to be considerably less than the hall, because the entablature of the order occupied some depth, and the arcade had to be beneath this. A statue crowns the balustrade over each pair of columns, and thus an unusual and difficult proportion of bay was cleverly handled. It is in the design of the space between the principal columns that the beauty and originality of this building is found. By referring to the illustration it will be seen that a space approximating a square is contained between the main columns as vertical lines, and the base of these columns and the underside of their entablatures as horizontal bounding lines. It is particularly in his treatment of these that Palladio has shown his skill, and had produced a motif which to this day is known by his name. He has filled in this square space with four columns, placed in couples about 3 ft. 6 in. from the main piers, and supporting a cornice from which springs a semicircular arch covering an opening twice its width in height. In the spandrels are circular openings.

The treatment of the angles of this building also shows the master hand. Here he was without restrictions as to width, and he has decreased this by placing the coupled secondary columns nearer to the piers, and by doubling the main columns at the angles or rather, by placing an extra angular three-quarter column which shows on each face.

This diminution of width of bay and the doubling of the columns give an appearance of strength to the angles of the facade which is very pleasing. The basilica is such an important creation that a few words as to its detailed proportions may not be out of place.

The order to the lower story is Doric, consisting of half columns about 2 ft. 8 in. in diameter, attached to a wall about 4 ft. 4 in. thick. The columns are about eight diameters, and the entablature is slightly over a quarter of the column in height.

The smaller Doric free-standing columns to this story have the same proportion as the larger, but they have a circular base, no doubt with the intention of preventing inconvenience to pedestrians.

These small columns have a cornice, in height about one-eighth that of the columns, of the type shown, and from this springs the semi-circular arch.

The upper story is ornamented with a large and small Ionic order, both placed on the same continuous pedestal about a quarter of the height of the larger columns, these latter being 2 ft. 3 in. in diameter, and 8½ diameters in height.

Palladio has not here followed his own rules nor those of Vitruvius, who says "that when the columns are placed over each other, the upper one should be a quarter less in diameter than the lower," whereas in this case it is only one-sixth. A balustrade, one-fifth of the Ionic order in height, crowns the facade.

The height of the Ionic entablature is about one-fifth of the height of its column. The smaller free-standing columns of this order are 1 ft. 2½ in. in diameter and 8 diameters in height. The capitals are of the Grecian type, and have circular plinths and cornice similar to that on the lower story. The method of vaulting the arcades is shown in the illustration.

This building must rank as Palladio's masterpiece; the peculiar charm it now possesses is also much enhanced by the beautiful weathering of the stone.

The Teatro Olimpico at Vicenza is a good example of Palladio's skill in planning.

In this building he was not in any way bound by precedent, as suggested by some who have only studied his work superficially. On the contrary, he well knew how to accommodate the principles of classic architecture to



the special circumstances of his own designs; modifying according to need the proportions, forms, and distribution of the parts.

Palladio's studies in Rome among the classic ruins, and also his excavations of the Berza Theatre at Vicenza, must have well equipped him for designing this building. He also had made a special study of Vitruvius, and the elaborate directions laid down by that author, indicating how the ancients planned these particular buildings.

When, therefore, the Academy of Vicenza decided on constructing a building in which plays of the classic authors might be given, it was to Palladio, whom they regarded as a high authority on the subject, that they naturally turned.

The work was begun on May 23, 1580, in Palladio's presence, but he was not destined to see its completion, for he died on August 19 of the same year. In gratitude for his work we are told that the Olympic Academy nominated his son Silla to superintend the work. The theatre was not entirely completed till 1584.

The plan and general distribution leave no doubt that Palladio kept the form of the Roman theatre in view, but that, owing to the peculiar and restricted shape of the site, variations had to be made, the most notable being the semi-elliptical auditorium, which takes the place of the semicircular plan of the Romans. Scamozzi has been at some pains to inquire into the general principles of proportion adopted, in which, owing to the novelty of the elliptical plan, he had to depart from the proportions of Vitruvius. His remarks are certainly ingenious and convincing, but cannot receive a detailed notice here.

The building proper occupies a site 123 ft. long by 75 ft. wide. It will thus be seen that the space originally at disposal does not include all that shown in the plan, but only the auditorium and the stage.

The extra accommodation, including the three rooms to the left and the portions behind the permanent scene, were acquired afterwards.

The elliptic form, or rather that produced by portions of three circles, was decided upon as being most economical for the seating of an audience desirous of hearing and of seeing perfectly.

Attention may be directed to the radiating streets behind the scene, which has a length of about 70 ft.

It is constructed in stone, and is composed of two orders of Corinthian columns placed one over the other. The upper columns are not isolated like those below, but are semi-circular in plan and attached to the wall. Their pedestals project over the lower columns and support statues, forming a very pleasing feature.

Above the upper order of Corinthian half-columns is an attic story with small pilasters over the axes of the lower columns. In front are placed statues, while between them are square panels filled with sculptures representing the labours of Hercules executed by well-known sculptors.

Between the columns of the ground and first stories are placed niches occupied by statues and framed in with pilasters, entablature, and pediments, triangular or segmental. The centre of the scene has a large open archway of semi-circular form, springing from the cornice of the lower story, and there are smaller square-headed doorways on either side, formed under the entablature of the ground story.

The return walls of the scene, which are at right angles to it, are treated in a somewhat similar manner to the front. On the ground floor is placed a doorway centrally to each return, having on each side a semi-circular-headed niche, above which are slightly sunk panels filled with bas-reliefs.

The first floor has a central opening, protected by a balustrade. Above the podium, or enclosing wall of the auditorium are constructed the seats in thirteen tiers. They are about 21 in. in width and 15½ in. in height. Above the top row of seats is placed a Corinthian colonnade, cleverly contrived to hide the irregularities of the site.

The openings of the permanent scene, central and side, form entrances to the interior scene constructed as streets radiating therefrom. These streets are built in perspective, with buildings on either side, the line of sight, or horizontal line, being half-way between the stage level and the upper tier of seats of the auditorium.

This construction in perspective was designed by the architect Scamozzi.

The ceiling is flat, and extends without interruption over auditorium and stage, allowing the voice to travel without hindrance.

#### Town Houses.

Some of Palladio's most important designs were erected in his native town of Vicenza. They were mostly built in brick faced with stucco, which has now fallen away, and, in consequence, the designs suffer from having been executed in such poor materials.

Our architect has been blamed for this by certain critics, who evidently consider that he was responsible for the depth of his client's purse. We should rather rejoice that, in spite of the materials at his command, he should have been able to produce such excellent results.

Palladio introduces the subject of town houses as follows. He says, "I am sure that they who shall look upon the buildings I am going to give the draughts of in this book, and they who know how hard it is to introduce a new way, particularly in the art of building (in which every one presumes to be knowing) will think me very happy that I have met with persons who were generous, judicious, and reasonable enough to hear and approve my reasons."

The Palazzo Chiericati in plan, has a great gallery or portico, which extends the whole length of the principal front on the ground floor, and is carried up on the two wings to the first floor, the central portion of which is walled in and forming the hall. The front of this building has two orders, the Doric for the ground floor, the Ionic for the first floor, and is an example of treatment which Palladio often favoured. This is to be remarked, because his name is generally associated with the treatment of an order embracing two stories in height.

In Leoni's edition of Palladio's "Architecture," this building is shown with Ionic order of the central portion of the first floor as pilasters, instead of half-columns, but most will agree that the substitution of pilasters would have deprived the façade of much of its interest.

Another feature is the continuous pedestal, or stylobate, upon which the lower order rests, forming a solid base or support to the whole structure. The Doric columns are of sturdier proportions than usually adopted by Palladio, being seven and a-half diameters in height. This sturdy proportion was probably used because these free-standing columns supported an upper story, the central portion of which was solid. These and other deviations from the master's own precepts are interesting as showing how he altered them to suit the circumstances of the case.

The upper story is treated with the Ionic order, resting on pedestals which have no base.

In Palladio's book none of the statues or vases are shown which are seen as crowning the structure and carrying up the vertical lines of the columns. It is doubtful if these additions improve the design, certainly the attenuated vases have a very unpleasant effect.

Although a large part of the building appears to have been erected during his lifetime, it was only finished a considerable time after his death, viz., towards 1700.

The Palazzo Thiene like so many of the designs, was only partly finished. In plan it consisted of a central square courtyard of 84 ft. 6 in., surrounded by a rusticated arcade, beyond which are the various rooms; the size of the whole site being 190 ft. by 176 ft.

The illustration shows another method in which a rusticated lower story with flat arched windows, surmounted by semicircular arches, supports the first floor, ornamented with composite pilasters on pedestals. The windows to the first floor have small three-quarter Ionic columns with entablature and pediment.

This is an excellent composition, the reserved use of the order for one story only being very happy.

These first-floor windows have rusticated shafts resting on pedestals, between which are placed balusters; a composition probably designed to lead by an intermediate stage from the masculine treatment of the basement. In Leoni's drawing the main entablature is shown at about one-fifth of the height of the column, which is Palladio's usual proportion, whereas in execution it has been increased to one-fourth its height, our architect evidently

taking account of the narrowness of the streets and the consequent foreshortening of the upper mouldings.

The courtyard is equally fortunate, a similar treatment being adopted, except that the necessary openings are left for the arched between the piers. The attic here has also small windows lighting the rooms of the upper story.

The finished portion was adorned with sculpture by Alessandro Vittoria, Bartolomeo Ridolfi, and with paintings by Anselmo Canera and Bernardino India, both the latter being of Verona.

The Palazzo Valmarana was erected by the Conti Valmarana, as Palladio says, "not only for their own honour and convenience, but also for the ornament and glory of their country," an idea which might be more often followed by rich men in these days. The plan shows that the house is divided into two parts by a central court, and behind is shown a large garden, 120 ft. by 68 ft. 6 in. wide. Only the front block of this important façade has been executed. The stables are also placed in rear of the site.

The ground-floor apartments are vaulted, and the upper ones ceiled at a height equal to their breadth. It is curious to observe that in Leoni's edition the site of this building is shown as rectangular on plan, whereas in reality the front wall is not at right angles to the side walls. There were two ways of treating this façade, viz., either to make the front wall at right angles to the side walls, in which case it would have to be set back from the general line of the other buildings in the street, or as Palladio arranged it, of making it line up with the general building frontage, allowance being made for the difference of shape in the front rooms. In choosing the latter arrangement Palladio showed his good taste, and left it as a legacy for architects of all times. Many modern buildings have been spoiled by neglecting to adopt this principle in dealing with awkwardly-shaped sites. The method of stepping-back the façade in order to make rooms square is very unsatisfactory, and has only to be seen to be at once condemned. The façade of the Valmarana Palace has been the subject of much criticism. It shows another treatment, having an order of composite pilasters embracing two stories in height and an attic-story over them.

The façade above the base is in brick and stucco. The main entablature is one-fifth the height of the column, and the order rests upon projecting rusticated pedestals, one-quarter of the height of the pilasters. The secondary order of the Corinthian type, which marks the ground floor, rests upon the same pedestal as the larger order, an arrangement which many critics have condemned.

This order is of half pilasters backed against the main order and is not a happy arrangement. The entablature to this order is broken at each intercolumniation against the main pilasters. Above the main entablature is an attic the height of which is one-quarter that of the pilasters.

The upper windows have balconies of small projection. It will be seen that the main pilasters do not terminate the façade in a manner which might be expected, the secondary order being doubled instead and made to support statues above its cornice. As a principle of design, this does not appear correct, the length of the façade being thereby apparently diminished and the framing of the whole design unpleasantly affected.

The Palazzo Barbarano is interesting in many ways, because Palladio has given his original design, and also that which was actually carried out. It has an entrance leading to a large colonnaded hall beyond which is an open court. As to the façade, each story has its own order, whereas in the original design one Corinthian order of semi-columns resting on a podium was taken through two stories.

There is no doubt that the second or executed design is immeasurably superior. On the ground floor the wall space between the Ionic half columns is rusticated and the windows have flat arches, the abundance of wall space giving the necessary strength which a ground story should possess. Exception might be taken to the impost moulding upon which these arches rest as being unnecessary. The upper story is in a most ornate manner. The windows have architraves and consoles supporting pediments, alternately triangular and segmental, upon which are placed reclining figures.



The podium to these windows is pierced with a balustrade, while the Corinthian columns are unfluted and rest upon a continuous block immediately over the cornice of the lower order. An attic plainly treated with square window crowns the whole building.

The illustration shows the angle treatment of the Ionic order, which is peculiar.

Although built in brick and stucco, this palace must always remain a triumph of art over matter. The meanness of the material used is completely lost sight of in the superior excellence of a master design.

In execution this has been considerably altered. The original design was for a regular façade of seven bays with a central opening leading into a columned vestibule. Additional land appears to have been acquired, which throws the principal entrance out of the centre.

The Ionic columns to the front façade have a height of 9 diameters, those of the courtyard at the back  $9\frac{1}{2}$  diameters, and those to the entrance 8½ diameters, these latter having to support a solid vault. Palladio herein followed Vitruvius, as the latter mentions in his Book I., Chapter 2, "That variations may well be made from the regular proportions, in order to suit them to special circumstances." The Corinthian columns to the first floor are also raised upon a plinth, in order to prevent their bases being hidden by the projecting cornice of the lower order.

The Palazzo Porto faces two streets, and the front portion only was executed. The entrances from each street led through columned halls to a great central courtyard, open to the sky, and surrounded by a colonnade of Composite columns embracing two stories in height, and crowned with entablature and balustrade. The passage on the first floor is supported on pilasters attached to the backs of these tall Composite columns.

Palladio mentions Paul Veronese as the artist employed to paint portions of the interior. The exterior is certainly one of the most pleasing, and resembles that already shown in the Palazzo Thiene. A rusticated basement, with square-headed windows and circular relieving arches, with carved keystones, supports a *piano nobile* of attached Ionic columns and entablature. Between the columns are square-headed windows surrounded by an architrave moulding, and provided with consoles carrying pediments alternately segmental and triangular.

Over these pediments Palladio designed reclining figures, but the view shows that only three groups are really executed, a central and two angle ones.

This omission helps the façade, which might otherwise appear too complex and crowded. There is also another important difference between Palladio's design and that which was actually carried out.

In the statues which decorate the attic story he shows a range of eight, resting on the top of the attic pilasters, whereas there are only four, and they are placed immediately above the cornice in front of the pilasters. This appears an infinitely better position, for there is something dangerous looking and gymnastic about free-standing sculpture at a great height from the ground.

The Palazzo del Consiglio, also known as the Palazzo del Capitano, the Prefettura, Municipio, Loggia Bernarda, and Palazzo Comunale, is not mentioned in Palladio's book, and must therefore have been erected after its publication. It is comparatively a small building, a portion only of the original design, and is situated opposite his masterpiece in the Piazza de' Signori. Thus we can see at a glance one of his earliest and latest productions.

The Composite half columns, without pedestals, are carried through two storeys, and their entablature breaks round them, and is crowned by a balustrade. The attic story over is set well back, and does not interfere with the general proportions of the façade, which are excellent. The lower portion forms a triple arcade, and the upper story has windows and projecting balconies supported on triglyph brackets. The windows of this story cut into the architrave of the main entablature, a defect in the design which is hidden by the outside blinds. The view shows the dilapidated condition of this façade, the brickwork of the columns showing where the plaster has fallen off.

The treatment of the side façade differs from the front, the main order not being carried round, and is not successful.

The Casa del Diavolo, also known as the "Antica Posta," the "Casa Porto," and other names, is an unfinished design. Two bays only of the façade have been completed, which indicate the immense scale adopted. Half columns of the composite order rest on deep pedestals, the cornice of which forms the impost of the principal gateway.

These columns are 10 diameters in height, and from their abaci sculptured festoons, bound with oak leaves, stretch from one capital to another. The windows to the first story are crowned with pediments, alternately segmental and triangular, and have projecting balconies with balustrades supported by consoles.

The entablature of the main order has windows in the frieze, in the manner of Peruzzi, to give light to the small rooms of the upper story.

The House of Palladio was erected in 1556. There appears to be no evidence that Palladio ever resided in it. At the same time, as an instance of one of his smaller works, which he might have designed for himself, it is an exceedingly interesting piece of work. The plan consists of a front and back *corps de logis*, with an open area between, to the side of which is the staircase.

The ground story has Ionic columns with entablature one-fifth of their height. A large centre semi-circular-headed opening forms the chief entrance, and has reclining figures in the spandrels. Smaller flat-headed openings are on either side. The first story has Corinthian pilasters of a rather stumpy proportion, and above is an attic story crowned with a modillion cornice. The blank space in the centre of the first story is probably caused by the fact that the light for this room is obtained mostly from the interior court.

#### Country Houses.

Palladio introduces the subject of country houses with a few preliminary remarks on situation and the various compartments in these words:—

"As certainly 'tis highly creditable and convenient for a gentleman to have a house in the city where he is obliged sometimes to reside; so perhaps he may receive no less pleasure and advantage from a house in the country, where he passes the rest of his time in seeing and improving his own possessions, in augmenting his substance by industry and agriculture, while, by exercising himself either in walking or on horseback—which are only proper for the country—he preserves his body strong and healthy; and where, in a word, the mind, being over-laboured by the fatigue of the city, will be singularly recruited and re-created."

The open position and extended space available are then dwelt on in comparison with town sites, and the necessity for finding "commodious and healthy places" is referred to at some length.

The Italian sixteenth-century country house had very different requirements from one in modern England. In all of our master's draughts a central "corps de logis" is provided for the master and his family, and this has generally a frontispiece of columns, either flush with the front wall or in advance, and crowned with entablature and pediment.

On either side are the wings containing the steward's apartments, the stables, the stores, and granaries.

Such dependencies in England are generally placed at some distance from the house, and often do not form part of the group. Palladio's types of country houses may be divided as follows in regard to plan:—

Type 1.—Block type (as the Villa Capra) without wings.

Type 2.—Central block (or *corps de logis*) with quadrangle.

Type 3.—Do., do., with straight wings.

Type 4.—Do., do., with quadrant wings.

Type 5.—Do., do., with returned wings.

The kitchen and offices were invariably placed in a basement or lower story, and an upper story is often provided and used for granaries. Only a few typical houses can be referred to.

The Villa Capra—also known as the "Rotonda"—was originally designed for Signor Paolo Armerico. He appears to have been of a cultured disposition, for "after having travelled a long time to improve himself, and being come to settle at last in his own country, after the death of all his friends, he se his abode at a country house he had on a hill."

It is situated at the eastern base of Monte Berico, near Vicenza.

Palladio seems to have been much impressed by the beauty of the site, for he goes on to describe how it is surrounded by several hills "that seem to form a great theatre." This is probably the best known of all Palladio's works, and owes much to its open position and to the excellent views on all sides. It has a central hall 40 ft. in diameter, carried the whole height of the building, which was to receive its light by means of circular windows in the dome. Four angular staircases bring the central portion to a square, around which are placed the living apartments. On each of its four façades is an Ionic colonnade projecting about 14 ft., and having an internal width of about 34 ft.

These appear to have been placed, because of the excellent views to be obtained on all sides.

The basement, containing the kitchen, &c., extends under the whole of the house, "for the use and convenience of the family," as Palladio quaintly puts it.

The ground floor is raised about 11 ft. 6 in., by means of wide flights of steps, giving access to each portico. For a sunny climate the Rotonda is undoubtedly a very excellent and suitable design, the central hall forming a convenient retreat from the heat of the summer sun, while the projecting porticoes are so placed as to catch every available ray of sunshine at different periods of the day, meanwhile protecting the interior of the house by means of their deep shadow. The hall has a projecting gallery at the upper level, giving communication to the first-floor rooms.

The bedrooms, however suitable for the period and country, would undoubtedly be dark and inappropriate in England, as also the passages leading from the central hall to each portico.

Inigo Jones's references to this house are not of great interest. He remarks that it "stands very solid and firm," and "that a great sum of money must have been spent in the building of this house and especially for the terraces," and also that in his time "the lantern at the top of the cupola is not set on but a net to cover the top hole to keep out the flies"; also that "the tiling does not look well, considering the richness of the statues and the beauty of the building."

The exterior view shows the somewhat dilapidated condition of this building, and also that the windows in the dome are not executed, the light being obtained from a very small lantern at the top of it.

In spite of these drawbacks, this design has exercised an extraordinary fascination for European architects, who have imitated it again and again. The first imitation in England appears to have been Mereworth Castle in Kent, by Colin Campbell the architect. It was also copied by Lord Burlington in 1729 in his villa at Chiswick (now used as an asylum) and at Chiswick (now used as a Devonshire, and on a larger scale for the Earl of Westmorland at Foot's Cray Place, Kent (now occupied by S. J. Waring, Esq.), and also at Nuthall, Notts. On the Continent it served as a model also for the original Château de Bagatelle, near Paris, also for the Château de Marly-le-Roi (since destroyed), a building which was erected for Louis XIV. by the architect, J. H. Mansart, in 1676.

The sculptor Canova also built a house at Inverigo in Italy after the same design.

The house at Maser has a central advancing block of two stories in height, with straight arcaded wings, returned backwards on each side, and connecting the centre with the stable and kitchen. The whole forms an extent of about 280 English feet in length. The courtyard at the back is level with the first floor of the main building. It has a semi-circular recess ornamented with Ionic pilasters, statues, sculptured cornices and festoons, and a small basin through which running water passes into a lake.

The front view gives a very good idea of the setting of many of our master's country designs, and also shows one of the weak points of Italian country architecture, viz., the poor and ineffective treatment of the chimneys, which in this, as in many cases, appear merely as circular flue pipes without any attempt at grouping or harmonising with the architecture. In most of Palladio's own drawings no chimney stacks are shown. This view also shows the Ionic colonnade of the front, with



an unusual arrangement of broken cornice and central window.

The house at Meledo for the Conti Francesco and Ludovico de Trissini, has a plan of an unusual and ambitious kind, being a combination of types 1, 4, and 5.

The central block resembles the "Rotonda," near Vicenza, and has quadrant wings. In front of these are other returned wings. The main block was to be about 120 ft. by 90 ft., and to have a central circular hall about 40 ft. in diameter surrounded by various rooms and staircases. A columned portico of the Corinthian order is on each face, placed there because "every front of the house has a very fine prospect." Palladio describes its situation "as very fine, being on a hill that is washed by a little river, in the midst of a spacious plain, and on a well-frequented road."

The house proper is set well away from the lower porticoes containing the farm offices by means of the quadrant galleries—a great improvement on some of the smaller plans, in which the granaries and farm offices are in immediate proximity thereto.

The cupola crowning the whole forms a fine terminal to the group, but in execution these windows have been omitted. The kitchens, as usually seen in smaller plans, were in the basement and the granaries in the roof.

#### Churches.

Palladio refers in his writings to the ancient temples in Rome, and elsewhere in Italy, and dwells on the importance of buildings raised for devotional purposes.

He then speaks strongly in favour of the circular shape, because it is "alone among all figures simple, uniform, equal, strong, and most capacious. . . . the extreme in every part being equally distant from the centre; it is, therefore the most proper figure to show the unity, infinite essence, uniformity and justice of God."

The cruciform plan is referred to as commendable by Palladio, who says, "In this form I built myself the church of S. Giorgio Maggiore in Venice."

Il Redentore, Venice, situated on the island of La Giudecca, and consecrated to the Redeemer for the deliverance of the city from the plague which ravaged the town in 1576, was intended to express the devotional idea. The plan is in the form of a Latin cross, in the long arm of which are three chapels formed in the aisles on each side of the nave, which is twice its width in length. A dome crowns the crossing, having its base brought to a circle by pendentives.

The sanctuary at the south end of the building has a semicircular screen of Corinthian columns and contains the principal altar, while the transepts are also of semicircular form. Behind the screen is placed the choir, severely plain, agreeing in treatment with Capuchin ideas.

The walls of the interior are ornamented by an order of Corinthian half columns coupled between the chapels, and have two niches between them. The arches to the side chapels are semicircular, and rest upon impost mouldings supported by Corinthian pilasters. Each chapel is crowned with an internal semicircular vault, corresponding with the arch to the nave. The height of the nave vault, which is of brickwork, and rises from the main entablature, is about 65 ft., and in this semi-elliptical vault are semicircular windows lighting the nave.

The façade has a main order of the Composite type, expressing the interior nave. This order is formed as half columns, the angles being formed as piers and they support an entablature and pediment. The pilasters throughout are diminished, and have an entasis in the same manner as the columns.

This order is raised upon a stylobate, in the height of which is managed the principal flight of steps, which is as wide as the nave. On either side of the central space the side chapels are designed as wings, ornamented with Corinthian pilasters starting from the same level as the principal order. Half columns of this same order flank the central door of the church and support entablature and pediment, and are also carried round the lateral façades.

On either side of the central doorway are niches for statues, flanked by pilasters supporting entablature and pediment. Above the walls separating the side chapels are taken masses of masonry, forming buttresses to resist the pressure of the nave vault.

S. Giorgio Maggiore differs principally in the aisles, these taking the place of the side chapels

of "Il Redentore." The church is dated 1556, but the façade was added by Scamozzi in 1610.

The plan is cruciform, consisting of a nave 40 ft. in width and aisles about half that width. The length of the nave up to the crossing is about twice its width. The transepts have semicircular ends, and over the crossing is a dome constructed internally of brick and externally of timber and lead. One bay beyond the crossing is planned similarly to the nave, and at this point the aisles are stopped, and the sanctuary and chapter-house are continued with out aisles. In the interior a composite order of columns and pilasters placed on pedestals, a quarter of the column in height, ornament the walls.

Between the nave columns are semicircular arches, resting on the entablature of the smaller coupled Corinthian pilasters. The soffit of these arches, which extends over the width of two pilasters, is of considerable depth, and has a much bolder and better appearance than the thin arch in "Il Redentore." The nave vault is 70 ft. high.

The external façade is of a very similar type to that of "Il Redentore," but a better proportion is obtained by raising the principal order on a pedestal and designing the minor order without one.

The main order is Composite, resting on pedestals, which in their turn are placed upon a plinth about 3 ft. in height. The seven steps at the entrance to the church are formed in the depth of this plinth.

This church owes its picturesqueness to its position on an island of its own name, facing the eastern end of the Grand Canal, opposite the Piazza of St. Mark, from which a splendid view of it is obtained.

The little church at Maser is isolated in position at the end of a long road. The plan differs from those of the larger churches already described at Venice. It is circular, having an internal diameter of 40 ft., and is of the type Palladio admires and describes in his fourth book.

A wide flight of steps leads to a projecting portico of the Corinthian order, with two lateral arches and a central doorway leading into the church. The length of this portico is nearly two-thirds of the diameter of the church, same proportions as in the Pantheon at Rome. A dome crowns the whole, light being admitted through a somewhat high lantern.

The illustration shows the festoons suspended between the capitals—a feature condemned by many. The two small bell turrets on either side crown the small staircase.

The façade of S. Francesca della Vigna, erected in 1562, bears a remarkable resemblance to that of S. Giorgio Maggiore, to which it may be compared, but to which it is inferior, especially as it repeats the defect of interrupting the stylobate, by the principal doorway, a better treatment being adopted at "Il Redentore." Another fault is in the management of the orders, for too great a contrast is obtained by starting both the principal and subsidiary order from the same base, the treatment at S. Giorgio being preferable.

Palladio prepared five designs for the façade of the Church of S. Petronio at Bologna. This church was commenced in 1390, in emulation of the Cathedral at Florence; and some idea of its size can be imagined when we find that its area, if completed, would have rivalled St. Peter at Rome. The façade has remained uncompleted.

The difficulty Palladio was contending with was the application of a classic façade to a Gothic structure, and it is interesting to see how he endeavoured to overcome these difficulties. Time, however, will not permit their discussion here, but I am able to show you his fourth design.

The Convent of La Carità at Venice (now the Accademia delle Belle Arti) was partly executed during his lifetime, but a fire afterwards destroyed a large portion. The plan shows an outer atrium, 60 ft. long by 45 ft. 6 in. wide, of Composite columns, two stories in height, from which is reached the cloister court, 86 ft. by 70 ft. This latter court is surrounded by three stories of arcades ornamented with the Doric, Ionic, and Corinthian orders. As in so many of Palladio's buildings, brick is the chief material employed. It is covered with stucco, the bases, capitals of columns, and upper parts of cornices being in stone.

Of the atrium of Corinthian columns forming part of this building Sir Henry Wotton says, "Mine eye hath never beheld any columns

more stately—of stone or marble—for the bricks, having been first formed in a circular mould and then cut, before their burning, into four quarters or more, the sides afterwards join so closely, and the joints concentrate so exactly that the pillars appear one entire piece, showing how, in truth, we want art than stuff to satisfy our greatest fancy."

#### Influence.

Perhaps few men, with the exception of Vitruvius, have exercised more influence in matters architectural than Palladio. This was chiefly effected by means of his great literary effort, published in four books in 1570, of which countless editions have been published, and which has been translated into almost every European language. The most interesting to English students is the third edition, published in 1742, as it contains the notes by Inigo Jones taken from his manuscript in Worcester College, Oxford. Mention should also be made of the valuable Burlington-Devonshire Collection now in the R.I.B.A. Library. These drawings of ancient buildings and of his own designs are believed to be by Palladio himself. They show his careful study of ancient buildings in Rome and elsewhere, and from a perusal of them we may agree with Sir Joshua Reynolds that "the greatest natural genius cannot subsist on its own stock; he who has laid up no materials can produce no combinations. The more extensive his acquaintance is with the works of those who have excelled, the more extensive will be his power of invention."

De Quincey considers "that the style of Palladio has a propriety which must have facilitated its propagation, a medium between a vigorous severity and licentious anarchy of those who refuse to recognise rules, which rules, of course, allow of exception."

This Palladian manner includes the results of the efforts of others in the revival of Classicism—viz., Bramante, Peruzzi, Vignola, Scamozzi, and Serlio—Palladio's contemporaries.

It expressed a revolt against the licence both of composition and ornamentation into which the architecture of his time had fallen. Palladio's art does not meet with universal laudation. To some "it is dull and lifeless, dominated by scholasticism, and regardless of considerations of utility and convenience"; but these charges cannot, in the majority of cases, be held as proved against our master himself, but rather against his unsuccessful imitators. Many of Palladio's works were of a monumental character, in which the qualities of impressiveness and grandeur outweigh to some extent the mundane considerations of less important buildings in which the element of use predominate over other considerations. In important public buildings the aesthetic quality should prevail. There is no doubt, however, that he was fascinated by the splendid proportions of the buildings of ancient Rome, and that on occasions some of his designs were too imposing for their purpose.

Reproductions of the stately edifices of Rome were not entirely in accord with the needs of the sixteenth century, and especially was this so in climates other than that of Italy. An example of this is to be found in the villa at Chiswick, erected by Lord Burlington, and of which numerous copies exist.

Undoubtedly Palladio possessed a power of producing great simplicity united to grandeur, which can be most clearly appreciated in the façade of the Thiene Palace. Probably in no particular has his influence been so marked on English buildings as the excessive height which he gave to his apartments. In dealing with this, he observes that in rooms with a flat ceiling the height of the apartment should be equal to its breadth. It was the endeavour of the seventeenth and eighteenth-century architects to follow these proportions, which, although of value in a hot climate like Italy, were totally unsuited to that of England.

In vaulted, square apartments he held that the height should be a third more than the breadth, but in those whose length exceeds their breadth, a height proportional to the length and breadth together may be easily found "by joining both the lines of the length and breadth into one line, which being divided in the middle will give exactly the height of the arch." These proportions were adopted largely by English writers and architects, and Gibbs, in his book on architecture, practically adopts them.



Thus hard-and-fast rules were applied to cases which should be designed for the special use to which apartments were to be put, resulting in the lowering of architectural design to mere rules, without regard to the essential quality of fitness and propriety.

On the Continent Palladio is held by some to have exercised a certain influence, and, according to Quatremère de Quincy, became the most universally followed master in all Europe, and in some sort the chief of the modern school in civil buildings.

In Germany it seems certain that little influence was felt, for that country was much indebted to other Italian masters, and even to France.

In England during the Elizabethan and Jacobean periods the orders of architecture had been used without any special reference to recognised proportions or rules, but according to the will and fancy of the designers, and although many delightful and pleasing combinations were effected, there is a want of stateliness and harmony about their application, which was altered by the introduction of Palladian measurements by Inigo Jones, the great English architect.

Inigo Jones (1572-1652) was the pioneer of Palladian architecture in England, and it must be confessed that no student so thoroughly studied his master's works as he did. His journeys in Italy and the notes on his own copy of Palladio's book show that he went about his task in no half-hearted way, but carefully examined each building. He became, in short, saturated with Palladianism, which he naturalised in England, and through him Palladio became the great master of the English fully developed Classic Renaissance, or, as it is sometimes called, Anglo-Classic style.

The change introduced in architectural style by Inigo Jones' use of the Classical Orders of architecture was extraordinary in its results and far-reaching in its effect.

He was invited to Copenhagen (by the King of Denmark, but he returned to England in the train of the wife of James I. Afterwards, he left everything for another visit to Italy in 1612. Palladio's influence on English architecture was therefore, through Inigo Jones, paramount, and it must be a matter for regret that, through the intervention of the Commonwealth, Jones's most important design—the great palace at Whitehall—was never completed.

The Banqueting House (afterwards the Chapel Royal and now the Museum of the United Service Institution) in Whitehall was the only part of this magnificent scheme which was carried out. This masterpiece shows the skill with which Inigo Jones, although working on the lines of his Italian master, gave to his designs that English character for which they are distinguished. The extraordinary amount of variety which he has obtained is remarkable, for no two adjacent columns are alike except the two central ones, the others, either by coupling or by making them three-quarter or half columns, are all different on each side of the central axis of the building. There is a sobriety and dignity about the whole building which well expresses Palladio's methods of design.

It was in the arrangement and design of the "Court Masques" of the Stuarts that the genius of Inigo Jones first found a field for the display of his Palladian principles, and it was in the interior decoration of his best works that he showed his extraordinary knowledge of architectural detail. Palladio's buildings were mostly shells in which the ornament was lavished on the exterior. Jones, however, carried the details of the style throughout the interior fittings, and excelled in such features as doors, windows, and chimney-pieces. His deeply coffered ceilings in compartments it is said were introduced from France, but they accord perfectly with the bold style of his architecture.

Among others of Inigo Jones's works which shows Palladian influence may be mentioned the river façade of Greenwich Hospital, executed by Webb, one of his pupils. In this building the two stories are included under one huge Corinthian order. York Water Gate, London; St. Paul's, Covent Garden; houses in Lincoln's Inn Fields; Chevening House; portions of Wilton House, may be mentioned as other typical examples.

Stoke Park, erected in 1630-1634, shows very direct influence, especially in the plan. The central block, or *corps de logis*, has semi-circular wings as colonnades, with a

library and chapel at either end. This type of plan is one of many erected or designed by Palladio in the neighbourhood of Vicenza, several of which must have been seen by Jones during his visit to Italy.

The enthusiasm of Lord Burlington (1695-1753) for Inigo Jones is well known, and it is recorded how a design for a gateway by the latter was given to Lord Burlington by Sir Hans Sloane, who had it removed from Beaufort House, Chelsea, to Chiswick House, where it may still be seen.

Lord Burlington paid many visits to Italy, and his life there among the artists of the day seems to have given him an extraordinary liking for and interest in the works of Palladio and his school. His collection of drawings by Palladio, already mentioned, and of works by other artists of the period, must have helped very much to have popularised the art of Palladio.

Giacomo Leoni was brought over to England by Lord Burlington in 1715, especially, it would appear, to help in the translation of Palladio published in that year. Remaining in England he executed a number of important buildings, such as Latham Hall, Moor Park, &c., which must have influenced contemporary architecture.

The fully-developed English Renaissance architecture was therefore given its first great impulse at the commencement of the seventeenth century by Inigo Jones, who founded his style on that of his great master, Palladio. Jones, however, gave to them an English character, attempting to make them, in his own words, "solid, proportional, according to rules, masculine and unaffected." This tradition was continued without interruption to the close of the eighteenth century by a body of English architects who were in a general way influenced thereby.

To trace this progress step by step would take us beyond the limits at our disposal; but a glance at a few of the principal architects and their works will help us to understand the development.

John Webb (pupil and nephew of Jones) was responsible for Amesbury House, Wiltshire, in the Palladian manner, and Dr. Henry Aldrich erected the Peckwater Quadrangle of Christ Church, and the church and campanile of All Saints, Oxford.

Sir Christopher Wren was born in 1632, or twenty years before the death of Inigo Jones, in 1652.

The amount of work executed by him, and the influence on him of Palladio and Jones caused him to leave a number of buildings which have acted as models for succeeding generations of architects.

Besides St. Paul's, London, which bears the impress of Palladio in the sturdiness of its conception, Wren was responsible for the building of some fifty-three churches in the City of London between the years 1670-1711. In most of these there is discernible the influence of the Palladian ideals, and Classical columns and their entablatures are used in many novel ways. Wren carried out the Sheldonian Theatre, Oxford, a portion of Greenwich Hospital, Chelsea Hospital, a portion of Hampton Court Palace, and Temple Bar, London (now removed to Theobald's Park, Herts), all of which are examples of the application of Palladian principles to various types of building.

In the eighteenth century a great number of country houses were erected in England in which the traditional plans of Palladio, imitated and improved upon by Inigo Jones and others, were erected. The pages of the "Vitruvius Britannicus," by Colin Campbell, furnish plans and views of many of the most important houses erected during the century and form an eloquent tribute to Palladian influence.

Rainham Hall in Norfolk, and Castle Howard, by Sir John Vanbrugh, are important examples, as are also Kedleston and Stowe House by Robert Adam. In some cases, as at Kedleston and Holkham Hall by W. Kent (1730), there are four quadrant wings. Similar types of plan are shown in Palladio, and must have influenced English architecture, as at Stoke Park, already mentioned. The peculiar Italian method of treating the ground floor as a basement story for the kitchens and offices, and placing the principal apartments on the *piano nobile* or upper floor, is carried out in most of these buildings. In fact, the peculiarities of the Palladian style, and its inappropriateness when unaltered to suit the

English climate, were referred to in strong terms by the satirists of the day.

Symmetry and grandeur were the qualities which predominated in eighteenth-century architecture, due in a large measure to the disciples of the Palladian school.

Nicholas Hawksmoor (1666-1733), Colin Campbell (died 1734), Sir John Vanbrugh (1656-1726), James Gibbs (1683-1754), Thomas Archer (died 1743), William Talman (died 1715), the Earl of Burlington (1695-1753), Kent (1684-1748), and Robert Adam (1728-1792), stand out pre-eminently as the followers of Palladio and Inigo Jones and as the developers of the truly national elements of the English Renaissance.

Sir William Chambers (1726-1796), by his writings, and especially his "Treatise on the Decorative Part of Civil Architecture," carried on the traditions of the Anglo-Palladian school, and objected to the Greek revival of architecture, which was then beginning to be felt.

Thus, till within a century ago, the school of Palladio and his English followers was bound up with the traditions of English architecture. In the nineteenth century, tradition being broken up, the age of revivals commenced.

Mr. Hugh Stannus, in proposing a vote of thanks to the lecturer, said he was very much interested when he heard that Mr. Fletcher was to read a paper on "Palladio," for he (the speaker) had often been asked to do so himself but the subject being so large "he had feared to tread." To deal with the work of a man like Palladio, one would like to divide it into three great divisions. First of all, to seek to identify, to isolate, and formulate the principles on which Palladio worked; secondly, to endeavour to show where he found those principles—what had gone before him and how he codified and formulated our common art, which was what we were most indebted to him for; and, thirdly, what those principles led to, because every principle formulated in an art was something like a chemical solvent; it dissolved the existing or pre-existing art and led to re-combination of materials at hand or to the invention of new materials and new treatments; and to deal with these, to be of any use to students, would require more than the usual one-hour lecture. There was a great deal that was exceedingly interesting in Mr. Fletcher's paper, but there was one point to which he would take exception, *i.e.*, the charge of want of modesty on the part of Palladio, which, in Mr. Fletcher's mouth, was a very severe one to make. Knowing, as we do, that Palladio was famed amongst his contemporaries for his sweetness of disposition, one was rather sorry that such a charge should be made. In his fourth book, Palladio alludes to a number of contemporaries and spoke about them with the kindest appreciation; and in Chapter 20 of his third book, about the Basilica at Vicenza, he writes:—"I show a drawing of this because the porticoes which it has round it are of my invention,"—there was nothing against a man's modesty in that, because the porticoes were admirable; and he proceeds: "because I do not doubt that this fabric may be compared with the old buildings," *i.e.*, for certain qualities. These qualities are the size, the ornaments, and the materials, which are of the hardest stone, joined together with the greatest diligence." Palladio was comparing his work with the old work, not because of his design, not because of any art he put into it, but because it was made of strong stone, and that had particular meaning in the mouth of Palladio, as any one who goes to Vicenza would realise. He had been compelled to build his brick palaces so that they looked as though they were of stone, and the blame for this should be laid against the patrons who desired this effect of stone. When Palladio included this stone building with others merely because of the material, that did not afford sufficient ground for saying that he showed a want of modesty. He (the speaker) was jealous of the reputation of a man like Palladio, who had done so much for the art of architecture.

Mr. Stannus asked permission to allude to another misstatement: Mr. Fletcher, in speaking of the arcade round the Basilica, said that it seemed to be copied from some of the colonnades from Diocletian's palace at Spalato. He (the speaker) had not been to Spalato, and he only knew the building from drawings in Adam's book and such photographs as he had come across from time to time, but from what he had seen he did not remember anything which



would suggest such treatment by Palladio. Certainly the entablature at Spalato ran alone until it came to the central pair of columns, and there the entablature was not broken round them, but it made a right-angled turn upwards, and was built as an arch. That was not new, not even at Spalato, for in the old buildings of the second century, at Baalbec or Palmyra, the treatment was to be seen. It was also adopted at a later date in the great archway at Damascus. As to where Palladio got his motif from—*i.e.*, the motif of having the four columns, a narrow space, a wide space, and another narrow space, putting beams over the narrow spaces, and an arch over the wide one—that was not Palladio's invention: it would be found in a book by Sebastian Serlio—an old copy of which is in the library of the Institute of Architects; and he would suggest that all students should look at that book to see the exact treatment that Palladio had adopted. That book was written in 1537, when Serlio was sixty-two years of age, and when Palladio was nineteen or twenty-nine, according as to how we accept the date of his birth. From that he thought it was clear that this motif had been used by Serlio before Palladio used it. He had two lantern-slides which showed still earlier treatments, and he would put them on the screen with the Chairman's permission. In conclusion, he expressed his regret that Mr. Fletcher had made his lantern-slides from the worn and not very good copper-plates in what he took to be Leoni's book. If Mr. Fletcher had taken the slides from the plates in Palladio's own book—and a man had a right to be judged by his own work, and not by some one else's work about him—the slides would have been much clearer and would have done greater justice to Palladio. If Palladio had done nothing else, he had taught us how to use the Orders. One could not do better than advise all young students who were beginning to study the Orders, to notice the way Palladio measured them and demonstrated the way to use them afterwards.

Mr. Stannus then showed and described several lantern slides made from photographs of Palladio's buildings taken by himself.

Mr. Louis Amlier seconded the vote of thanks. When he was in Italy he was led to study the *cinque cento* work, more than the later work which was illustrated by Palladio's buildings, and he had to admit that he did not admire Palladio's work so much then—some sixteen years ago—as he did now. One part of the paper had been especially interesting, and that was the account of the connexion between the work of Palladio and our own English Renaissance. That was a connexion which we ought to follow more closely, for it was of great interest.

The Chairman, in putting the vote of thanks to the meeting, said that if Mr. Fletcher's paper had the result of leading students to study more closely the work of Palladio and his contemporaries and followers, it would have achieved an excellent result. He was afraid that with a good many young architects there was a feeling that Classical architecture and the architecture of the Renaissance was to some extent dry and uninteresting, because it was governed so much by set rules and proportions. That was not the case, and the older they got the more they would feel the beauty and dignity of Classical architecture. Those who had had the advantage of seeing these works by Palladio where they stood would realise, more than they possibly could from views or photographs, what a very great deal there was in them. He had not been to Venice, but in Venice the churches of San Giorgio and Redentore impressed him more than he had any idea they would. There was simplicity and directness about them which appealed to one at once. There was no suggestion in any part of them of the slightest trichery; everything was most carefully thought out and all the effect was obtained in the most genuine and legitimate manner, and one could not help recognising that there were much greater possibilities in the application of the principles of Classic architecture than one could have possibly imagined. It was a unfortunate thing that Palladio had no means to build more of his buildings in stone, instead of brick and stucco. It was no use, however, regretting that; Palladio was compelled, from considerations of economy, to use these cheaper materials. In one or two cases, though, where the brickwork had not been covered by stucco—in San Giorgio, he thought—the effect was extremely good.

With the vote of thanks he wished to include thanks to the Royal Institute of British Architects for the loan of drawings and books for the occasion.

The vote of thanks having been heartily agreed to, Mr. Fletcher, in reply, said that Mr. Stannus should have written on Palladio: it was generally the way that the best men did not write books. [Mr. Stannus: They fear to tread.] He knew that the Palladian motif was in Serlio's book, and he believed that Peruzzi used it in some of his buildings. He had been looking at the original book by Palladio, and he did not think the slides would have come out better had they been taken from the engravings there. It was difficult to reproduce from these old pictures, the slide-makers said. As to what he said about Palladio's want of modesty, in the translation he had read, Leoni's edition, things were put differently; he had not meant to make any point of the matter.

The Chairman announced that the next meeting will be held on May 1, when Mr. A. Needham Wilson will read a paper on "Architecture and the Public."

The meeting then terminated.

#### THE ARCHITECTURAL ASSOCIATION SPRING VISITS:

##### V.—BAPTIST CHURCH HOUSE.

The numerous funds raised to commemorate the new century have produced among other things many new church buildings, and have stimulated the work of the various denominations.

The Twentieth Century Fund of the Baptist Union finds expression in the block of buildings shortly to be occupied in Southampton-row, which was the scene of the fifth spring visit of the Architectural Association on Saturday, April 4. Some eighty members took the opportunity of inspecting the premises under the guidance of the architect, Mr. Arthur Keen, who traced the evolution of the scheme and explained the details of the structure. A most interesting visit resulted.

Broadly speaking, the widening of Southampton-row by the London County Council accounts for the existence of the premises under consideration, to which the headquarters of the Baptist Union are presently to be transferred. A chapel formerly stood on the site, approached from a narrow thoroughfare—Kingsgate-street—running parallel with Southampton-row, and in the widening of the latter street, the site of the chapel was considerably reduced and only a narrow strip of land left for building purposes. The trustees of the chapel handed over their interests to the Union, who acquired the site, now built on, from the County Council. Its extent is about 140 ft. by 80 ft., and takes in what was formerly the Holborn end of Kingsgate-street; frontage is obtained in Southampton-row and Eagle-street, and direct light is only gained on these two sides. The main front and part of the side street are faced in brown Portland stone, and the remainder of the latter in red brick and stone. The elevations show an individual treatment of the later English Renaissance, and although the principal façade possesses a tower, it was felt that the opportunity had not been seized for emphasising the entrance doorway to the parent institution and contrasting with the shops placed on either side of it.

The buildings contain, in addition to the rooms and offices for the Council and Executive of the Baptist Union, a chapel and a Sunday-school placed in the back part of the site, and the remaining accommodation consists of shops and business offices; the architect has succeeded in giving to the fronts the effect of a modern public institution rather than that of business premises.

A corridor, 10 ft. wide and having a plaster barrel vault, leads from the entrance to the main hall and staircase, and to the right on entering is a large shop which will be tenanted by the Union for the sale of its own publications and other kindred literature. The chapel, placed on the ground-floor level, is entered from Eagle-street; here the favourite octagonal form has been resorted to, and ingeniously arranged in the matter of lighting; seating accommodation is provided for 400 people, 120 of whom will be located in the gallery; space is also allotted to a baptistry, pulpit, organ, vestries, and choir. The chapel is roofed with a

steel dome, 44 ft. in diameter, surmounted by a lantern light, and the whole is skilfully worked in with the wall treatment of the octagon; the dome is finished inside with sixteen enriched plaster ribs, through which a pleasing scheme of horizontal plaster bands is introduced; the eight pendentives contain modelled plaster panels representing the trees named in the Bible, and are the work of Mr. Richard Garbe, who has also executed the stone figure on the principal front. The Sunday-school, octagonal in plan, is situated below the chapel, and has separate entrances and staircases for boys and girls; a classroom is also provided, and the remainder of the basement is occupied by lavatories, cellars, stores, and heating plant.

The first floor is the important part of the building; to the right of the staircase landing is the Council Chamber, a large room cross-lighted from areas, having a coved plaster ceiling and oak panelling; it is arranged to seat sixty persons disposed in three concentric rows; a large visitors' room is situated to the left looking into the main street and has cross ventilation; this is intended for the use of conferences and of members of congregations from distant places. The salient feature in each of these important chambers is the decorative ceiling modelled and executed by Mr. Laurence Turner; in the visitors' room the beams carrying the floor above are cased in plaster, and a satisfactory effect has been introduced in the heavy mouldings and intervening soffits which are modelled to produce uneven lines and surfaces, giving to the whole a feeling of sixteenth-century English plaster work, which, however, does not quite successfully take its place with the later character of the walls, doors, and other surroundings. Committee rooms, secretary's, clerks', and general offices of the Baptist Union complete this floor.

A good library, cross-lighted and ventilated, is placed on the second floor, and has a modelled ceiling, oak bookcases and panelling. It is intended to be used also as a luncheon room, for which purpose a kitchen is arranged close to it. A smoking room is also provided. Spacious housekeeper's rooms are planned in a portion of the fourth floor, whilst much of the remaining accommodation on the second, third, and fourth floors is devoted to business offices. These latter have good light, and are well-shaped rooms. The lighting of the rooms and passages is excellent throughout. A Waygood-Otis elevator delivers passengers to all the floors, and an external coal lift has also been put up.

The internal finishings show that much thought has been bestowed upon every detail. Prominent amongst these are the chimney-pieces in the principal apartments, in which much originality in form and material is displayed. These have been well carried out by Messrs. Walker, of Bunhill-row. The mantels in the offices are simple, but of a most serviceable type.

An interesting scheme of leaded stained glass, geometric in character, is introduced in the inner windows both of the chapel and offices, which has been executed by Messrs. Morris of Fulham. When finished and in working order the interior of this building will represent a good example of twentieth century design, and in addition to departing from tradition, the Baptist Union is to be congratulated upon its new quarters and the architect upon the result of his labours. The contractors, Messrs. Higgs & Hill, have also achieved a success in this work and in overcoming many structural difficulties.

#### COMPETITIONS.

BATHS, &c., LIVERPOOL.—At a recent meeting of the Liverpool City Council, Mr. Hampson, Chairman of the Estate Committee, said he would like to inform the Council of the result of the competition for the buildings proposed to be erected for baths, tramway offices, &c., at the George's Dock site. He had the report of the assessor, Sir William Emerson, which stated that in his opinion the design marked No. 11 merited the first place, No. 3 the second, and No. 5 the third. Seventeen designs were sent in, and the names of those competitors who have been placed in the order of merit are—First, Messrs. Stones & Stones, Blackburn, and Mr. W. E. Sproat, Glasgow (No. 11); second, Messrs. Briggs, Wolsenholme, & Thornely, Liverpool (No. 3); and third, Mr. H. A. Matear, Liverpool, and Messrs.



Simon & Crawford, Liverpool and Manchester (No. 5).

**SCHOOL, WEST HARTLEPOOL.**—The West Hartlepool School Board recently invited competitive designs for a school to accommodate 450 infants, 400 junior mixed, 300 senior boys, and 300 senior girls, together with cookery centre, manual instruction centre, and caretaker's house. Mr. John W. Simpson, F.R.I.B.A., of Gray's Inn, London, was appointed assessor. Eleven sets of designs were submitted, seven of which were from architects practising in West Hartlepool, the assessor's award being as follows:—First, Mr. Richard Holt, Liverpool; second, Mr. James Carry, West Hartlepool; third, Messrs. Bottomley, Son, & Wellburn, Middlesbrough; fourth, Messrs. Jones & Sellers, Oldham. The author of the design placed first has been entrusted with the carrying out of the work, subject to the conditions of competition. A sum of ten guineas will be paid to each of the unsuccessful competitors, and the premium for the first design will merge in a commission of 5 per cent. upon the actual outlay. The author's estimate of the cost is 17,854*l*.

#### ENGINEERING SOCIETIES.

**THE JUNIOR INSTITUTION OF ENGINEERS.**—At the meeting of this Institution, held on April 3 at the Westminster Palace Hotel, the Chairman, Mr. Kenneth Gray, presiding, the first paper read was on the "Evaporative Trials of One of the Water-tube Boilers for the Chillon Battleship Construction," by Mr. H. E. Yarrow (member), of London. The paper described trials carried out to ascertain the comparative merits of a small grate and rapid combustion as against a larger grate and slower combustion. The second paper was on "Greasy Condensation Water as Boiler Feed," by Mr. William Paterson (member), of London and Glasgow. He pointed out that engineers generally did not fully appreciate the consequences which result from the use of greasy feed water. The slightest trace of grease in a boiler is always accompanied by a loss in steaming efficiency, but it is only when overheating takes place, causing leaking, blistering, and bulging of the tubes and flues, that this subject is given attention. How the presence of grease in a boiler may cause overheating is but vaguely understood. The usual explanation is that grease is a bad conductor of heat. The thermal conductivity of grease is low, but even a film of considerable thickness could not, simply by reason of its low thermal conductivity, offer such a resistance to the passage of heat as to cause overheating and collapse. In the author's opinion, it was not that grease was a bad conductor of heat, nor that it underwent any physical or chemical change in the boiler, but that it naturally prevented cohesion between the water and the plate, and so destroyed completely its emissive power. The boiler-plate, however, by virtue of its conductivity, acted as a temperature equaliser and distributor, allowing of the excess of heat vibrations from the part of the plate isolated by the grease from the water to flow to, and escape by emission through, those parts of the plate which had not been rendered non-emissive by the grease. Grease might be prevented from entering a boiler by separating it from the exhaust steam, or from the condensation water. No exhaust steam separator could discriminate between one vapour and another, and this was their limitation. Where high-pressure and temperature steam was used the oil was volatilised, and continued to exist as a vapour until it was condensed with the steam. It was impossible by any exhaust-steam separator to remove absolutely all oil from the steam. The services rendered by an efficient exhaust-steam grease separator, in keeping the condenser efficient as a heat abstractor, were most valuable, but their limitations should be clearly realised. In addition to other apparatus, the Paterson Purifier was described, in which the condensation water from the air-pump or hot well passed through an automatic measuring apparatus supplying the coagulant accurately at all variations of the load. The bulk of the grease, by reason of its lighter specific gravity, separated out in the form of thick sludge, and was not allowed to come into contact with the filtering medium. The Harris-Anderson Purifier was also described. The system of coagulation and filtration cost about 1*d*. per 5,000 gallons purified, and the removal of the grease,

both in the mechanically suspended and emulsified forms, was found to be complete. Greasy condensation water from modern high-speed engines was of the nature of a filthy effluent, and should be handled as such, and not as a water containing only slight contamination.

### Illustrations.

#### ILLUSTRATIONS OF PALLADIO'S WORK.

**THESE** collective illustrations of various works by Palladio are given in connexion with the paper on Palladio read by Mr. Banister Fletcher at the Architectural Association, and given in full in another part of this issue.

We have selected from a number of photographs lent to us by Mr. Fletcher, and which formed the originals of the lantern illustrations to his paper, some which, with the exception of the Villa Rotonda (or Capra) and Vicenza Theatre, are not the most familiar or the most often illustrated, omitting such well-known though important examples as the Palazzo della Ragione or the Redentore Church at Venice.

The illustrations are here given as examples of architectural style, and we need not now go into their history, which would be to some extent repeating Mr. Fletcher's paper.

#### THE ROBERT HALL MEMORIAL CHAPEL, LEICESTER.

This building stands at the junction of Narborough-road and Upington-road, and was opened early last year. The elevations are composed of sand-faced bricks with Gunton ware dressings to the openings. The roof is of one span constructed of steel principals not visible on the inside, and bearers supporting a heptagonal barrel vaulted ceiling of Oregon pine divided by ribs into panels, the outside covering being tiles.

The windows and the upper panels of the doors are filled with stained glass.

A pitch-pine wood block floor was laid in the chapel, and Venetian marble mosaic in the corridors. The whole of the chapel and schools are heated by the hot-water low pressure system.

WALTER BRAND.

#### ARCHITECTURAL TELE-PHOTOGRAPHY.

THE illustrations in this plate are given as examples of results obtained by the system of tele-photography, or photographing from a distance with special apparatus; a system which enables large-scale photographs to be taken from points comparatively distant from the building, in cases where a closer position for the camera is impossible.

The system is described, and reference made to these illustrations, in the article on page 381 of the present issue.

#### ARCHITECTURAL SOCIETIES.

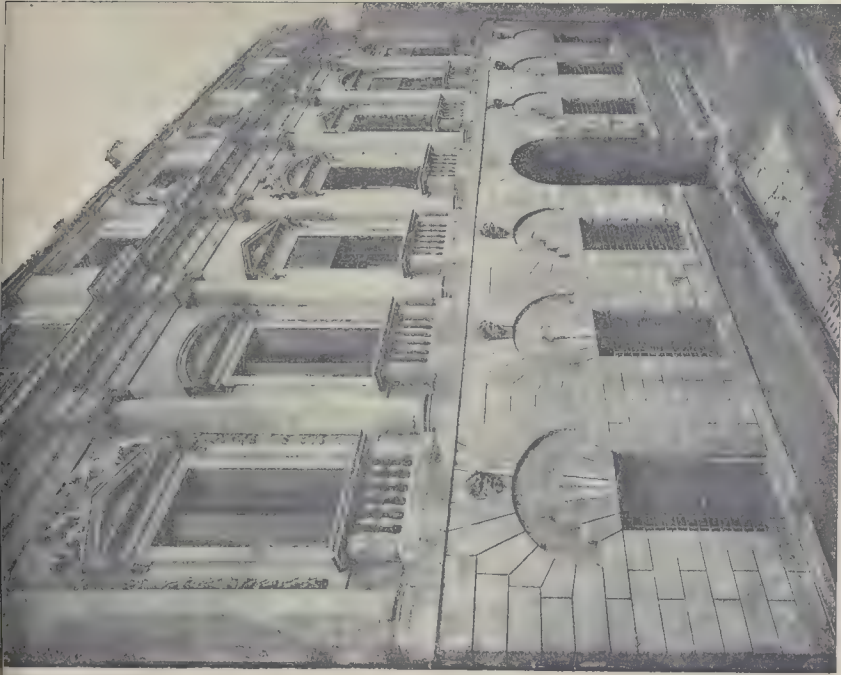
**EDINBURGH ARCHITECTURAL ASSOCIATION.**—At a meeting of this Association on the 1st inst.—Mr. Hunter Crawford, the President, in the chair.—Mr. Frank Caws, F.R.I.B.A., Newcastle-on-Tyne, gave an address on "Fire-proof Floors and Construction." He pointed out that since the great fire in London, which caused quite a revolution in the substitution of brick walls for those of timber, there had been but very slow progress in fire-proof construction. Latterly, however, the comparatively new material, Portland cement, had made fire-proof floors a feature of the mode of construction of which permitted of great variation, and the practice of architects and experts showed wide differences in matters of detail. Generally speaking, said the lecturer, the introduction of steel girders as supports for the concrete had been carried to a very unwise excess, inasmuch as the action of fire upon the steel, causing it to expand, made it most injurious to the concrete floors, and instead of being a support, it proved in such cases the means of their destruction. Therefore, he advocated a method of constructing floors in large slabs of concrete, with a minimum amount of steel bearers, so disposed and protected from the fire as to give the necessary

support without introducing an element of weakness. In closing, Mr. Caws described his own practical experience in buildings he had erected on the principle which he advocated. His remarks were illustrated by black-board sketches, and at the close he was awarded a hearty vote of thanks.

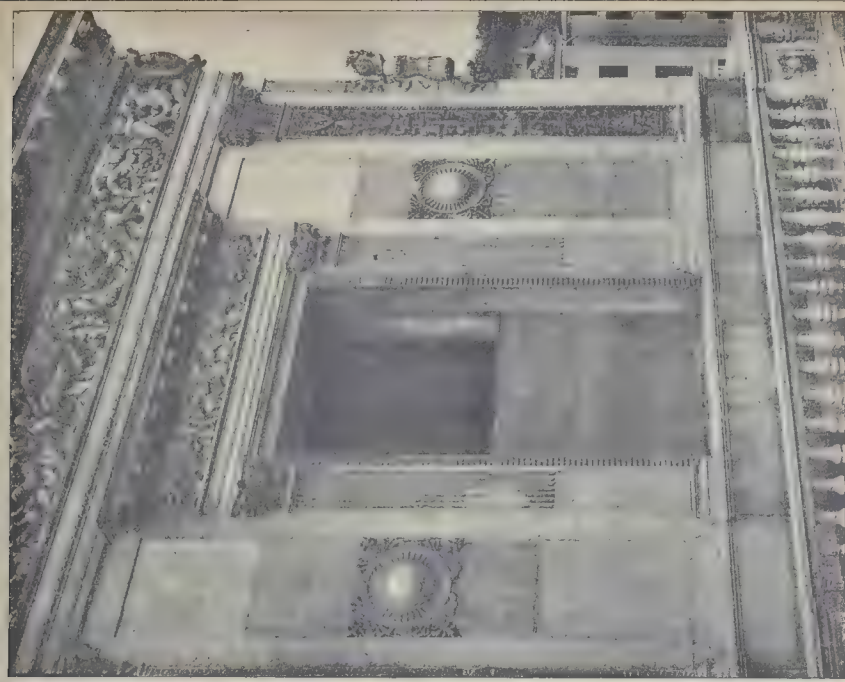
**ARCHITECTURAL ASSOCIATION OF IRELAND.**—A meeting of the Architectural Association of Ireland was held on the 31st ult. in the Grosvenor Hotel. Mr. F. G. Hicks, President, occupied the chair. Mr. J. W. Boucher was elected a member, and Mr. W. Crawford Smith was nominated for membership. Mr. Guy Dawber then delivered a lecture on "The Stone Buildings of the Cotswolds." He said the Cotswold district comprised about 300 square miles of undulating country, and contained numbers of most interesting and characteristic examples of domestic architecture. They did not find much of this domestic architectural work earlier than the sixteenth century. During the reign of Queen Anne, when the commercial classes became a power in the country, many of the old Royalist families who had suffered by the Civil War and afterwards by the reckless extravagance of the Restoration, were compelled to sell their estates, and migrate to the towns. The estates were bought by the wealthy merchants, and this might, to some extent, account for the want of variety in the style of the houses. The domestic buildings at the beginning of the seventeenth century varied but slightly. The lecturer then showed a series of photographic slides, the first of which represented Cotswold villages. These were followed by plans of houses in which the lecturer pointed out the simplicity of construction of the generality of these dwellings. The old Cotswold builders managed to get the most delightful effects out of very simple plans of buildings. He showed some peculiarities of arrangement of the stone slates with which the houses were roofed, and said that nothing was attempted in the way of workmanship that the local people could not do themselves. Several photographs were thrown on the screen to indicate the modifications and improvements of later times. Very little change was noticeable from the sixteenth to the eighteenth century, as the people showed a disposition to cling to old methods, and to think that what was good enough for their fathers was good enough for themselves. Notwithstanding this fact, however, there was a good deal of individual variety in buildings raised even in the most simple plans. The concluding slides contained views of very picturesque buildings to be seen in the Cotswold country. Mr. William Mitchell proposed a vote of thanks to the lecturer, which was seconded by Mr. C. H. Ashworth, supported by Mr. A. E. Murray, and carried unanimously.

**LIVERPOOL ARCHITECTURAL SOCIETY.**—On the 6th inst. the second annual general meeting of the Liverpool Architectural Society (Incorporated) took place at 13, Harrington-street, under the chairmanship of Mr. John Woolfall, the President for the ensuing year. Other officers elected were:—Messrs. T. E. Eccles and P. C. Thicknesse, vice-presidents; Hastwell Grayson and Gilbert Fraser, hon. secretaries; James Dod, hon. treasurer; Alan G. James, hon. librarian; H. P. Mortes and W. Glen Dobie, auditors. The following were elected Fellows of the Council:—Messrs. J. Dod, H. H. Harley, E. P. Hinde, E. A. Ould, S. Pugin, V. E. Willink, and Professor F. M. Simpson. Associates elected for the Council were Messrs. Alan G. James and A. Thornley. The annual Report showed that the past session had been marked by steady progress. The total membership was now 154. The most important event of architectural interest during the year had been the preliminary Cathedral competition. The Report stated that the City Council had just held an important competition for workmen's dwellings, in the conditions of which it was carefully stated that they reserved the right of rejecting all its plans sent in and entrusting the work to its City Surveyor. The City Council had adopted this course. Their action, however, in putting architects all over the country to great trouble and expense and then rejecting the plans, although legal, was very regrettable, and would probably affect future competitions. At the close of the proceedings the President alluded to this matter, and remarked that if the Corporation asked architects to send in plans, any plans submitted by their own officials should be put aside

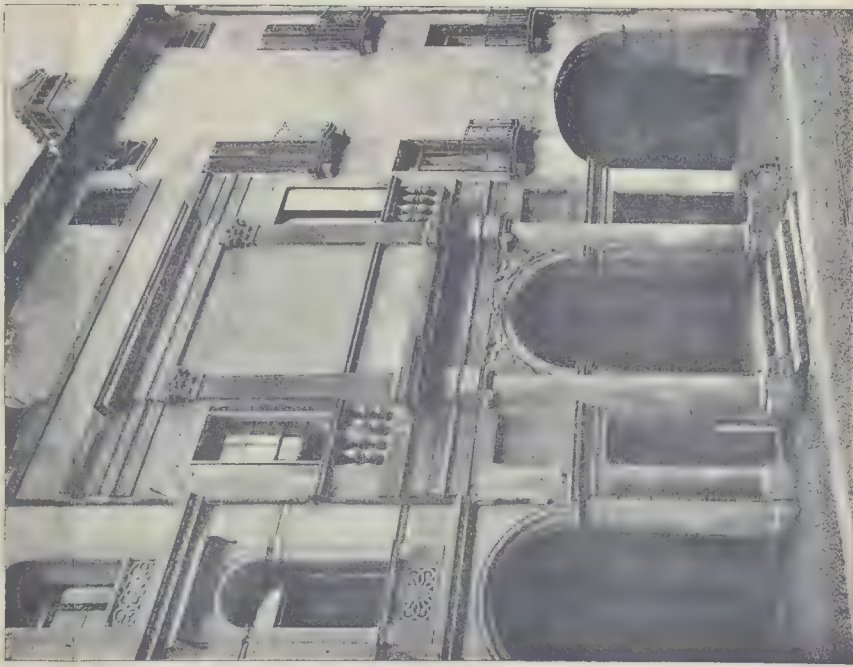




PALAZZO PORTO, VICENZA.



WINDOW, MUNICIPAL PALACE, BRESCIA.



HOUSE, VICENZA.



PALAZZO VALMARANO.





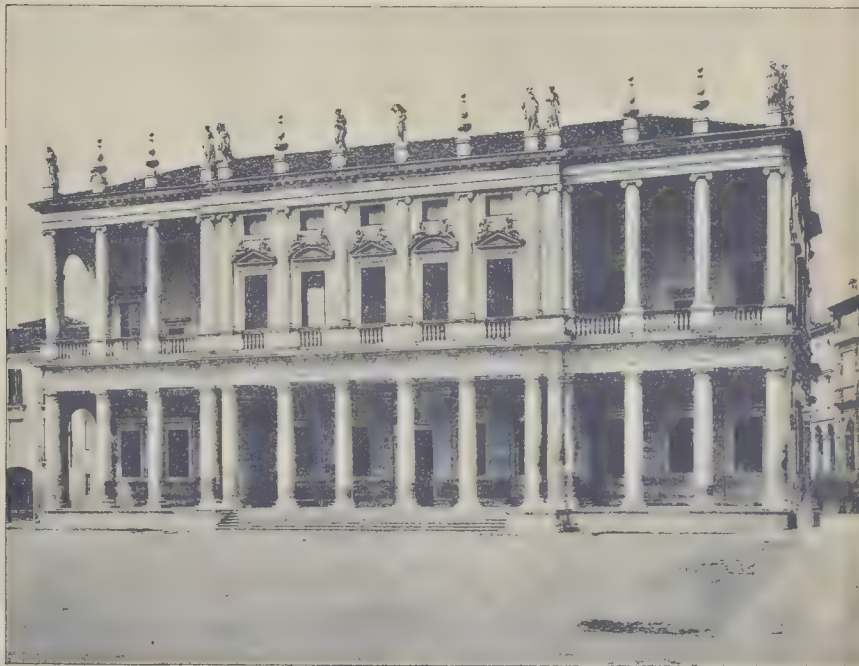




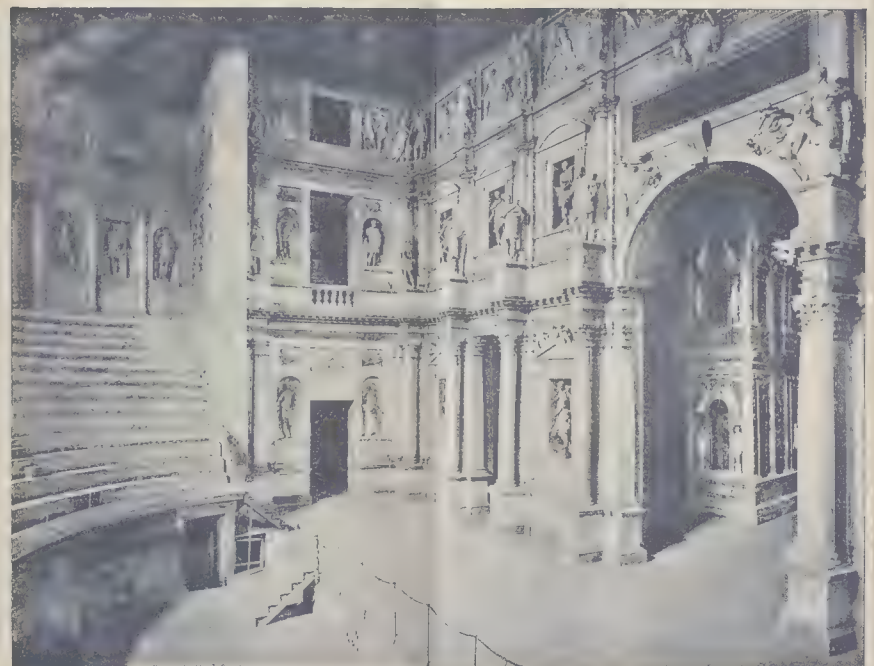
VILLA ROTONDA.



VILLA GIACOMELLI.



PALAZZO CHIEREGATI.



THEATRE, VICENZA.

BY ESTO THOMPSON, L.S. A.S. EASTWARD OF SHIPPY BETTER LAINE E.C.

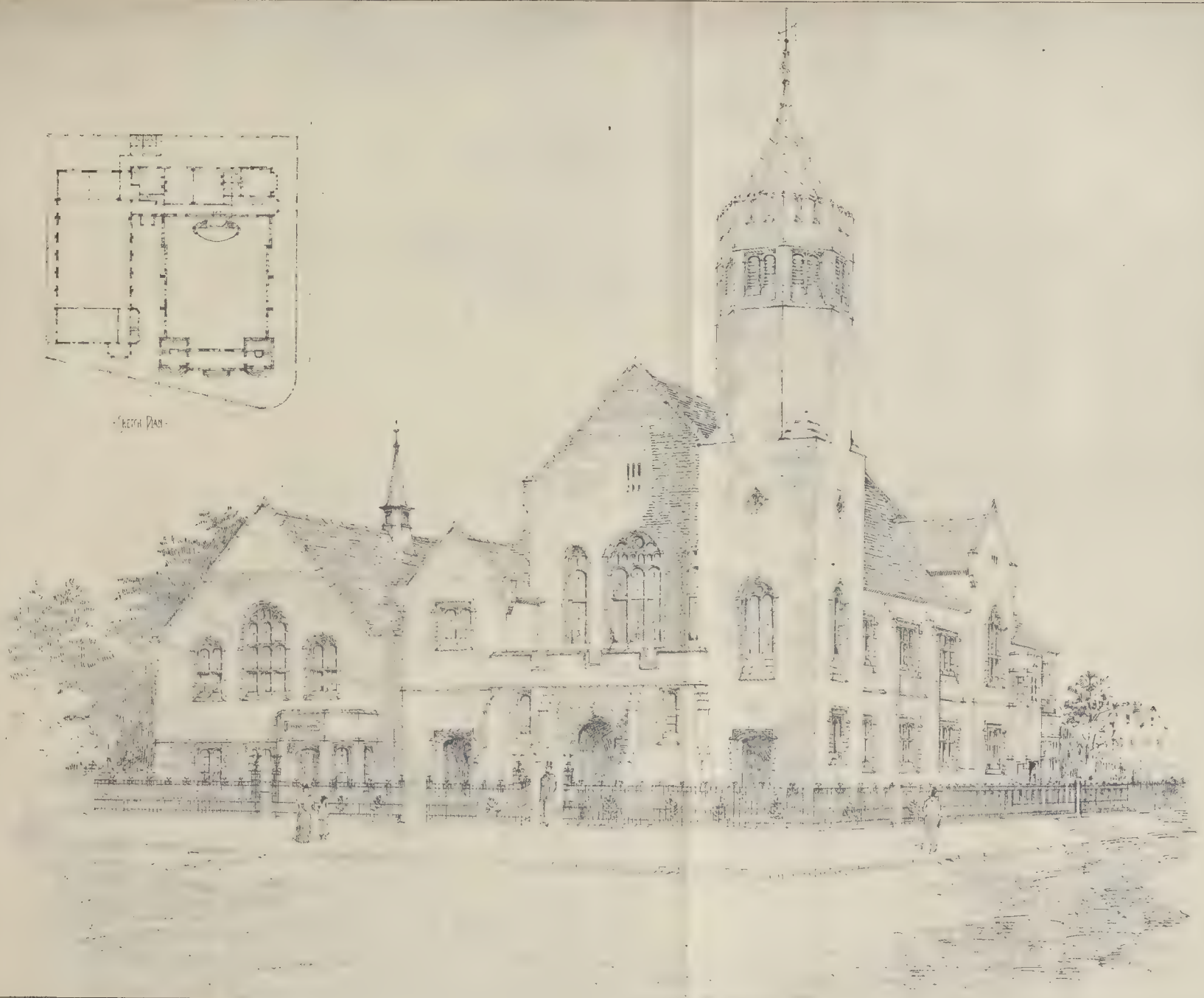








REAR PLAN



THE "ROBERT HALL" MEMORIAL CHAPEL, LEICESTER.—MR. WALTER BRAND, A.R.I.B.A., ARCHITECT.

INK PHOTOGRAPH BY A. & S. EAST HARDING STREET LONDON E.C.









(A)



(B)



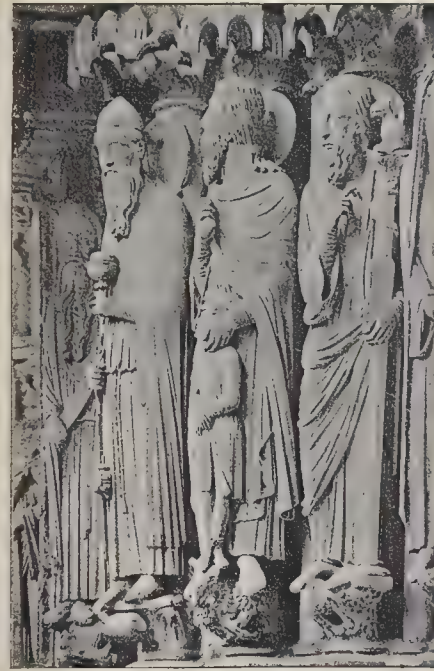
(C)



(D)



(E)



(F)



(G)







by side with others, and the whole should be judged on their merits.

**NORTHERN ARCHITECTURAL ASSOCIATION.**—The members of the Northern Architectural Association held the first of their outdoor meeting on Saturday last week. The School Board Offices and Pupil Teachers' Centre in Northumberland-road, Newcastle, were first visited. The architect is Mr. W. H. Knowles. The cost of the building has been about 12,000l. The party next inspected the Northern Counties' Training School of Cookery. The architect, Mr. Dyson, conducted the party. The cost of the building has been about 8,000l. During the afternoon the following gentlemen were nominated members:—Messrs. H. Barnes, West Hartlepool; W. H. Bourne, Darlington; P. L. Browne, Newcastle; F. E. Coates, Sunderland; J. G. Crone, Newcastle; F. E. Dotchin, Newcastle; C. Errington, Newcastle; W. E. Fenwick, Newcastle; J. Hall, Sunderland; and W. Tweedy, Newcastle. Associates: Messrs. K. B. Spurgin, Newcastle; C. J. Stephenson, Newcastle; and T. K. White, Newcastle. Students: Messrs. D. Ditchburn, Newcastle; W. G. Gradon, Durham; and W. Lawson, Gateshead.

**DEVON AND EXETER ARCHITECTURAL SOCIETY.**—The annual meeting of this Society took place at Devonport on Saturday, the 4th inst. Shortly after 11 a.m. the party visited the Keyham Extension Works, permission having been obtained for them from the Admiralty by Mr. Whately Eliot, the superintending civil engineer. Leaving Keyham the architects made for Thomas's Hotel, Devonport, for luncheon, the President, Mr. Pinn, in the chair. After the loyal toasts, the health of the Society, coupled with the name of the President, was proposed by Mr. Bazeley, and Mr. Pinn, replying, said it was now some time since the Society was first started, and they were glad that it had assumed such importance, and that the Plymouth brethren had taken it up so warmly. He ventured to hope, however, one thing—that in the future they would always consider themselves not as a part but as a whole society. Mr. Parker, Chairman of the Three Towns Branch, proposed "Success to Devonport," associating with the toast the name of Mr. E. M. Leest, the Deputy-Mayor. Unfortunately, the Mayor of Devonport could not be with them, but they had an able substitute in his predecessor in the civic chair (Mr. Leest). As a Three Towns branch they knew no boundaries, just as in matters of art there were no boundaries. The works they had been privileged to witness that morning left them but little to imagine as to the success and the progress that must eventually attend Devonport. It was largely through Mr. Leest that that branch of the Society was formed, and he had done great good in drawing them together. Mr. Leest, replying, extended to his brother architects a very hearty welcome to Devonport. It was very kind of his Plymouth brethren to have selected Devonport for the visit, and he was sorry that they could not show them better examples of domestic architecture. They had, however, made a start, and he hoped in a few years they would be able to show the architects of Devon and Cornwall something better. He might prophesy one thing, which would cause a little flutter amongst architects. He was hoping that before many years were over they would be having a competition for a new Guildhall and Municipal Offices—(a voice: "Confine it to Devon and Cornwall.") That was for the Borough Council to settle, but he would confine the competition to the two counties if he could, but it might not be possible. Although they could not show them domestic and ancient architecture, he thought they had been able to show them some great engineering works, and had convinced them that after all Devonport was a place of growing importance. The annual meeting was subsequently held, Mr. Pinn again presiding. A resolution standing in the name of Mr. Jerman, F.R.I.B.A., that the office of President be tenable for three years, fell through, as that gentleman was not present to support it.

**COURT OF COMMON COUNCIL.**—At the Court of Common Council on Thursday last week, in answer to a question by Mr. John Lobb, Mr. Alderman Allison said that no action had yet been taken to arrange for a conference between the Corporation and the London County Council on the subject of the Building Act Amendment Bill.

#### INCORPORATED INSTITUTE OF BRITISH DECORATORS.

THE fifth annual general meeting of this Institute was held on Monday afternoon at Painters' Hall, Little Trinity-lane, E.C. Mr. J. D. Crace, London, was again elected President and the following Vice-Presidents were elected: Messrs. Mawer Cowtan Cowtan, London; J. C. M. Vaughan, Hereford; R. J. Bennett, Glasgow; Thomas Preston, Burnley; John Sibthorpe, Dublin; John Riley, Nottingham; Jno. Graham Cole, Newcastle-on-Tyne. The following General Council was also elected, *i.e.*, Messrs. Charles Carlton, Glasgow; Wm. George Sutherland, Manchester; William Fraser Dobie, Edinburgh; Thomas William Heath, London; Alderman Samuel Kendall, Huddersfield; Jno. Graham Cole, Newcastle-on-Tyne; James Puttrel, Sheffield; and John Henry Turner, Wakefield. Mr. G. A. Pether was elected auditor, Mr. W. H. Pitman, Treasurer, and Mr. Fredk. Wm. Englefield, Secretary.

It was suggested that the new Council should consider a proposal that in future the annual meetings of the Institute should be extended to two or more days, and that arrangements be made for the members of the Institute to visit places of decorative interest in London at the time of such annual meetings, and that at the same time arrangements be made for the giving of lectures and the reading of papers.

This proposal met with considerable support amongst the members, and will at an early date be brought up for consideration by the Council.

The annual dinner was held in the evening at the Trocadero, Shaftesbury-avenue, Mr. J. D. Crace presiding. Amongst those present were Mr. Mawer Cowtan Cowtan, Past Master of the Painter Stainers' Co.; Mr. J. Riley, President of the National Association of Master Painters of England and Wales; Col. Bennett, of the Association of Master Painters in Scotland; Alderman John Smith, and Messrs. J. C. M. Vaughan, T. Preston, and F. W. Englefield, Secretary.

The loyal and patriotic toasts having been honoured,

Mr. W. G. Sutherland proposed the toast of the evening, "The Incorporated Institute of British Decorators." He said that the Institute was the apex of the movement which began some ten years ago and which developed, thanks to the Painter Stainers' Co., in a manner which was not contemplated. The inception of the movement came from the late Mr. Thomas Bonner, but though the suggestion came from Scotland, the scheme was taken up very heartily by Englishmen and Irishmen, and those engaged in it represented the best thought, the ablest men, and the largest experience in the painting-decorating trades. Much of this was due to the fact that the Institute had for its home the rooms of the Painters Stainers' Co., and to the fact that they had as their President, Mr. Crace, whose name and the name of his house was known so well. He hoped that Mr. Crace would continue to be their President for many years to come. The membership of the Institute was about 400, and considering the short time they had been established, that was very satisfactory. With the toast he coupled the name of Mr. J. D. Crace.

The Chairman, in response, said he believed the Institute had an important future before it, and that it would do a great deal to raise the general position and improve the relationship of decorators to each other. The National Association of Master Painters, which preceded the Institute, had a definite series of objects which were correlative and yet not identical with the objects of the Institute. The Association appealed more immediately to the material advantages of the decorator, and the Institute was formed to assist in establishing what he might call the higher moral relations of the decorator to his calling. The Institute made rather a larger demand on the individual members, and he would be glad to see a greater readiness on the part of the members to meet and discuss the subjects which were of interest to the members as a whole. The Institute had organised a certain number of lectures, which had no doubt been of interest to the members, but in order to achieve a more natural growth he thought it was essential that the members should originate subjects, and read papers and discuss them, and he appealed to them to do so. He thought

they might congratulate themselves on the work of the past year. Certain forms and documents had been drawn up which he thought would prove of great value to members of the Institute and to those engaged in the art of decoration. It was of the greatest importance to all decorators that their business should be interfered with as little as possible by doubtful disputes. In matters of taste there were always considerable differences of opinion and a readiness to dispute, and it was always well to have something to fall back upon which would afford means of settling disputes between decorators and clients, or between decorators themselves; in the past year a good deal had been accomplished in that direction. He appealed to those present to encourage their friends in London to join the Institute in greater numbers; more support was needed in the Metropolis. It was difficult to get in touch with men in London, and people seemed to be suspicious of every movement at its commencement, but that could be overcome by the efforts of members themselves. It would readily be seen how great a good could be accomplished by the Institute for decorators if it grew as other bodies had grown. The membership they had after an existence of about four years was good, and there were many other flourishing societies which had nothing like that membership after four or five years' work; but they must not sit still. The advantages of belonging to the Institute were not so apparent as those to be derived by membership of the National Association, for the Association dealt with such personal interests as the relationship of employer and employed, apprenticeship, &c., but in the long run the Institute would present advantages as great or greater if it were carried out on the lines he hoped to see it grow. There were many excellent forms of manufactured material made to assist the decorator, which did not constitute decoration. The art of decoration necessitated continuous study, a constant endeavour to acquire knowledge, and an intimate acquaintance with what had been done and with what could be done. From the age of 16, when he first took up the work of decoration, to the present day, his study and enthusiasm had not diminished. The art of the decorator was of unfailing interest, but it necessitated keeping the eyes and the mind open. Many advances had been made, and in that respect the National Association had also done good, *i.e.*, by starting travelling studentships, so that students might go abroad and see what the old decorators and artists had done—not to copy, but to see what the possibilities of the art were. As an illustration of the advantage of study, he might mention the fact that his father, although he had a large family to bring up, spent quite a large part of his income on books, and he formed one of the finest private libraries of art books. His father also found time to visit Italy, Germany, and France to see what had been and what was being done by decorative artists. He earnestly appealed to members of that Institute not to be satisfied with the use of manufactured decorations, but to study the art of colour and decoration and produce their own work. It was a most entrancing study, and one might grow old in such work and never grow tired of it.

Mr. Cowtan Cowtan then proposed "The National Association of Master Painters of England, Scotland, and Ireland," coupled with the name of Mr. J. Riley, President of the National Association of England, and Colonel Bennett. He alluded to the help of the master painters in founding the Institute, and to the good work of the Presidents of the three associations, *i.e.*, Mr. Riley, Colonel Bennett (Scotland), and Mr. Thompson (Ireland).

Mr. Riley and Colonel Bennett having suitably responded, the remaining toasts were given: "The Visitors," proposed by Mr. Thomas Preston, past President of the National Association of Master Painters of England and Wales, and responded to by Mr. George Clulow; "The President," proposed by Mr. Charles Carlton, of Glasgow; and "The Secretary," proposed by Mr. W. H. Pitman, the Treasurer of the Institute. The President and Mr. Englefield having replied, the proceedings came to a close.

**CONGREGATIONAL CHURCH, HERNE HILL.**—A new Congregational church is to be erected on a site at Red Post Hill. The church, designed by Mr. Alfred Conder, will cost upwards of 8,000l. to erect.



## PLUNGER PUMPS.

ALTHOUGH the theory underlying pump design is beautifully simple, it is by no means complete, and in actual practice pumps do not behave in the manner expected. Those who have had occasion to make experiments on hydraulic pumps and motors are aware that various curious phenomena exist, which are of theoretical and practical importance. Some curious actions observed, and others heard of from different sources, induced Professor John Goodman to carry out a series of experiments on a small plunger pump, with the object of solving some of the mysteries. These investigations are fully described in a paper read last month before the Institution of Mechanical Engineers. Some hitherto mysterious actions are therein satisfactorily explained, but many others still remain obscure. The trials were made with an ordinary plunger donkey pump and auxiliary apparatus fitted for the purpose at the Engineering Department of the Yorkshire College, Leeds. Among other objects, the experiments were intended to furnish information as to the discharge coefficient of a pump and the "water run" pressure in the suction pipe; to determine the exact behaviour as regards the opening and closing of the suction and delivery valves under varied conditions of running; to ascertain the loss of pressure due to friction of the water passing through the valves and passages of the pump, and to observe the effect of a vacuum or air vessel on the suction pipe. The general conclusions to be drawn from the investigation are (1) that in a pump of the type mentioned the quantity of water delivered depends on the speed of the pump and on the "co-efficient of discharge," which depends upon the action of the valves. The quantity pumped may be anything between 91 and 150 per cent. of the plunger displacement. 2. That water-ram pressures in the suction-pipes of pumps without air vessels may be very serious indeed, are very much greater than is suggested by the usual theory. 3. That the knocking often heard in the suction pipes of pumps is due to the separation and subsequent impact of the plunger and the water. 4. That uncontrolled valves in pumps of this type do not act as they are supposed to do, except when the pump is running at low speed and delivering against a moderate head. Most people believe that the volume of water delivered by a pump is to be gauged by the displacement of the plunger. The delivery of 50 per cent. more water than that so displaced is certainly an astonishing result, but the most remarkable of all the results obtained by Professor Goodman were "slip" measurements taken when the pump was working without a suction-valve. Water was then delivered during the suction-stroke simply by the inertia pressure in the suction-pipe forcing open the delivery-valve before the completion of the suction-stroke. Although these experiments were limited to one small form of pump the information obtained is particularly interesting and suggestive.

## THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, Lord Monkswell, Chairman, presiding.

**Loans.**—On the recommendation of the Finance Committee, it was agreed to lend Stepney Borough Council 2,100*l.* and 9,351*l.* for street improvements; Battersea Borough Council, 5,039*l.* for paving works; Lambeth Borough Council, 3,600*l.* for a similar purpose; Shoreditch Guardians, 2,686*l.* for alterations to the kitchen at the parish infirmary; and Lambeth Borough Council, sanction to loan of 16,245*l.* for paving work.

**Theatres, &c.**—The following applications were agreed to:—

Additional box office, Chelsea Palace of Varieties (Messrs. Wilson & Long).

Alterations to back wing of Covent Garden Theatre (Mr. E. O. Sachs).

**Taxation of Land Values.**—The debate on the Report of the Parliamentary Committee on the Land Values Assessment and Rating Bill was resumed. Mr. Bann moved the following amendment, which was accepted by the Parliamentary Committee, and carried, on a division by seventy-six votes to twenty:—"That the principle of the rating of land values, by the separate assessment of land and buildings, be approved."

**Annual Map of London.**—The Corporate Property Committee reported that the annual map of London is now ready for the printer. It will show the progress of building operations in London since the last revised issue of the Ordnance Survey. New buildings erected, and any work or alterations which have been effected by the Council will be indicated, and the several concessions obtained under the Building Act denoted, detailed information respecting which can be obtained from the detail section of the ground plan.

**Wimbledon-road.**—The Improvements Committee were authorised to incur expenditure on capital account up to 5,300*l.* to secure the widening of Wimbledon-road to 54 ft. between Garratt-road and the county boundary.

**Colney Hatch Asylum and the Fire-Alarm System.**—The Asylums Committee reported as follows, the recommendations being agreed to:—

"We have had under consideration the question of extending the existing fire-alarm system at this asylum. At present there are nine points from which alarms can be given, and in the majority of cases the boxes at these points are on the staircases outside the wards, necessitating the attendants who require to use them leaving the patients, which is not advisable. We propose fixing an alarm bell in every male ward, in the mess-room, and in the visiting-room on the male side of the asylum, also in all the staff quarters, mess-rooms, and the visiting-rooms on the female side. We also propose to provide a fire-alarm box in a convenient position in each ward, in every independent dormitory and in all the administrative buildings. The present indicator will require to be enlarged and an indicator will be provided in the female visiting-room. The estimated cost of the works is 325*l.* Provision to the extent of 10,000*l.* has been made in the annual rate estimate for the year commencing April 1 next, for alterations to existing buildings and for appliances for further protection against fire, to which sum this amount should be charged. In view of the desirability of the work being carried out as speedily as possible, we recommended the subject to the passing of the annual maintenance votes, the Council do sanction an expenditure of 325*l.* for the extension of the fire-alarm system at Colney Hatch Asylum."

**Manor Asylum: New Block.**—The same Committee reported as follows:—

"On July 29 last the Council voted the sum of 9,300*l.* for the erection of an additional block at the Manor Asylum for the accommodation of sixty male patients, the amount voted being charged to capital account, and the term of repayment being fifteen years. It was then proposed that this building should be constructed of similar materials to the existing buildings there, i.e., wood framing with plaster lining and corrugated sheeting outside, but in view of the recent experience we have had in regard to temporary buildings, we have thought it desirable to make this a permanent brick structure. The works necessary in consequence of the alteration of the original specification, as we are informed, necessitate an additional expenditure of 1,200*l.* In the circumstances we think that the Council's vote of July 29 last should be cancelled, and the total amount required charged to capital (original outlay) full term account.

The Commissioners in Lunacy have informed us that they are prepared to recommend the Home Secretary to approve the alterations, and amended plans have been forwarded to them for this purpose. We recommend—(a) That the resolution of July 29, 1902, approving of the estimate and authorising an expenditure of 9,300*l.* for the erection of a block of buildings at the Manor Asylum for the accommodation of sixty male patients, be rescinded. (b) That, subject to the approval of the necessary plans by the Secretary of State, the estimate of 10,500*l.* submitted by the Finance Committee for the erection of a permanent block at the Manor Asylum to accommodate sixty male patients, be approved; and that the Asylums Committee be authorised to incur expenditure on capital account up to 10,500*l.* for that purpose.

Mr. Beachcroft moved and Mr. H. P. Harris seconded that the Committee be instructed to advertise for tenders.

The amendment was, however, rejected, and the recommendation was carried. **Boilers, Hanwell Asylum.**—The same Committee recommended and it was agreed that the estimate of 6,650*l.* submitted by the Finance Committee for the works connected with the centralisation of the boiler plant at the Hanwell Asylum, and causing increased value of the buildings and machinery beyond their original cost, be approved; and that the Asylums Committee be authorised to incur expenditure on capital account up to 6,650*l.* for that purpose.

**Fire Station, Deptford.**—The Fire Brigade Committee reported as follows:—

"On July 29, 1902, the Council authorised us to make the necessary preliminary arrangements for

the erection of a new station on the site of the existing Deptford station and of the premises Nos. 188 and 190 (formerly Nos. 114 and 115), Evelyn-street. The quantities of the work to be done in connexion with the erection of the new station having been taken out, the Architect reported that the revised estimate of the cost of buildings amounted to 10,350*l.* As we are of opinion that the work should be carried out without the intervention of a contractor, we referred the drawings, specifications, quantities, and estimate to the Works Committee, who have now intimated that they are satisfied of the sufficiency of the Architect's estimate. We have forwarded to the Finance Committee an estimate of 11,510*l.*, which, in addition to the cost of building, provides for lighting the station by electricity and for an electric bell installation, and covers the cost of lithography, preparation of quantities, quantity surveyor's fees, architect's expenses, clerks of works' wages, and incidentals. . . . We recommend that the estimate of 11,510*l.* submitted by the Finance Committee in respect of the new Deptford fire-station be approved, and that an expenditure of that amount be authorised; that of this amount the sum of 10,350*l.* be authorised for the work of erecting the station; that such work be executed by the Council without the intervention of a contractor; and that the drawings, quantities, specification, and estimate be referred to the Works Committee for that purpose."

Mr. Goodrich moved an amendment to the effect that advertisements be issued for tenders for the erection of the building. He pointed out that the Horton Manor Asylum as an example of the work of the Works Department, and contended that the contractor would carry out the building in less time and for less money than the Department.

Mr. Antrobus seconded the amendment.

Mr. Cousins pointed out that in four years seventeen fire stations had been erected by the Works Department and only five by contractors. He thought this station should be put out, as a check to the Department.

Mr. Howell J. Williams said the Architect's estimate had been disclosed, and it would be unfair to the Works Department to put the work out to tender in those circumstances. The Department ought to be kept going, seeing what an enormous amount of capital was involved in it.

Mr. Smith, Chairman of the Committee, said the record of the Works Committee in regard to the erection of fire-brigade stations was entirely satisfactory.

The amendment was lost, and the recommendation of the Committee was then agreed to.

**Tramway Matters.**—It was agreed, on the recommendation of the Highways Committee, to accept the tenders of the British Westinghouse Electric and Manufacturing Co., amounting to 65,668*l.* and 53,012*l.*, for bogie-truck cars and single-truck cars respectively.

Answering Mr. Steadman, Mr. Benn said that out of the 111,000*l.* only 5,000*l.* of work went abroad.

Replying to Mr. Gilbert, the Chairman of the Committee promised to consider the matter of running cars morning and evening for women only.

**Housing.**—The Report of the Housing of the Working Classes Committee contained the following paragraphs:—

"We have to report that Ryde-buildings, Swan-lane estate, Rotherhithe, are now ready for occupation. The buildings have been erected to provide rehousing accommodation for persons to be displaced by the construction of the Rotherhithe tunnel. They contain twenty tenements of two rooms and twenty tenements of three rooms, affording accommodation for 200 persons.

On March 31, 1903, authority was given for the seal of the Council to be affixed to a scheme for the provision of rehousing accommodation in connexion with the Mare-street improvement, Hackney. The scheme provides that dwellings shall be erected on sites at London-fields and Jerusalem-square for the accommodation of not less than 326 persons. The Council has already entrusted to Messrs. Stimpson & Co. the work of building dwellings to accommodate 190 persons on the London-fields site, and we have now to report that the Secretary of State has approved the plans of the dwellings to be erected on the Jerusalem-square site. We are therefore in a position to proceed with the preparation of working drawings and bills of quantities in respect of the dwellings, and in order that the expenditure involved may be covered it is necessary that the Council should vote a sum of 500*l.*"

**Mil-lane Lodging-house, Deptford.**—The same Committee recommended and it was agreed:—

That the Chairman of the Housing of the Working Classes Committee be authorised to accept the lowest satisfactory tender for the



construction of wooden partitions on the 2nd, 3rd, 4th and 5th floors at the Mill-lane lodging-house, Deptford.

**School Board Relinquishing, Norfolk-street Site, Poplar.**—They also recommended that the offer of Messrs. F. & T. Thorne to build the fourteen cottages to be erected on the Norfolk-street site, Poplar, at a reduction of 3½ per cent. on the prices contained in their contract for the erection of the first two blocks of dwellings on the Preston-road site, with a further reduction of 1l. per rod on the price of brickwork be accepted.

This was agreed to.  
**A Brickmaking Experiment.**—Lord Carrington reported that the result of the brickmaking experiment on the Norbury estate, Croydon, had been a success.

Mr. Beachcroft said that a great number of the bricks made were grizzles, and they were useless for the purpose required.

Mr. Cohen asked whether the bricks would be laid at the rate of 200 or 2,000 per day.

A long report on the subject of the Norbury experiment was held over.

**Works Department.**—A long report on the result of the erection of the superstructure of Horton Asylum by the Works Department was submitted and adjourned. The balance of cost above final estimate was reported to be approximately 39,500l.

**Clifford's Inn.**—In answer to Mr. Sankey, Mr. Cleland promised to bring the question before the Parks Committee of preserving the garden in Clifford's Inn as an open space.

The Council adjourned at eight o'clock till May 5.

## APPLICATIONS UNDER THE LONDON BUILDING ACT, 1894.

The London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses:—

### Lines of Frontage and Projections.

**Lewisham.**—A dwelling-house on the north side of Perry-vale, Forest Hill, westward of Normanton House (Mr. D. G. Horlock).—Consent.

**Marylebone, West.**—An iron and glass covered way in front of No. 44, Hamilton-terrace, St. John's Wood, St. Marylebone (Mr. A. Snook for Count Hollender).—Consent.

**St. George, Hanover-square.**—Enclosures to the existing portico at the entrance to No. 42, Upper Grosvenor-street, St. George, Hanover-square (Mr. R. G. Hammond for Mr. G. A. Prentice).—Consent.

**Marylebone, East.**—Two houses, with bay windows and one-story shops in front, on the site of Nos. 230 and 232, Great Portland-street, St. Marylebone (Mr. A. Baker).—Consent.

**Hackney, South.**—That the application of Mr. R. Robertson for an extension of the periods within which the erection of a block of buildings to be inhabited by persons of the working classes on the east side of London Fields, Hackney, was required to be commenced and completed be granted.—Agreed.

**Marylebone, East.**—A modification of the scheme consented to for the erection of projections to a block of buildings on the site of Nos. 104 to 120, Oxford-street, St. Marylebone (Mr. R. F. Atkinson for Mr. S. J. Waring, jun.).—Consent.

**Marylebone, West.**—A vestibule within the portico at No. 1, Portman-square, St. Marylebone, to abut upon Lower Seymour-street (Messrs. Wright & Adams for Captain J. C. D. Pater).—Consent.

**Hammersmith.**—The retention of blocks Nos. 1 and 2 and the erection of blocks 3 and 4 of residential flats on the north-east side of Paddenswick-road, Hammersmith, northward of "The Old Thatched House" public-house (Mr. C. H. Isaacs for Messrs. Flew & Co.).—Consent.

**Lewisham.**—Four dwelling-houses on the north side of Ravensbourne-road, Catford (Mr. J. W. Webb).—No order.

**Lewisham.**—Conversion into a shop of a bay-window at No. 73, Brownhill-road, Catford (Mr. J. Lawrence for Mr. F. Bedford).—Refused.

**Dulwich.**—An addition to Christchurch (Presbyterian) Church, East Dulwich-grove, Dulwich, to abut upon Townerly-road and Calton-road (Mr. C. E. Barry for the Rev. J. R. Patterson).—Refused.

**Hackney, North.**—Buildings on a site on the north side of Manor-road, Stoke Newington, eastward of No. 42 (Mr. F. J. Matthews).—Refused.

**Hammersmith.**—Buildings at the rear of Nos. 176, 178, 180, and 182, Goldhawk-road, Hammersmith, to abut upon Rathor-road and Conningham-road (Col. E. Clark).—Refused.

### Width of Way.

**Whitechapel.**—A urinal at the rear of the Red Lion public-house, Black Lion-yard, Whitechapel-road, Whitechapel (Messrs. Deakin and Cameron for Mr. B. Sheinman).—Consent.

**Woolwich.**—A two-story addition at the rear of Nos. 87 and 88, Beresford-street, Woolwich, with the external walls at less than the prescribed distance from the centre of the roadway of Rope-yard-rails (Mr. F. Mitchell for the Labour Club and Institute).—Consent.

### Width of Way and Lines of Frontage.

**Hammersmith.**—A nurses' home at the West London Hospital, Hammersmith-road, Hammersmith, with the external walls at less than the prescribed distance from the centre of the roadway of Elm-grove (Messrs. W. Harvey and G. H. Hunt for the Committee of the Hospital).—Refused.

**St. Pancras, East.**—A greenhouse on a site on the east side of Camden-road, St. Pancras, at the corner of King's-road (Messrs. W. F. Meakin & Son for Messrs. Bourne & Underwood).—Refused.

**Hackney, North.**—Five houses with bay windows on the northern side of Harrington-hill, Hackney, to abut upon Ivy-terrace (Mr. W. Stone for Mr. J. L. Siggins).—Refused.

**Hampstead.**—Buildings on the east side of Fortune Green-road, Hampstead, to abut also upon Weech-road (Mr. C. H. B. Quennell for Mr. C. Pain).—Refused.

**St. George, Hanover-square.**—A projecting doorway in front of the coachhouse of No. 31, North Bruton-mews, Bruton-street, St. George, Hanover-square (Messrs. Campbell, Smith & Co., Ltd., for Mr. C. W. Trotter).—Refused.

### Line of Frontage and Height of Buildings.

**Strand.**—An addition to the Savoy Hotel on the west side of Savoy-buildings, north side of Somerset-street, and east side of Beaufort-buildings (Mr. T. E. Colclutt for the Savoy Hotel Co., Ltd.).—Consent.

### Space at Rear.

**Lewisham.**—A modification of the provisions of Section 41 with regard to open spaces about buildings, so far as relates to the proposed erection of a house on the north side of Perry-vale, Forest Hill, westward of Normanton House with an irregular open space at the rear (Mr. D. G. Horlock).—Consent.

**Kensington, South.**—A modification of the provisions of Section 41 with regard to open spaces about buildings, so far as relates to the proposed erection of a building on a site on the north side of Oakwood-court, and east side of Addison-road, Kensington (Messrs. Rolfe & Matthews for Messrs. Jones Bros.).—Consent.

### Deviation from Certified Plans.

**Deptford.**—Deviation from the plans certified by the District Surveyor under Section 43 of the Act, so far as relates to the proposed erection of an addition at the rear of the Royal Standard public-house, Tanner's-hill, Deptford, to abut upon Heald-street (Mr. H. Roberts for Mr. W. H. W. Cooper).—Consent.

### Formation of Streets.

**Lewisham.**—That an order be issued to Mr. H. Porter, refusing to sanction the formation or laying-out for carriage traffic of a new street out of the northern side of Woolstone-road, Lewisham (for the Leathersellers' Company).—Refused.

### Means of Escape at the Top of High Buildings.

**Southwark, West.**—Means of escape in case of fire, proposed to be provided in pursuance of Section 63 of the Act, on the fifth story of the west tower of the Henriette Raphael Nurses' Home, Guy's Hospital, Great Maze-pond, Southwark (Mr. E. C. Perry for the President, Treasurer, and Governors of Guy's Hospital).—Consent.

### Dwelling-houses on Low-lying Land.

**Rotherhithe.**—A building on low-lying land situated at Manor-lane, Rotherhithe (Mr. E. Crosse for Messrs. A. White & Co.).—Consent.

**Southwark, West.**—Nine buildings on low-lying land situated at New-cut, Lambeth (Mr. W. R. Milton for Mr. T. L. Green).—Consent.

**Lambeth, North.**—Three buildings on low-lying land situated at Nos. 20, 21, and 22, New-cut, Lambeth (Messrs. Flood & King for Messrs. E. H. & H. C. Ruscoe).—Consent.

**Deptford.**—A block of buildings on low-lying land situated at Rollin-street, Peckham (Mr. T. D. Falconer).—Consent.

\* \* \* The recommendation marked † is contrary to the views of the Local Authority.

### WAR MEMORIAL, NOTTINGHAM.

The memorial which has been erected in Nottingham to the officers and men of local regiments who fell during the South African campaign, was unveiled on the 26th ult. by Lord Methuen. The obelisk has been erected by Messrs. McDonald & Co. of Aberdeen. Of classic form, it is hewn out of Aberdeen granite. The total height of the monument is 25 ft., the obelisk itself being 14 ft. high, standing on a pannelled pedestal of 8 ft., the base, which is protected at each corner by miniature guard posts, being formed by two steps. The pedestal averages 3 ft. square, and the obelisk tapers from 25 in. to 15 in. The foundations for the memorial were prepared under the direction of Mr. R. Evans, architect.

## TRADE CATALOGUES.

MESSRS. WALLACH BROS. send us a sheet describing and illustrating their most recent machines for paint spraying. These include the "portable pneumatic oil and lead paint spraying machine," which is complete in itself, and requires no other power but that furnished by its own pump; the "oil paint sprayer" specially adapted for use with existing compressed air installations; and the "single-nozzle double-nose oil paint sprayer." This latter can be attached to an existing compressed air supply, but for light work, which is not continuous, a pump can be introduced into the tank, and the machine used independent of any outside power.

Messrs. Andrew Handyside & Co., Ltd., Briannia Ironworks, Derby, send us their catalogue of smiths' hearths and general smithy fittings. It is small, well printed, and fully illustrated. Many different kinds of hearth are shown—rectangular, annular, and circular—for heavy and light work. The accessories include anvils, tools, smoke-pipes, wall-cranks, slake-troughs, and other fittings. There is a complete price list at the end of the catalogue.

From the American Radiator Co., 89 and 90, Shoe-lane, E.C., we have received two catalogues. The smaller (62 pages) contains illustrations, descriptions, and prices of American radiators and "ideal" boilers. The larger catalogue, which is entitled "The Ideal Filter," includes all the matter contained in the smaller, together with forty additional pages devoted to "Heating Specialities" and "Hints to Fitters." The radiators are all of the well-known sectional type, and are adapted for water or steam. The "Astro Hospital Swinging Radiator" is hinged at one end to a plate bolted to the wall, and can be swung out like a gate; this is an ingenious contrivance, and if the joint is thoroughly watertight (as it is said to be) the radiator will be useful in houses as well as hospitals; the spaces between the vertical tubes or sections are 14 in. wide, so that they can be easily cleaned. The dining-room radiators, containing "ovens," are also worthy of mention. The boilers are of cast iron, and nearly all are of the sectional type. The heating specialities include valves of various kinds, tools, air-grates, &c. Architects as well as fitters will obtain some valuable hints on the design and fixing of heating apparatus from the concluding section of the catalogue entitled "Hints to Fitters." Every architect ought to possess a copy of this well-printed catalogue; it is certain to be of use to him.

The Phalanx Window Blind Co., of 50, Bishopsgate-street Without, E.C., have sent us their catalogue of "window-blinds" or "roller-shutters." These are revolving-shutters, the peculiar features of which are the sections of the laths and the method of fastening them together. Some of the laths are "perforated" (except where the connecting bands occur), forming a series of louvre boards, which exclude sunshine but allow the passage of light and air. In another type of blind the laths are connected by short steel strips, so arranged that the laths will fit closely against each other, thus excluding both light and air, or can be lifted to allow 1-in. spaces between. All the different types can be supplied with awning-irons, so that the shutters can be pushed out to serve as sun-blinds.

From Messrs. Tudors, Mash, & Co., of 17, Collyer Hill, E.C., we have received a catalogue of sanitary fittings, plumbers' and gas-fitters' brasswork, lead traps and bends, cast-iron soil-pipes and drain-pipes, rainwater goods, manhole covers, stoneware pipes (traps and channels, galvanised iron tanks and dust-bins, wrought-iron tubes, paint brushes, lead pipes, sheet lead and zinc, &c. The catalogue is of the usual trade type, useful for reference, but does not, as far as we can see, contain any important novelty.

Messrs. Shanks & Co., Ltd., Tubal Works, Barnhead, have sent us their supplementary catalogue of sanitary fittings, dated 1902. Many of the fittings are admirably designed. The oval lavatory (No. 1,372) has a dish marble top, 33 in. by 24 in. by 2 in., standing clear of the wall and supported on nickel-plated brass legs and rails. Another lavatory, priced 50 gs., has a Mexican onyx top and frieze. Less expensive lavatories are also shown, together with baths, water-closets, sinks, &c., of various designs, materials, and prices. The illustrations include five views of bathrooms.



fitted up by Messrs. Shanks & Co. The catalogue is beautifully printed, and is one which the architect will find both interesting and useful.

Messrs. Bell's Asbestos Co. send us a copy of a test certificate summarising the results of experiments to determine the relative condensation of steam in two pipes—3 in. diameter—one being covered with 2 in. of asbestos composition, and the other left bare. Under the conditions stated, the steam condensed per square foot per hour was: For bare pipes, 0.986 lb., and for covered pipe, 0.1697 lb. These figures show very conclusively the advantage to be derived from the protection of steam boilers and pipes.

### Books.

*The Rock Tombs of Deir el Gebrawi.* By N. DE G. DAVIES. Eleventh and Twelfth Memoirs of the Archaeological Survey of Egypt. London: Kegan Paul & Co. 1902.

THE rock tombs illustrated in these two volumes of the archaeological survey of Egypt obviously contain little or nothing of architectural interest. Mr. Davies observes that the exteriors of the tombs, "though still striving to imitate the façade of a brick-and-timber built house, are very simple, and often rough," and in this respect compare unfavourably with the contemporary tombs at Sheikh Said. In the illustrations one can rarely detect even the degree of approach to architectural detail indicated by the author. Their whole interest lies in the paintings and records inscribed on the walls, with which the illustrations are principally occupied.

One curious fact is mentioned; that some of the scenes in the tomb of Aba were copied in the days of Psammethichus I., in the seventh century B.C., a period about half way between the original date of the tombs (Sixth Dynasty) and our own. The copyist was a prince of Thebes, also named Aba, who appears to have been interested in the existence of an ancient painted tomb of a namesake, and adopted part of the decoration; such at least is Mr. Davies's explanation.

The Deir el Gebrawi tombs were re-discovered in 1850 by Mr. Harris of Alexandria, and were visited by Sir Gardner Wilkinson, and at a subsequent period by Professor Petrie and Mr. Griffith; and the expedition sent out in charge of Mr. Newberry, in 1892, spent some time there; but as nothing had been published it was proposed that this should be Mr. Davies's principal work for the winter of 1899, and we have the result in these two volumes.

The paintings, much defaced, represent many scenes in household and estate occupations, in most cases with the master shown as a figure of colossal size compared with the others; they do not differ materially in incident and character from many other sets of Egyptian tomb-paintings. A few enlarged coloured plates of some of the figures show that the style of drawing and execution was very crude.

*Shakespeare's Church.* By J. HARVEY BLOOM, M.A. London: T. Fisher Unwin. 1903.

THIS is a far better book than the title on the cover would lead the would-be purchaser to suppose. It is, in fact, as the secondary name on the title-page states, "An Architectural and Ecclesiastical History of the Collegiate Church of the Holy Trinity of Stratford-upon-Avon." Gossiping books of all shapes and sizes, and of every condition of merit and demerit, abound, which tell of the great dramatist, of the town of his birth, and of the place of his burial. The ordinary run of guide-books of the district seem to imagine that the fine church of Stratford-upon-Avon was a kind of appendage to William Shakespeare, or, at all events, of no interest whatever outside his connexion with it. Now, however, for the first time, we have a real and accurate history, written with much painstaking skill, of a remarkable parish church with a remarkable history. There was a Saxon monastic church in this place, on the banks of the Avon, for three or four centuries before the Conquest; but of that church and its Norman successor no traces now remain. The cruciform plan of the present church, with a lofty chancel of five bays and a nave of six, dates in its oldest parts from the first quarter of the thirteenth cen-

tury, to which period the north and south transepts portion belongs, together with certain raised parts of the central tower. The north and south aisles of the nave, together with the arcades and the tower, were reconstructed in the reigns of the first two Edwards; whilst the chancel, clearstory, west window, and north porch are of the end of the fifteenth and beginning of the sixteenth centuries. The spire is a most exceptionally creditable piece of work for the date when it was accomplished, namely, 1765. Mr. Bloom also gives full particulars of the three periods of nineteenth-century "restorations" that this long-suffering church has undergone. He proves by his various remarks and explanations of the distinctive features of the fabric that he possesses exceptional powers of architectural discrimination, and in one point only of this part of his book does Mr. Bloom seem to need correction. In describing the lofty, well lighted chancel, circa 1500, he says:—"At this period the desire for a light church was so great that every other consideration was often sacrificed, and the whole wall space was often one large window and little else." But surely this state of things was not brought about by an overwhelming longing for light, but rather for space wherein to make display of the then fashionable craze for a great wealth of coloured glass. The photographic plates both of general and detailed views of the church are good and original; it is as interesting as it is exceptional to find one of the weather-mould of the thirteenth-century roof taken from the leads of the nave. The history of this church, and the change of its elaborate guilds into a regular college of priests is of exceptional interest and well told, but space cannot here be found for comments on this portion of a book which cannot fail to prove of value to the general ecclesiologist.

*The Year's Art.* Compiled by A. C. R. CARTER. London: Hutchinson & Co. 1903.

THIS useful compilation contains, as usual, a record of the exhibitions of the year in London, with notes on the progress of art in various provincial and colonial quarters. It includes also particulars of the various art galleries, museums, and schools of art in the United Kingdom. The editor writes a short general article on "The Past Year," in the course of which he specially draws attention to the appeal that has been made by Mr. Claude Phillips and Mr. MacColl to English lovers of art to form some body analogous to the French "Société des Amis du Louvre," to create a fund that might elicit a sparse Government grant to any of the national art institutions. This would certainly be a help, but what is really wanted is that the Government should be more liberal with grants for artistic purposes. As long, however, as the average Englishman, who is also the average elector, continues to regard art as a mere plaything, little is to be hoped for from Parliament. The volume includes also a short paper by Mr. H. H. Statham on "Architecture in 1902."

*The Housing Handbook: a Practical Manual.*

By W. THOMPSON. London: Published by the National Housing Reform Council, 432, West Strand, and P. T. King, 2 and 4, Great Smith-street, Westminster. 1903.

THIS handbook should be in the possession of every one who has anything to do with local government or is interested in the housing question. It is full of practical points, and gives an immense amount of information on the subject of housing. It is illustrated with many suggestive views of old slums and new model buildings, with a large number of ground plans. To discuss it at length would be to enter, as we have more than once done, into the general question. It must suffice, then, to say it consists of 99 pages of well-printed material, with a good index, and to repeat the opinion that the book is at the present time of the utmost value.

*Lockwood's Builder's, Architect's, Contractor's, and Engineer's Price-Book for 1903.* Edited by FRANCIS T. W. MILLER, A.R.I.B.A. London: Crosby Lockwood & Son. 1903.

THE recognised position now worthily taken by this book, with its older contemporary "Laxton," among the list of annual works dealing with builders' prices is well kept in

this the latest edition. In fact, it is now the question, when the time arrives for consulting a price book, for the alternative to be put—"Laxton or Lockwood?" a question which does credit to both works. As we are, however, dealing in this notice with the younger work of the two, it is sufficient to say that wherever a price book is required, with the limitations applicable to all works of this nature, this will be found a most useful work of reference for the purpose for which it is specially designed, as well as for the numerous items dealing with systems of measurement, Building and Public Health Acts, electric lighting, and the thousand and one things appertaining to the building trade generally. The pricing portion has been consistently and carefully dealt with in a practical way which does credit to the editor.

### Correspondence.

#### LONDON DISTRICT SURVEYORS.

SIR,—Seeing the district of the late lamented Professor Roger Smith advertised, I cannot help thinking of the list of candidates in 1875 when he was elected—Messrs. F. Waller, R. Plunbe, G. Lansdowne, H. Jarvis, junr., A. H. Stenning, J. Clarkson, J. D. Mathews, A. Allon, Lacy W. Ridge, R. P. Notley, J. S. Quilton, D. R. Dale, Banister Fletcher, Horace Gundry, Thos. Blashill, E. Carritt, J. H. Watson, A. Payne, H. H. Collins, F. R. Meeson, Robert Walker, and others—about thirty well-known men.

I now turn to the advertisement, and wonder what men will offer themselves for the vacant districts, none of which will exceed an average of 6000, per annum, and one is estimated at 5000. Now, if the latter amounts to this on an average, there must be deducted office rent, stationery, stamps, clerk, travelling and sundries, which cannot be much less than 1500, to 2000, per annum, and for this sum of 3500, net the Council expect to get an experienced man who has passed a stiff examination, although a tramway manager gets over three times as much clear of all expenses, and the Manager of the Works Department, a kind of superior builder's foreman, gets 1,500. Either of these vacant districts, on the old conditions with private practice, would secure good men, but under the present conditions one or two experienced men may offer, but the general run of candidates will be district surveyors' clerks, and a rapid decline in the position of the surveyor must follow.

Is it too late for the Council to withdraw the advertisements, and see that no district is of the annual value of less than 1,000, gross?

"BUILDING ACT."

#### WOODEN STRUCTURES.

SIR,—The select party of Borough Engineers who met at the Westminster Palace Hotel on March 27 to discuss the above subject do not appear to have invited any interested parties other than themselves to their deliberations. You will, therefore, perhaps, allow me, a mere District Surveyor, to make a few observations on the subject.

The opener of the discussion appears to have stated the case with reasonable fairness, but the proposer of the vote of thanks, after having done so, appears to have gone off on his own hobby, and the others to have followed in his wake. One would have thought that the late Vestry Surveyors, being under the London Government Act, raised to the dignity of full-blown Borough Engineers, would have been content with their lot, but apparently it is not so, and they, like Oliver Twist, are asking for more. Properly looking after the roads, sewers, and drains, one would have thought, in any of our large London boroughs sufficient for any ordinary individual, especially when a depot, electric light station, or baths and wash-houses are occasionally thrown in; but this apparently is not so, for, not content with licensing wooden structures under Section 84, they are hankering after powers to administer the whole of the London Building Act: and why? Not because they show that in its present bands it is badly administered, but, as Mr. Weaver says, it would lead to a great simplification of the work of the Metropolitan; and then he adds (which I presume is his great reason) it would "tend to elevate the position of the Borough Surveyor." The Borough Engineer, unlike a District one, is not an independent statutory officer, but has to go to his Council or Committee for instructions to proceed, and I assume he thinks that if he administered the Building Act his status would be raised; in fact, one member thought that Borough Engineers should have "a separate and distinct appointment independent of the Councils."



Mr. Weaver went on to state that the convenience to the public would be great under his proposed arrangement "when they thought of the trouble a country builder was put to when he started work in London," and Mr. Winter echoed this sentiment; but they do not say what trouble. It is no greater trouble for a builder, whether he be a country one or otherwise, to go to the Borough Engineer for his drains and the District Surveyor for his building, than it is for him to go to one merchant for his bricks and another for his timber. I maintain that a builder working in London has less trouble than a country one, inasmuch as he is not troubled or bothered with depositing complete sets of plans for rows of small houses, perhaps all alike, and awaiting their sanction, but has only his draughts to get passed by the Borough Council, and then he can proceed with his work by simply giving notice to the District Surveyor, and by keeping to the rules he will find matters proceed smoothly enough. I have over and over again heard it stated, both by builders and architects, that they wish the London system were adopted in the provinces.

It is only this feeling, that the London Borough Engineer is not on a par with his provincial brother, that is causing this restlessness and coveting of increased status.

But let me return to the wooden structures. It was, I am convinced, a great mistake to have transferred Section 84 to the Borough Councils, and most of us are now beginning to find this out. Sections 82, 83, and 84 are inseparably bound together, and should never have been divided. Who is to say what structures come under Section 82 and what under Section 84? The word "structure" is used in both sections, and the trouble arises from there being no definition of what is a "structure" and what a "building." A building is a structure in the ordinary acceptance of the term, but a structure is not necessarily a building; and I maintain that, as Section 84 makes no mention of the word "building," the Borough Councils are not entitled to license any structure containing an enclosure and a roof. This, however, they are doing, and, as a case in point, the Borough Council in the district to which I am appointed recently sanctioned a studio 20 ft. by 16 ft., with wooden sides and a wooden covered roof, containing a coal stove and iron flue-pipe. I am perfectly certain the Legislature never intended this, but if I were to take action, which I feel I have the power to do, for its removal, I should perhaps rightly receive little support from the magistrate, who would naturally sympathise with the owner in this conflict of authority.

If this is the way the Borough Councils have commenced to exercise their additional powers, they will next be licensing wooden dwelling-houses, and what would happen if they administered the whole Act one cannot contemplate.

What is required is a reversion of Section 84 to the London County Council to avoid scandal and a conflict of authority—the glorification of the Borough Engineer to the contrary notwithstanding.

A MERE DISTRICT SURVEYOR.

SIR,—In my remarks during the recent London meeting of the Municipal Engineers, reported in your issue of the 4th inst., I made reference to a charge upon eighty wooden huts. I am indebted to the District Surveyor for pointing out to me that such a charge was not made. I find that as the huts were in groups of eight under one continuous roof, the District Surveyor from the first only considered them as ten wooden structures, and not as eighty. Receiving notices to pay fees first on three, and subsequently on seven, huts, no doubt led the builder to expect further notices to include the remaining seventy, as was undoubtedly his view when seeing me some months ago. Whether the huts were charged for as eighty or as ten does not materially affect my remarks, which were directed against the present confusion of jurisdiction. It is, however, better that the facts be correct, and I shall therefore be glad if you will kindly give this note equal prominence with your former report.

E. R. R. NEWTON.

#### BOROUGH COUNCILS AND WOODEN BUILDINGS.

SIR,—I see that some of the Borough Councils are making great efforts to have the sole management of the London Building Act, so that the members who are "jerry builders" can work the oracle.

The London Government Bill transferred Section 84 to the Borough Councils, and a nice muddle they have made of it.

The first important case which came into the police-court on Tuesday last was decided against them, and should be a warning not to attempt to license wooden buildings.

DISTRICT SURVEYOR.

#### PROPOSED QUANTITY SURVEYORS' ASSOCIATION.

SIR,—I find that in hastily copying the draft of my last letter the three words in italics were left out of the last clause.

May I trespass upon your goodness to make the correction? The passage should be as follows:—

"Those men who do any at present belong to the Surveyors' Institution will by joining it contribute valuable help in the evolution of such of Mr. Wood's proposals as the Institution may deem it expedient to advance."

JOHN LEANING.

SIR,—Will you permit me through the medium of the *Builder* to add my protest against the suggestion to form a new association of quantity surveyors? The multiplication of these small, and therefore impotent, societies constitutes weakness rather than strength by dividing, instead of uniting, members of a profession. I gather from the circular letter which, in common with other quantity surveyors, I have received, that the promotion of the proposed association rests with two gentlemen who are not members of the Surveyors' Institution, but who, according to their third resolution, "fully respect and recognise the value and importance of that body."

I think this is the case with a large number of non-members, but this is the first time it has been so openly admitted by any of those who constantly cry "sour grapes." By the next item of their programme it is laid down "that none but properly qualified quantity surveyors be admitted to membership"—a most excellent rule—but it would be most interesting to know what constitutes a "qualified quantity surveyor" in the eyes of the promoters. There would appear to be no intention of requiring intending members to pass an examination, but it is indicated that practising quantity surveyors would be admitted. Now, Sir, because a man has been in practice for a longer or shorter period, it does not necessarily follow that he is a *qualified* quantity surveyor; it may only indicate that he has been very fortunate in the selection of his assistants, or that his errors have not been objectionable to the builder—the only one likely to find them out.

I do not for one moment cast any shadow of doubt on the *bona fides* of the promoters, but believe they intend and desire the membership to be as they state, qualified. But if this should be firmly and to the letter adhered to, the Association would be no more than a sort of private club—unattractive and impotent, and whose small membership would rapidly fall away in dissatisfaction. The management would then have to face the problem of making the Association more attractive by providing good central offices, a library, and other advantages, all of which would require funds. I doubt not that the management would then succumb to the temptation to barter their present heroic intentions for the "filthy lucre" required for the purpose and admit any one who by the widest stretch of imagination could be included in the term "quantity surveyor." These are the only alternatives before a young society, and it is sad to admit that most of them choose the latter in the hour of trial. All the large professional bodies have been through it, but they have this advantage at the present time, that, while being firmly established and wealthy bodies, they have outgrown the indiscretions of their youth.

There is no body so capable or in such a unique position as the Surveyors' Institution for giving effect to all the avowed objects of the proposed association. If it at present does not do so to the satisfaction of quantity surveyors, that is their own fault. It possesses all the necessary machinery, and its membership is Empire-wide. It can "uphold the dignity and importance of the profession" far more effectively than any new body, and the members of all branches of the profession would best study their interests by joining the main body, and so strengthening its hands, instead of splitting up the force into impotent factions. The Surveyors' Institution could then more efficiently look after the interests of the profession, and check those abuses so prejudicial to the qualified surveyor and to the public interests.

Certain steps and changes in contemplation by the Surveyors' Institution (which were under consideration before the proposed Association was heard of) will make it more than ever representative of the interests of the quantity surveyor, and I think qualified quantity surveyors will do well to defer for the present any idea of forming a separate association. If—as a body—they ever seriously thought of doing so, which I very much doubt.

HARRY G. ASSITER,  
Fellow of the Surveyors' Institution.

SIR,—Will you permit me a few lines to remark upon the stupendous display of eloquence to which Mr. John Leaning treated us in your last issue?

One would have thought that nothing less than a combination of bold, bad men for the purpose of placing a little gunpowder—with a live fuse attached—in the basement of the Surveyors' Institution would have so spurred a man to such a leonine-like roar as that indulged in by that amiable gentleman. Let me pour oil upon his perturbed—not to say tempestuous—spirit.

The Surveyors' Institution is formed of some 3,000 gentlemen, embracing nearly every conceivable profession that can, by any stretch of imagination, be considered even approaching that of a surveyor. Most of these gentlemen have their own independent society—indeed, have several; but let a few quantity surveyors project a similar

association for their own profession solely, and, lo! Mr. Leaning can see nothing but utter wickedness in such an infamous proposal, and mildly accuses them, amongst other unutterable things, of a desire to fitch some cabalistic letters wherewith to ornament their cards.

I was one of those honoured with an invitation to attend the first gathering of the Quantity Surveyors' Association. I did so, but, after reading Mr. Leaning's letter, am, of course, ashamed of myself. But no matter, let us dissemble.

We met—a handful of men—to talk over professional matters; were duly and ponderously dull and respectable in our proceedings; voted a chairman; had a shorthand clerk; passed resolutions, and behaved generally as intelligent beings. Indeed, anything more unlike a swarm of charlatans who breathlessly rushed up several flights of stairs, to appropriate any letters of the alphabet that might have been left carelessly about, can scarcely be conceived.

And now our Mentor takes us to task for something—in fact, indulges in his wrath, in gambols in the fields of poetry, to prove us anathema.

Let him gambol and perform other lively feats; some one hundred gentlemen, including many who can write F.S.I., by examination—think of their awful decadence—have joined the Quantity Surveyors' Association; and I call upon as many more as possible to write the Hon. Secretary, Mr. F. B. Hollis, 17, Bedford-row, for particulars, and then decide if the objects we have in view are worthy working for.

M.

#### GAS LIGHTING.

SIR,—Permit me, as a reader of your valuable journal, to take exception to the false notion abroad to the effect that gas lighting is becoming a thing of the past. This has been produced from an altogether erroneous statement. The gas used for stoves has enormously increased of late years does not prove that gas lighting is decreasing. As illustrative of the position, the case of this town may be mentioned.

According to the public Press the then Mayor (Mr. Alderman Ernest Woodhead, M.A.) quoted some figures to the Council on November 10 last setting forth the position of the gas consumption during the six years ending March 31, 1902, which are most significant. He stated, as follows, that the gas used for stoves had been:—

Year ending 1902.....	183,648,200 cubic feet.
" " 1896.....	62,175,800 " "

Increase..... 121,465,400 " "

This increased consumption is about 200 per cent. in the period named.

But the position now contested is that gas for lighting purposes is becoming a thing of the past. For the refutation of this I must again refer to the before-mentioned published statement by the Mayor of Huddersfield. His Worship stated that the amount of gas used for lighting purposes had been:—

Year ending March, 1896..	443,767,500 cubic feet.
" " " 1902.....	383,250,600 " "

Decrease..... 60,516,900 " "

This 13 per cent. decrease on the six years, far from representing less lighting, actually records the reverse, inasmuch as during the period covered by the comparison the Welsbach burners have been largely adopted. Throughout this town the flat-flame burners in the street lamps have been superseded by the Welsbach burners, which consume but 3½ cubic ft. whereas the flat-flame ones consumed 5 cubic ft. per hour (and were charged for at this rate), so that a reduction of 30 per cent. is at once accounted for upon this item, and not only so—the flat-flame burners gave a lighting efficiency of about 2 candles per 1 cubic ft. of which, multiplied by the 5 cubic ft., represents a total of 10 candles. The Welsbach burners give about 17 candles per 1 cubic ft., and this, multiplied by the 3½ cubic ft., equals about 60 candles as compared with the 10 before-mentioned, or 500 per cent. increased light for 30 per cent. less gas consumed.

Taking the efficiency of two candles per cubic foot for flat flame burners, and comparing it with seventeen candles obtained from the most common incandescent burners, it will be seen that the light obtained is 750 per cent. more, thus accounting for a reduced gas consumption, but not for reduced lighting. Or the matter may be stated in the following manner:—

If 2,000 candle-power is the efficiency of 1,000 cubic ft. of gas, what amount of gas will be required if the efficiency is 17,000 candles per 1,000 cubic feet?

Answer.

As 17,000 : 2,000 :: 1,000 : 118 cubic ft.

This 118 ft. compared with 1,000 cubic ft. shows a reduced consumption of 88 per cent.; while, as before mentioned, in this town the decrease for lighting purposes in the six years (the period during which the Welsbach mantles have been in vogue) is only 13 per cent. Moreover, the last census unfortunately revealed a slightly reduced population.

It may be stated that the Huddersfield figures for lighting and stove purposes are available on account of the differential prices charged, and there are separate meters for each.

For some purposes as before pointed out in your



columns, gas is infinitely more desirable than electricity, but for others, of course, the contrary is the case. There is not any desire in these remarks to disparage electric lighting, but facts speak for themselves.

It should further be noted that I have only based my calculations upon a candle efficiency of seventeen candles per cubic foot for the most common Welsbach burners, but it is well known that the Kern burners yield thirty candles, and under some improved systems more than eighty candles per foot has been claimed.

It is only fair that a widespread notion arrived at entirely through a misapprehension, should be called attention to. I have ignored, for the present at all events, making any comparisons as to cost, as it is generally recognised that electricity in any form for lighting is a most expensive luxury.

EDWARD A. HARMAN, M.Inst. C.E.  
Gas Works, Huddersfield, April 4.

#### BOOKS RECEIVED.

THE CIVIL ENGINEER'S POCKET-BOOK. By John C. Trautwine. Revised by J. C. Trautwine, jun., and J. C. Trautwine, third. Eighteenth edition. (Chapman & Hall.)

PILGRIMAGES TO OLD HOMES. By Fletcher Moss. Published by the Author: The Old Parsonage, Disbury.)

THE COUNTRY GENTLEMAN'S ESTATE BOOK, 1903. Edited and compiled by W. Broomhall. (Published by the Country Gentlemen's Association.)

#### INFIRMARY, LEYTONSTONE, N.E.

A new infirmary for West Ham was opened by Mr. J. Latham at Whipp's Cross, Leytonstone, N.E., recently. The estate comprises about forty-four acres of gardens, pleasure grounds, and meadow land, together with the mansion house (known as Forest House) and outbuildings, the lodge and cottage (since pulled down) in James-lane, and the cottage at the entrance to the estate in Whipp's Cross-road. The establishment is placed nearly parallel with the Whipp's Cross-road, the main entrance being reached by a roadway across a strip of forest land lying immediately in front of the boundary of the site. Generally, the plan is an administrative block centrally with two ward blocks right and left, connected by a covered corridor running from end to end of the building. Immediately in the rear of the administrative block is the boiler-house, laundry, and machinery building, and to the east of same are detached houses for the engineer and steward. On the south-west side of ward block D is the nurses' home, and near the Whipp's Cross-road entrance are the ambulance and stable buildings and the post-mortem room, mortuary, &c. The accommodation is as follows:—Ward A, six wards of twenty-four each, 144; twelve isolation wards of two each, twenty-four; wards B, C, D, being exactly similar, 504; lunatic ward, two. The whole of the buildings are connected by a complete arrangement of fire-escape bridges, so that every ward has access to other blocks at each floor level, and these bridges are constructed by brick arching. In the administrative, right and left of the large entrance hall, are placed male and female receiving wards, each having attached a bathroom, and close by these wards are corridors connecting the medical superintendent's and assistant medical staff houses. Immediately behind the main corridor is the kitchen, and off this corridor, right and left, are the medical superintendent's office, stores, matron's rooms, dining-rooms, and behind the kitchen are sculleries and servants' hall. On the first floor in the rear are bedrooms for servants, and attached are bathrooms, &c. In the front is the chapel, accommodating 200, and off the main corridor, from this floor, storerooms and tanks in towers are reached.

The basement or lower ground floor of the ward blocks (for, owing to the fall of the land, the back portion is above ground) is chiefly occupied by coal stores, but on the west side are steward's office, meat and milk stores, cellars, &c. Under the main corridor is a subway containing the steam, hot and cold-water pipes, hydrants, electric cables, &c., and the boiler-house is connected to the administrative block by means of a tunnel. Each ward consists of a small central or administrative ward block, containing stairs, lifts, nurses' lavatories, &c., and from the main corridor at each floor level access to the large wards is gained by disconnecting lobbies or bridges. On entering one finds a day-room, two isolation wards, a nurses' dutyroom, and a linen store. In the tower annexes are the bathrooms and lavatories.

The nurses' home contains separate rooms for seventy-two nurses, superintendent's bed and sitting-rooms, whilst on the ground floor are recreation-rooms, for nurses and probationers, and two rooms, can be thrown into one, when required, for entertainments, &c. The laundry and boiler block consists of a self-contained laundry with washing, drying, and ironing-rooms, with separate provision for staff, clothing disinfecting chamber, and inmates' clothes store, and attached are living-rooms for the head laundress. In line

with the boiler-house is the machine-room, containing engines, dynamos, &c., and behind is storage for batteries, &c. At the end of this building there is a carpenter's and amputee's shop. The mortuary block contains a post-mortem-room and dead-house, and attached is a small chapel, together with a waiting-room, &c. Adjacent is a stable building.

Between ward block B and the administrative building is the boardroom, access to which is gained through an ante-room from the main corridor at ground-floor level, and adjoining is a lavatory. Immediately under the boardroom there is a room of similar size, which is intended to be used for the purpose of religious services. Next the boardroom and between it and the administrative building is a detached ward, providing accommodation for short-period lunatics, and containing a ward for two, bathroom, lavatory, attendant's-room, and, leading from this, a padded-room. On the opposite side of the administrative block and between it and D block is the dispensary, a detached building connected to the main corridor at ground-floor level; this contains, in addition to the dispensary, an office, and the basement or lower ground floor is occupied by the drug store. Right and left of the entrance hall and chapel building are respectively the offices of the medical officer, and the medical staff quarters. The former is a commodious residence for the medical officer, and is connected to the main entrance hall, though the building is detached, and the latter, connected in a similar manner, contains bed and sitting-rooms for three assistant medical officers, together with a common room for dining, &c., and the remaining half of this house is divided into a suite of rooms for the matron and two assistants. On each floor are two bathrooms and lavatories, &c., and on the ground floor a further lavatory in addition.

Externally the buildings are faced with red bricks, obtained locally, with Bath and Portland stone dressings, the roofs of the chapel, towers, and staff quarters being covered with green slate, the walls of bathroom, kitchen, sculleries, dynamo-room, and some stores are faced with glazed bricks, the day-rooms having dados in salt-glazed bricks. The walls of wards are finished with Keene's cement painted, with skirtings in glazed bricks. The corridors are in all cases of fireproof materials, finished with terrazzo, or artificial stone. The buildings are warmed by radiators when necessary, as auxiliary heating to the open fireplaces. Each large ward has a double-fire descending flue stove, and the separation wards have warm-air grates. The electric lighting has been carried out by Messrs. F. A. Glover & Co., Ltd., of London. The lifts were provided and fitted by Messrs. C. & A. Mueser, Ltd., of Liverpool. There are eleven lifts in all, four being one in each of the blocks, A, B, C, D, for patients, four in the same blocks are dinner-lifts, and the remaining three are service-lifts. The kitchens have been fitted by Messrs. Benham & Sons, Ltd. The water supply to the institution is obtained either from the East London Water Co.'s mains, delivered direct to the road-making tanks, or the water towers, or by an alternative provision (and the one to be most largely drawn upon) is from the artesian well sunk by Messrs. Isler & Co., to a depth of 400 ft., and which is expected will yield sufficient water to meet the demand of the institution.

Messrs. Shillitoe & Sons, of Bury St. Edmunds, have been the principal contractors. Mr. H. Fawcett, being the works manager, Mr. T. E. Edmunds has acted as clerk to the works, and Mr. John Buley, of Laurence Pountney Hill, Cannon-street, E.C., has superintended the engineering works for the Guardians, and Mr. A. T. Wainman, M.Inst.C.E., of Westminster, has acted as consulting engineer to the architect. The stoves and ranges have been supplied by Messrs. Hendry & Pattison, and Carter & Aynsley; the glazed bricks by Brookers, of Halifax, and the red bricks by Cornish, of Shenfield. The stonework was by F. Mortimer, of Walthamstow; heating and hot-water work by Wontner, Smith, Gray, & Co.; the hydrants by Shand, Mason, & Co.; the road-making by H. V. Mander; the marble mosaic and terrazzo flooring by Pattison & Co., of Manchester, and the Art Pavements and Decorations Co., Ltd.; electric bells, Jackson Bros.; glazing to chapels, Lowndes & Drury; steel tanks, Stevenson & Co.; covering to boilers, Dick's Asbestos Co.; fencing, Bayliss, Jones, & Co., and E. C. White; water softener, Stanhope Water Co.; floor polishing, Ronuk, Ltd.; engineers for well pumps, I. Reedman & Co.; Mr. Crow, of Stratford, supplied the clock and bells. The architect to the Guardians is Mr. Francis J. Sturdy, of London. The amount of the building contract was £86,665l.

CLUB, AMBLE, NORTHUMBERLAND.—A new club has been erected at Amble. It is a stone erection, and is situated in Bede-street. The main entrance is on the north-east side, and on the left is a bar. There is also an entrance on the north side. The building contains a dining-room, 22 ft. by 18 ft. A reading-room, with separate entrance, is situated at the north side. The first floor is approached by means of a staircase. At the right of the landing is a billiard-room 30 ft. by 24 ft. The first floor also contains games and smoking rooms. The architect is Mr. Geo. Ravell, jun., of Alnwick, and the contractors Messrs. R. Carse & Sons, Amble.

#### GENERAL BUILDING NEWS.

WESLEYAN CHURCH, BROOMHILL, NORTHUMBERLAND.—A new Wesleyan Methodist church has been erected at the Red Row, Broomhill. The new premises comprise the chapel and schoolroom to seat 300 people. The schoolroom has been so arranged as to form part of the chapel by a sliding partition. The architect was Mr. J. W. Taylor, of Newcastle, and the contractors Messrs. R. and G. Brown, of Amble.

ST. LUKE'S CHURCH, HORNSEY.—On the 28th ult. the Bishop of London consecrated the nave and aisles of the permanent Church of St. Luke, Hornsey, built from the designs of Messrs. Cutts. The church has seating accommodation for about 600.

CHURCH, FORRES.—The plans prepared by Mr. John Robertson, architect, Inverness, have been accepted for the church which is about to be erected in place of the old Parish Church of Forres.

WESLEYAN CHAPEL AND SCHOOL, SWANSEA.—Competitive plans were recently invited for a new Wesleyan chapel and school at Swansea. The Committee have decided to accept the scheme submitted by Mr. W. Beddoe Rees, of Cardiff, and have given him instructions to proceed with the work. The estimated cost of the whole scheme is about 6,000l.

CHURCH, WINSON GREEN, BIRMINGHAM.—The foundation stone of the Bishop Latimer Memorial Church, Handsworth New-road, was laid by the Right Rev. Dr. Farwell, on the 4th inst. The edifice is designed to accommodate 1,000 worshippers. Mr. W. H. Bidlake, architect, of Birmingham, has prepared designs for a nave, aisles, and chancel, with choir transept on the north side and a tower 100 ft. high on the south side. The length of the church will be 150 ft., and the breadth 50 ft. The walls will be of Staffordshire red brick outside, and buff brick inside. The dressings, window tracery, and interior arcades will be of white Gries-hill stone from the Shrewsbury district. In addition to the font, there will be a baptistry at the west end of the south aisle for the total immersion of adults. Messrs. W. Sapcote & Sons are the builders.

BOARD SCHOOL, SUNDERLAND.—A Board school built by the Sunderland School Board was opened on the 1st inst. The building is situated in Hudson-road, and is capable of accommodating 500 boys and girls. The architect was Mr. J. Eltringham, and the contractor Mr. G. H. Hodgson, both of Sunderland.

METHODIST CHAPEL, PENZANCE.—The new church at Alexandra-road, Penzance, was opened on the 27th ult. The building is Gothic in style, and cost 3,000l. It is built of dressed granite and stone; it consists of the chapel, minister's and other vestries offices. The contractor was Mr. E. Plowell; the architects, Messrs. Frith & Son, Oldham; and the clerk of works, Mr. Sandrey, St. Ives. The length of the building is 88 ft., and the height 26 ft. The chapel outside is 62 ft. long, 38 ft. in width. The schoolroom is 34 ft. in length, and 24 ft. in breadth. The tower is 30 ft. high. The chapel will accommodate about 300 persons.

BRADFORD TOWN HALL EXTENSION.—The proposal which has been on foot for a considerable time, having for its object the provision of extra accommodation for the clerical staffs of the various municipal departments in Bradford, was considered by the Finance (Town Hall Extension) Sub-committee of the Bradford Corporation on the 1st inst. The Sub-committee had before them a supplementary Report by Mr. Norman Shaw, R.A., which confirmed generally the opinion he expressed verbally on February 11 last with reference to the proposed extension. The Sub-committee also had before them a Report by the City Architect (Mr. Edwards), together with an amended estimate of the cost of the scheme as modified in accordance with Mr. Norman Shaw's suggestions. The amount of this estimate is 75,000l. After considering these Reports, the Sub-committee resolved that "owing to the urgency of the matter, and particularly to the great and growing inconvenience and overcrowding, the extension of the Town Hall and Municipal Buildings be forthwith proceeded with." Mr. Norman Shaw is, it is stated, to be retained as consulting architect, and together with the City Architect he is to proceed at once with the preparation of detailed plans and working drawings.

WORKHOUSE INFIRMARY, NORTH EVINGTON, LEICESTERSHIRE.—The foundation stone of a workhouse infirmary was laid on the 2nd inst. at North Evington. The site of the new infirmary is about two miles from the centre of the town, and is approached by the Gwendolen-road. It comprises a little over 62 acres of land. The cost of the buildings will be 79,575l. The infirmary is designed to accommodate at present about 520 patients, but is so arranged that the administrative departments will be sufficiently large to allow at any time of an addition of another 300 beds. The infirmary is planned on the pavilion principle, the patients being accommodated in four pavilions or blocks to contain 128 beds each, on two floors. Two of these pavilions will be for males and the other two for females. The male pavilion will be separated from the females by the administrative block, which will



occupy the centre of the infirmary, with the two male pavilions on one side and the females on the other, the same being connected to the administrative block by a covered corridor. This will be open at the sides, but will have a flat roof, forming an ambulatory between the pavilions on the first floor. Under this corridor there will be a subway, in which will be carried all pipes, electric wires, &c., and to which access will be obtained from any of the pavilions. A proper ward for the reception of patients is to be provided for each sex, between the two pavilions on either side, communicating direct with the main corridor, where the patients can be received and drafted to the proper wards. Cottages for the porter and engineer are designed near the entrance to the sites. In a secluded corner will be the mortuary, and in the eastern corner a small isolation block for infectious cases. Each of the four pavilions will be divided into twelve wards, four of these containing twenty-eight beds each, and four three beds each, the remaining four being single-bed wards for special cases. There will be five large day rooms and four duty rooms in each pavilion. At the back of the administrative building, approached by a covered way, will be the laundry. The new hospital is from designs prepared by Messrs. Giles, Gough, & Trollop, architects, London. The contractors are Messrs. M. Moss & Sons, Ltd., Loughborough, and the clerk of the works is Mr. C. H. George.

**SCHOOL, PONTNEWYDD.**—This building has just been opened by Mr. Reginald M. Kenna, M.P. for North Monmouthshire. The school was erected from plans designed by Messrs. Lansdowne & Griggs, architects, Newport, the contractors being Messrs. Bailey Bros., Builders, Pontnewydd.

**ROYAL ISLE OF WIGHT COUNTY HOSPITAL.**—At a special meeting on the 3rd inst., the governors considered a report and plans prepared by Mr. T. W. Cutler, for an entire remodelling of the hospital buildings at a computed cost of 18,300l. The governors resolved to proceed, for the present, with so much of the scheme as relates to the erection of a sanitary tower, new isolation wards, a fireproof staircase and improved sanitary arrangements. The works will involve an estimated outlay of 9,000l.

**HIPPODROME AND THEATRE, PORTSMOUTH.**—The Board of Directors of the Portsmouth Empire Palace Co. have decided on building a new hippodrome on a site which they have acquired in the town. The plans provide for a structure with accommodation for 3,000 persons and seats for over 1,500. Provision is made for a very large stage at one end. Engineers have also been deposited with the Borough Engineer for a theatre proposed to be erected at the Theatre Square. The theatre has been designed by Mr. Matcham, of London. It is to be built on a site now occupied by several business premises at the corner of Esmouth-road and Albert-road. Seating is provided for 3,700 persons, and there will also be accommodation for another 800 or 900.

**BUILDING OPERATIONS IN LIVERPOOL.**—The Liverpool City Building Surveyor (Mr. William Goldstraw), in his report on the work of his department for 1902, states that the number of houses erected during the twelve months was 2,061, an increase of ninety-eight over the corresponding figures for 1901, and above the average of the last six years the extension of the city in 1891. In six years since the extension of the city in 1891, West Derby 776 new houses have been erected, in Wavertree 509, Walton 482, in the old city 227 (including 118 tenement houses built by the Corporation), and Toxteth Park sixty-seven. West Derby heads the list for both 1902 and 1901. In the two preceding years the Wavertree was at the top. Compared with 1901, West Derby shows an increase of 192 new houses built, Walton ninety-one, Wavertree thirty-four, the old city a decrease of eighty-nine, and Toxteth Park a decrease of 130. Since the extension of the city boundaries in 1895, the number of houses built is as follows:—Wavertree 3,315, Walton 2,863, old city 2,701, West Derby 2,671, and Toxteth Park 1,732—total, 13,342. Of this number only 555 houses were built in 1895, so that all the houses erected in the enlarged city in the seven years amounted to 12,787. On the general building work of the city, Mr. Goldstraw says there is nothing calling for special remark, except that public buildings, offices, and manufactories are rather fewer than they were in previous years, and that new warehouses, which have averaged three annually for the last six years, are not represented by a single case during 1902. Besides the 2,061 new houses, 123 new workshops, stables, and minor buildings have been erected during the year, and 29 new public buildings, offices, and manufactories. Buildings taken down number 548, which includes 335 in sanitary houses demolished by the Housing Committee. In the previous year the number of such houses demolished was 174.

**DUMBATON MUNICIPAL BUILDING.**—The new Municipal buildings at Dumbarton have just been opened. Mr. Jas. Thomson, Glasgow, was the architect of the buildings.

**FIRE STATION, CLAPHAM.**—A new fire station at Clapham was opened recently. The building, which will form the headquarters of the "E" district, comprising the south-western part of London, has been erected from designs prepared by Mr. W. E. Riley,

the Architect to the London County Council, at a cost of 13,250l., the price paid for the freehold being 3,000l. The street elevations are of red brick, relieved on the old town front and a portion of the return front to Grafton-square with Portland stone dressings.

**INSURANCE OFFICE, EDINBURGH.**—New premises are to be erected in Princes-street for the North British and Mercantile Insurance Company. The architects are Messrs. Peddie & Washington Browne, Edinburgh. The buildings will consist of a block facing Princes-street, and a block at Rose-street, with a connecting portion one story in height running between the two and containing all the principal offices of the company.

**DRILL HALL, WREXHAM.**—A new Volunteer Drill Hall has just been opened by Lord Roberts at Wrexham. The new drill hall is of pressed brick and terra-cotta. The main hall is 130 ft. long by 60 ft. wide, the roof being of glass. The floor has an area of 7,300 sq. ft., and is paved with wood blocks. Including a gallery capable of seating 100 people, the building offers seating accommodation for between 1,800 and 2,000 persons. The hall is furnished with a large collapsible stage, as well as reading, recreation and billiard rooms, and a residence for the sergeant-major. The architect was Mr. J. Gummow, of Wrexham, the builders being Messrs. Davis Bros., also of Wrexham.

**NEW FLATS, BAYSWATER.**—A large building, to be called "Queen's Court," is about to be erected in the Moscow-road, Bayswater, under the direction of Messrs. Palgrave & Co., architects, Westminster. The building will consist of thirty self-contained residential flats, ranging from six to eight rooms. The flat will be approached by an ornamental garden court laid out with carriage drive, fountain, &c. The elevations will be carried out in red bricks with gauged brick aprons, arches, &c., and the roofs covered with green slates. There will also be electric passenger lifts to all floors. Mr. C. Gray, of West Hampstead, is the contractor. The estimated cost is 30,000l.

## SANITARY AND ENGINEERING NEWS.

**NEW RESERVOIR, RUGBY.**—On Tuesday last week the new reservoir at Brownsover Mill, in connexion with the Avon waterworks, was opened. Some years ago the Rugby Town Council, on the advice of the Medical Officer and their present Surveyor (Mr. Macdonald), purchased Brownsover Mill and the mill rights connected therewith, but in order to impound the water in sufficient quantity it was necessary to obtain an Act of Parliament. The water up to the present has been taken from the River Avon at a point alongside the waterworks, where it was liable to contamination by the Hillmorton Brook and flood water from the Rugby streets. The Council decided to construct a reservoir at Brownsover Mill, and to build two new filter beds, but did not deem it necessary under their improved arrangement, to go to the expense of a settling tank. Mr. Macdonald, the surveyor, was instructed to prepare the necessary plans, specifications, and quantities, and to invite tenders for the work. The filter beds were first put in hand and completed (the cost being 1,000l.), and these have been in use for some time. In due course tenders were invited for the larger works, and Mr. Joseph Young, of Rugby, having sent in the lowest tender, secured the contract, the total cost being about 8,000l., which was well within the surveyor's estimate. The work was commenced in May, 1902, and after ten months has now been completed and the water connected to the town. The reservoir has a capacity of about 3½ million gallons, it is surrounded with concrete walls, and has ample provision for dealing with flood water to prevent its pollution. Mr. Young was the contractor for the work.

**CARDIFF'S WATER SUPPLY.**—At a meeting of the Cardiff Water Works Committee on the 3rd inst., the Water Works Engineer (Mr. Priestley) reported that all the storage reservoirs had again been full and overflowing throughout the month. The quantity passed over the waste weir at Cardiff had been 1,800 million gallons approximately. The rainfall for the month at the principal stations had been as under, compared with March, 1902:—Ely Station, 1903, 5.75; 1902, 2.36. Llanvane, 1903, 4.70; 1902, 2.45. Cardiff, 1903, 10.35; 1902, 4.39. Beacons, 1903, 15.91; 1902, 4.84. The Engineer added that the mean rainfall at the Beacons for March for the past five years had been 5.54 in. The rainfall at this station had never been so high since the readings had been taken; the nearest approach being in March, 1897, when it was 11.97 in. Since January 1 to April 1 this year the rainfall at this station had been the highest registered—41.98 in.

**CONWAY AND COLWYN BAY WATER SCHEME.**—On the 3rd inst., at the Guildhall, Conway, Mr. F. H. Talloch, M.Inst.C.E., an Inspector of the Local Government Board, presided at an inquiry with reference to an application by the Conway and Colwyn Bay Joint Water Supply Board for power to borrow 24,750l. for works of water supply. Mr. T. B. Farrington is the engineer, and Mr. Bryan the consulting engineer.

## FOREIGN.

**FRANCE.**—M. Chaplain has been appointed Professor-in-Chief in the Atelier of Metal-Engraving, &c., in the Ecole des Beaux-Arts, in place of the late M. Ponscarre. The New Salon at Paris will open on April 16.—The Municipality of Paris is obtaining powers for borrowing a sum of 45 million francs, to be expended in the city. The scheme of this work will be laid out by a committee in which are included the following architects: M.M. Bouvard, Nenot, Pascal, Bunel, and Girault.—M. Bernier has given, as a subject for the final Prix de Rome competition in architecture, "Une Place Publique."

A new post and telegraph office is to be built at Clermont.—The Palace of the Tribunal at Mantes is to be rebuilt, with a monumental façade towards the Avenue de la République.—The Municipality of Limoges has opened a public competition for a new circus on the Place de la République. The estimated outlay is 400,000 fr.—M. Bénard, architect and Professor at the Ecole des Beaux-Arts, has been commissioned by the Mexican Government to build a Government Palace and various other buildings, over which altogether about 30 million francs are to be spent. The work will occupy about seven years.—The death is announced of M. Edouard Garnier, Carator of the Museum at Sèvres, and author of a number of important works on ceramic art, in regard to which he was an acknowledged authority.—M. Allasseur, the sculptor, is dead at the age of eighty-four. Among his works may be mentioned the "Moise Sauvé des Eaux," which brought him a "première médaille," the statue of Rameau in the peristyle of the Opera House, and various decorative sculptures at the Louvre, the Hôtel de Ville of Paris, and the theatre of Cherbourg.

## MISCELLANEOUS.

**PROFESSIONAL AND BUSINESS ANNOUNCEMENT.**—The firm of Messrs. Mainzer & Co., artists and workers in mosaic, 18 Berners-street, has been formed into a new company under the title "Arcolithe Ltd.," which will continue the business, with Mr. Mainzer as Managing Director, and Mr. Alfred Sear as Art Director.

**NIGERIAN MAHOGANY.**—An official report recently received at the Colonial Office mentions that the timber industry in the Southern Nigerian Protectorate already shows satisfactory results; 3,000 logs of mahogany were shipped from the Western division of the Protectorate alone in the year 1901, representing a value of some 90,000l. The industry being not yet three years old, this must be considered a fair beginning. In fact, the timber trade is still in its infancy in the territories, and is capable of great development. It has already given, and will still further give, a return for any outlay incurred. It is worthy of the attention of merchants in itself, apart from any general commercial business which may be undertaken in the Protectorate.

**A HINT TO FIRE-BRICK MANUFACTURERS.**—Mr. Vanistart, British Consul for the district of New Orleans, U.S.A., says in his annual report on the trade and commerce for the year 1902:—"I am informed by the Salmon Brick and Lumber Co., of this city, that there might be an opening for fire-bricks from the United Kingdom provided they could be placed on the market at New Orleans at 20 dol. (4l. 2s. 6d.) per 1,000. The measurement of the bricks should be 4½ in. by 9 in. by 2½ in. The present duty on bricks is 1 dol. 25 c. (3s. 2½ pence). Fire-bricks are in great demand in places adjoining the city for building purposes, and at present come chiefly from St. Louis. Formerly a large number of fire-bricks used to be imported from Liverpool per Harrison line of steamers."

**PARISH CHURCH, YAXLEY.**—It is announced that the Earl of Carysfort, who is lord of the manor, has subscribed 2,000l. towards the proposed restoration of the parish church of St. Peter, at Yaxley, county Huntingdon. The church, one of the finest in the county, is cruciform on plan, and consists of chancel and nave, each having a clearstory, aisles, transepts, and an embattled west tower with pinnacles joined by quatrefoil flying buttresses to a lofty and crocketed octagonal spire. The older portions of the fabric are decorated, the other parts being late Perpendicular, in style. The interior, having room for 500 sittings, contains pinnacles and ambries in the chancel, south chantry, and transept; a piscina, and three-foiled graduated sedilia are in the north chantry; across the chancel arch is a lofty oak Perpendicular screen. Sixty years ago was discovered, behind a stone sculptured in relief, with two hands holding a heart, a little wooden box containing a human heart, supposed to be that of William of Yaxley, who was Abbot of Thorney at the close of the thirteenth century.

**ROYAL COMMISSION ON LONDON LOCOMOTION.**—Sir D. Barbour presided on Friday last week at the Caxton Hall, Westminster, over the fourth sitting of the Royal Commission when evidence was given by Mr. A. C. Morton, Chairman of the Streets Committee of the City Corporation. Mr. Morton strongly advocated the appointment of a tribunal to whom all questions of locomotion for London should be relegated, and the decisions of such a tribunal



should be final. He instanced as a case in point of the need for such a tribunal the condition of Ludgate Hill Station, which the Corporation had vainly been endeavouring to get remedied for four and a half years. He advocated the retention of the power of veto in the hands of Local Authorities with regard to tramways, because it allowed Local Authorities to obtain terms from promoters. It might be that the London County Council had suffered from Local Authorities withholding their consent to tramways in consequence of questions of street widening arising, but would not say that the London County Council had unjustly suffered, because the Local Authority would be the best judge as to whether a road required widening.

**WARRINGTON ELECTRICITY WORKS.**—On the 31st ult. Mr. F. A. Tulloch conducted an inquiry at Warrington on behalf of the Local Government Board into an application of the Corporation for sanction to borrow £20,000, for extensions at the electric light generating station at Howley. The money is to be spent entirely on additional plant in order to meet the increasing demands for electricity for lighting and power purposes.

**"SELL'S WORLD'S PRESS."**—The twenty-third volume of "Sell's Dictionary of the World's Press" for 1903 has been issued from 167, Fleet-street, E.C. It contains several interesting original articles on newspaper matters, besides comprehensive lists of newspapers. The magazine list, the classified lists of trade papers, and the lists of Colonial papers have all been brought up to date. In the magazine list particulars have been added as to date of issue. The thumb-index gives, first the index, then the London papers, the English provincial papers, the Irish papers, the Scotch and Welsh papers, the magazines, and, lastly, the Colonial and principal foreign papers. In this work particulars are given of every town throughout the British Empire in which a paper is published, together with particulars of the principal papers themselves. In regard to the papers of the British Isles, the name is given of every town and village in which a paper is published, the market days, distance from London, &c. The total number of papers in the British Isles is now 2,547; of these London is responsible for 550. The number of magazines is 1,634, while there are 233 quarterly reviews of every kind. The work is clearly printed, and appears to be thoroughly up-to-date and reliable. It is a most useful work of reference.

**THE ROYAL ARMS ON BUILDINGS.**—A novel point has arisen in respect of the display of the Royal Arms as affixed on the outside of commercial premises. Mr. Henry Glave, tenant of a long row of shops in New Oxford-street, was summoned at Bow-street last week for using, in connexion with his millinery and drapery business, the Royal Arms in a manner calculated to lead people to believe that he had authority from his Majesty to do so. Mr. Glave's name is not entered on the register of Royal Warrant-holders. His son and partner, Mr. Nolan Glave, stated that the firm had never represented themselves to be possessors of that privilege. It happens, however, that their range of shops forms the ground floor—originally constructed for an arcade—of a block of buildings erected nearly sixty years ago, which bears on its front the Royal Arms many times repeated, and carved in stone set within squared reveals or recesses which alternate in both size and shape with the windows of the third floor. The line is 40 ft. above the footpath, and the devices are invisible from that side of the street, being sunk in the recesses. The stone carvings form a constituent and ornamental feature of a facade which presents an uncommon and appropriate design. The premises are Crown property; they were leased by her late Majesty's Woods and Forests more than fifty years ago to Messrs. Glave, and a covenant in the lease stipulates that the architectural decorations and walls of the building shall not be cut or otherwise altered. We may point out that the houses form a homogeneous block erected on the north side of the road (between Bainbridge-street and Dyot-street) when New Oxford-street was laid out in 1845-6, through the "Rookery" of St. Giles. The buildings further eastwards, and those on the south side of the new street were similarly treated, a block constructed of red brick with stone dressings, standing beyond Museum-street, was designed after the Jacobean style by, we believe, Wigg & Pownall, architects of the similar houses (since somewhat modified) on the garden terrace of Staple Inn. Mr. Glave, who, it seems, was summoned at the instance of the Royal Warrant Holders' Association, informed the presiding magistrate that the removal of the stone carvings and the making good of the walls above his ten shops would cost about £30, and that he was quite willing to take them down forthwith if his landlords would defray the expense. The summons was adjourned to enable him to come to some arrangement with the landlords with a view to the obliteration of the carvings.

**THE LABOUR MARKET IN THE COLONIES.**—The April circular of the Emigrants' Information Office (31, Broadway, Westminster), states that a new pamphlet with a map has been issued on the Orange River Colony. This is the best season of the year for emigration to Canada, and there is an excellent demand for almost any kind of labour all over the Dominion. At Sydney, in Nova Scotia, there is a good demand in the steel and iron works

and in the coal mines for general labourers, machinists, machinists' helpers, and coal miners, especially those who can operate coal cutting machines. Both in Nova Scotia and Ontario men, skilled and unskilled, are wanted for sanitary earthware works and brickyards. The building trades are busy in all parts, and carpenters, bricklayers, plasterers, and others are wanted. The metal trades are very busy in Ontario. In British Columbia the metal and building trades are fairly busy. In New South Wales and other Australian States the long drought has now, to a great extent, broken up; but it will be some time before its effects will have passed away. A report from Sydney states that trade is very bad in New South Wales generally, as well as in Sydney itself. The engineering trade is very dull, and no more mechanics whatever are wanted. The building trades are better off owing to some Government work being in hand. In other parts of Australia there is little demand for more labour, as the country is still suffering from the effects of the drought. In New Zealand there is a good demand for men in the building trades at Auckland, Christchurch, Dunedin, and other places. In Cape Colony there is a demand for plasterers, bricklayers, carpenters, and first-class painters. In Natal there has been a good demand for certain classes of men on the railways, but these have now been sent out by the Agent-General and no more are wanted. A good deal of work is going on in the building and other trades, but the local supply of labour is generally sufficient, though specially skilled men, if they land with a little money, should be able to procure work without difficulty. Wages are high, but the cost of living is high also. There has been a strike of bricklayers at Durban. Permits are still required by those proceeding to the Transvaal and Orange River Colonies; they are not issued in this country, but must be applied for at the Permit Office at the port in South Africa at which the emigrant lands. Application forms may be obtained at the Emigrants' Information Office and elsewhere. In the building trades at Johannesburg materials are coming up from the coast somewhat more quickly, and consequently men in those trades have been more employed, but a good many are still out of work. In the Orange River Colony there is a fluctuating demand for good carpenters, masons, fitters, and painters. The cost of living is very high. Permits are necessary (see above).

**HOLY TRINITY CHURCH, HXOTON.**—Dr. Tristram, K.C., Chancellor of the Diocese of London, has consented to the issue of a faculty from the Consistory Court for the erection at an estimated cost of £2,000, of a parish-hall upon the west portion of some vacant and unsequestered ground that surrounds Holy Trinity Church, in Shepherdess-walk. The church was built in 1848, in pursuance of the Church Building Act, upon land conveyed to the Ecclesiastical Commissioners; the freehold of the vacant land is vested in the vicar as trustee for the parishioners. The proposed parish-hall, to consist of two spacious rooms on two floors with a total capacity for 450 persons, will form a memorial of the late Reverend John Richard Green, the historian, and the headquarters of the Boys Brigade. The "John Richard Green Memorial Hall" will thus commemorate the labours in the parish of John Richard Green during the time he was curate there. The parish is densely populated, and a central meeting-place is much needed.

**REBUILDING IN THE STRAND.**—The new buildings which are now being erected, and will be known as Thanet House, on the south side of the Strand, opposite the Royal Courts of Justice, are planned and designed by Messrs. N. S. Joseph, Son, & Smith. The ground has been cleared by the demolition of Nos. 231-2, Strand, and of Thanet-place, consisting of a court with nine houses in the rear, covering an area of 7,800 ft. superficial; the freehold of that property, yielding a rental of 550l. per annum was sold in November, 1898, for 20,500l. The site of the two houses in the Strand, and the Thanet-place property, comprising a total area of more than 8,500 square feet, were let upon a building lease for eighty years, with the option of acquiring the freehold, in June, 1901. Thanet-place, so named after the Tuftons, Earls of Thanet, marked the site of the Rose Tavern, cited for its vine-tree and garden in Thomas Fairchild's "City Gardener," 1722. In two letters he wrote to Cole in 1770 Walpole mentions the painted roof at the Rose Tavern without Temple Bar. In 1811 John Martin, the painter of "Belshazzar's Feast," to which the British Institution awarded in 1821 their first premium of 200l., of "The Creation," "The Seventh Plague," and of other once popular pictures, was living in Thanet-place. Martin's engineering projects foreshadowed many schemes that have since been carried out, amongst them being the embanking of the Thames and the diversion of sewage from the river in the Metropolls.

**BOARD SCHOOLS EXHIBITION OF WORK.**—The annual exhibition of scholars' work from the Board Schools of London will be held at the Examination Hall, Victoria Embankment, W.C. (adjoining Waterloo Bridge), on Saturday, May 9, 1903, and on the following Monday, Tuesday, and Wednesday (May 11, 12, and 13). The exhibition will be opened by Lord Rey (Chairman of the Board) at

12 o'clock noon, and will include specimens of drawings, colour-work, modelling, science apparatus, wood-carving, metal-work, needlework, &c.

**IMPORTS AND EXPORTS AT BALTIMORE.**—According to a report forwarded to the Foreign Office by Mr. Consul Fraser, the importations of cement to the port of Baltimore, U.S.A., in the year 1902, reached a total of 100,129 tons—82,337 tons more than in 1901, and 50 per cent. more than in 1900. By far the greater quantity came from Germany, the remainder being forwarded from the United Kingdom and France. From the same port the exportations of timber and manufactures thereof in the year 1902, were valued at 368,795l., and Mr. Consul Fraser remarks:—"By far the greater quantity of lumber exported from Baltimore goes to the United Kingdom. There was great activity in the trade during the past year, and about 40,000,000 ft. more were handled than in 1901. Prices went up some 20 per cent."

**REGISTRATION FOR PLUMBERS.**—The Mayor of Sunderland presided at the annual meeting of the North of England District Council for the National Registration of Plumbers at the Town Hall on Thursday last week. On the proposition of Councillor Kirtley it was resolved: "That this meeting is of opinion that it would be of great public advantage for the Plumbers' Registration Bill, now before Parliament, to be passed into law. The Bill has for its object the protection of the public from the results of incompetent workmanship, and of securing the efficiency and responsibility of plumbers by means of a system of registration. This meeting is further of opinion that it is the duty of the Government, acting in the public interest, to carry through the measures on the conditions already approved by the Local Government Board. Also, that copies of this resolution be forwarded to the President of the Local Government Board and to the local Members of Parliament." An interesting address on technical education was given by Professor Branford, Principal of the Sunderland Technical College.

**KING'S (LIVERPOOL REGIMENT) MEMORIAL.**—A meeting of the Committee regarding the memorial to the officers and men of the King's (Liverpool Regiment) was held at the Town Hall, Liverpool, on the 6th inst., the Lord Mayor presiding. The model, designed by Mr. Goscombe John, A.R.A., was submitted to the Committee, and it was resolved to ask the sculptor to proceed with the work subject to one or two small alterations.

**DISCOVERY AT BISHOPWEARMOUTH CHURCH.**—In the course of extensive repairs of the exterior of Bishopwearmouth Church, Sunderland, an interesting piece of old Norman work has been brought to light. In removing the coat of cement which covered the base of the tower and the lower portion of the south wall of the nave, there has been exposed to view the ancient Norman doorway at the south of the tower, which had been the principal entrance to the church. The Norman semi-circular arch, and the large irregular side stones, are brought out in all the bold proportions which characterize the Early Norman work. The arch is some 15 ft. high, and formed of three stones only. There is evidence of the arch having been decorated, but the chisel or pick of the restorers mutilated the carved work. The whole of the old walls exposed are of sandstone, and not the limestone boulder which was extensively used in old Romanesque work. Many of the stones give evidence of having been taken from an older building, or had been part of the original Norman Church. Some two or three old stones have the same markings upon them, which indicate their having been used for sharpening the arrows of the ancient archers. This discovery of this Norman doorway shows that when the church was rebuilt in 1187, the walls of the old building had not been razed. The new work of the tower and nave has been built upon the old masonry, and the old walling cemented over to be more in unison with the new stonework. The history of the church dates from the days of Athelstan—925-41—but the first Rector recorded was Adam de Marle, about 1219, and it is probable that the Norman arch revealed to-day is of that date.—*Newcastle Chronicle*.

**THE SHEFFIELD CORPORATION'S BUILDING SCHEMES.**—The Health Committee, in dealing with the Wincobank Estate, have decided to instruct the City Surveyor to advertise for tenders for houses that will cost, some not exceeding 160l. each, and some not exceeding 185l. each, to be built on each side of the main street, and to be built on the estate near Whitley Woods. The following resolution was carried, as applying to the foregoing:—"That the High Stairs scheme to be prepared by the Housing of the Working Classes Sub-Committee, shall, if possible, include houses producing a rent of not exceeding 5s. a week, as well as larger rented houses." The Committee are offering to architects premium plans of 20l., 30l., and 40l. for competitive plans and tenders in connexion with the houses at High Wincobank. The dwellings are to be of two



classes.—(a) Containing living-room, scullery, some two or three bedrooms, bathroom, pantry, coal-place, and water-closet; and (b) containing living-room, scullery, three bedrooms, bathroom, pantry, coal-place, and water-closet. The cost must not exceed 160*l.* per house for class (a) and 185*l.* per house for class (b). Estimates are desired for the erection of 20, 40, 60, 80, 100, or 120 dwellings. The prices named are to cover all drainage work, including connection to sewer in street, fences, asphalt in yards, garden paths, stoves, baths, and other fittings; in fact, all except street work and main drainage, which will be carried out by the Corporation.

ISLE OF WIGHT COUNTY HOSPITAL.—Princess Henry of Battenberg presided over a special meeting of the Governors of the Royal Isle of Wight County Hospital, held at the Town Hall, Ryde, on the 4th inst. The assembly was called to meet Mr. T. W. Cutler, F.R.I.E.A., and to consider his report and plans for remodelling the hospital. Ultimately it was decided to expend about 4,000*l.* on the scheme.

A CLOISONNÉ SYSTEM IN MOSAIC.—The Arrolithic Co. (formerly Mainzer & Co.) are introducing a new process of laying mosaic in floors with the intention of providing against the cracking of floors of large dimensions by sub-dividing them into sections by the insertion of metal strips, which have the effect of limiting any crack within the area surrounded by the metal, which may also form an element in the design, the metal strip acting the part of the "cloisons" in enamel work.

### CAPITAL AND LABOUR.

NEWCASTLE BUILDING TRADE.—A meeting of Newcastle, Gateshead, and Gosforth operative stonemasons was held at the King's Head Hotel, Newcastle, recently, to consider the proposed code of amended rules put forward by the Newcastle and Tyne District Building Trade Employers' Association. The chief feature of the new code is that the masters desire the workmen to labour nine hours a day instead of eight in the summer months, and seven and half hours from November 1 to February 1 in place of the seven hours now worked in December and January. The men decided unanimously to reject the whole of the new rules suggested.

BUILDING TRADE DISPUTE AT ST. HELENS.—A rupture has taken place in the building trade in St. Helens. The joiners refuse to fix foreign or ready-made joinery, such as doors, window-sashes, &c., and the employers resent the men dictating to them as to where they shall purchase their materials. The masters have decided that unless the men withdraw their opposition there will be a general lockout.

EDINBURGH JOINERS' WAGES.—Some time ago the Edinburgh master joiners sent out a notice to their men giving intimation of a reduction of 1/4*d.* per hour on the present rate of wages, which is 9*d.* per hour, the reduction to take effect from April 15. Four years ago the rate was 9 1/2*d.* per hour, and it was then reduced to 9*d.* per hour. Since that time, the men state, attempts have been made to effect a further reduction, but on each occasion the matter was referred to arbitration, and no further reduction took place.

### LEGAL.

#### ACTION BY BUILDERS AGAINST THE ARMY AND NAVY CO-OPERATIVE SOCIETY.

The case of Martin, Wells, & Co. v. the Army and Navy Co-operative Society, Limited, came before the Court of Appeal, composed of Lords Justices Vaughan Williams, Stirling, and Mathew, on the 3rd inst., on the appeal of the defendants from a judgment of Mr. Justice Wright, sitting without a jury, in the Kings Bench Division. (The case was fully reported in the issue of the *Builder* of April 26, 1902.)

In this case the plaintiffs, a firm of builders, claimed from the defendants a balance of a final instalment, viz., 2,900*l.* The defendants claimed to set off against that an equal amount of penalties or liquidated damages. The contract between the parties was dated October 20, 1897, and provided for the pulling down of certain premises which had been acquired by defendants at Westminster, and for the re-erection of buildings upon the site. The contract price was 47,179*l.* The contract provided that the contractors should execute the works according to the plans and specifications, the specification being deemed to form part of the contract. The contract also provided that the new buildings should be completed within twelve months, and if there was delay plaintiffs should be liable to a penalty of 10*l.* a day. The contractors had to provide everything of every sort. As the contract was dated October 20, 1897, the work in the ordinary course should have been completed by October 20, 1898. Three Clause 16, which would bring to January 20, 1899. The works were not, however, completed until January 2, 1900, but defendants limited their claim

for penalties to 290 days, which would be up to the middle of November. The plaintiffs' case was that the delay was caused through their sub-contractors failing at the specified time, and that the defendants, by their conduct, had waived all rights to penalties. They alleged that the defendants, by having given them orders after the time had elapsed for the completion of the contract, having broken the contract themselves in various particulars, and having failed to give them the possession of the site as and when they should have done, had debared themselves from claiming penalties. Mr. Justice Wright held that defendants were not, in the circumstances, entitled to claim penalties, and gave judgment for the plaintiffs for the amount claimed with costs. Hence the present appeal of the defendants.

Mr. Reginald Bray, K.C., Mr. McIntyre, and Mr. Turner, appeared for the appellants; and Mr. English, Harrison, K.C., and Mr. Hudson for the respondents.

At the conclusion of the arguments of counsel, their lordships affirmed the decision of Mr. Justice Wright, and dismissed the appeal with costs.

#### ACTION AGAINST BUILDERS FOR ALLEGED BREACH OF CONTRACT.

The case of Salamans & Co. v. Haskins Bros. came before Mr. Justice Wright, sitting without a jury in the Kings Bench Division last week an action by the plaintiffs against the defendants, a firm of builders and contractors, of Old-street, E.C., to recover damages for alleged breach of contract.

It appeared that the plaintiffs are the owners of Nos. 116 and 118, Oxford-street, and they granted a lease to Messrs. Browne & Hollingsworth for a term of twenty years from June 24, 1902. Plaintiffs agreed with the tenants to put in shop fronts and defendants were invited to estimate for the alterations to the premises. Defendants sent in an estimate for the work, and ultimately on June 13 it was agreed that they should do the work, plaintiffs stipulating that it should be speedily done. The plaintiffs' case was that defendants agreed to do the work within four weeks, but defendants alleged that the arrangement was that the work was to be completed by the end of July. Subsequently further work was ordered, but the plaintiffs' case was that the whole work should have been completed on July 18. The work, however, not being finished till August 23 the tenants could not take possession until after that date. The plaintiffs alleged that the delay was caused through the defendants undertaking certain further work for the tenants, and their doing this work before completing the alterations ordered by plaintiffs. It was admitted that some further work was ordered by plaintiffs on July 7 caused some delay. The plaintiffs claimed 24*l.* the rent lost through the alleged breach of contract, or alternatively, damages for being deprived of the use and occupation of the premises.

The main defence was that the plaintiffs had verbally agreed to an extension of time within which the work was to be completed, and that the delay was the plaintiffs' fault. Defendants counter-claimed for 12*l.* for cutting a granite pilaster to the design of the plaintiffs' architect.

After hearing evidence, his lordship held that the defendants had not been guilty of unreasonable delay, and gave judgment for them on the claim and counter-claim with costs.

Mr. Dankwerts, K.C., and Mr. G. L. Thomas appeared for the plaintiffs; and Mr. Foote, K.C., and Mr. Garland for the defendants.

#### LIGHT AND AIR CASE—IMPORTANT POINT.

The case of the *Financial Times*, Ltd., v. George Bell & Sons came before Mr. Justice Byrne in the Chancery Division last week. This was an action by the plaintiffs to restrain the defendants, a firm of publishers, from building on certain land in Portugal-street and Clement's-lane, W.C., so as to interfere with the light coming to the plaintiffs' premises in Clement's-lane, viz., Portugal-street, and Clement's-lane belonging to the plaintiffs, newspaper publishers and printers, not on the ground that they were ancient lights, but on the ground that plaintiffs took their title from the defendants' predecessor in title, the late Mr. Douglas Gordon MacRae, and that it was, in fact, derogation of the original grant. The case came before his Lordship on December 5 last, on a motion by the plaintiffs for an interlocutory injunction to restrain the defendants from further building till the trial, and at that hearing defendants agreed not to carry their buildings beyond a certain height, giving an angle of 45 degrees until the trial.

Mr. Levett, K.C., and Mr. Gowden, K.C., and Mr. A. St. John Clarke, for the defendants. Mr. Levett, in opening the case, said that the premises of the plaintiffs and defendants were separated by a narrow lane, now known as Clement's-lane, but formerly under the name of Gilbert-street, only about 19 ft. 6 in. wide. The plaintiffs held their premises as lessees for the unexpired residue

of a term of eighty-two years from June 24, 1896. On May 30, 1896, an agreement was made between Wm. Graham, Frederick Blake, and George Christopher MacRae of the one part, and the late Douglas Gordon MacRae (the then managing director of the plaintiff company) of the other part. This agreement provided that Mr. G. D. MacRae should erect upon the land in question printing works, offices, and outbuildings, and when the buildings were completed according to the stipulations he was to have granted to him by the lessors a lease of the premises for eighty-two years from June 24, 1896, at a certain rent. After this agreement had been entered into, disputes arose between Mr. MacRae and the adjoining owners as to whether or not by building he would interfere with their ancient lights, and to get rid of the disputes Mr. MacRae bought from the trustees of King's College Hospital the plot of land on which defendants' premises were now being built. This plot of land was conveyed to Mr. MacRae on January 4, 1897, and on the next day he mortgaged it to secure the sum of 7,000*l.*; but he paid off this mortgage on April 30, 1900. By April 6, 1897, the plaintiffs' printing works and premises were erected to their present height, and about this date Mr. MacRae agreed to sell his rights under the building agreement to the plaintiff company at a price equal to the expense incurred by him in and about the acquisition and incident to the construction of the premises, together with interest at the rate of 5 per cent. per annum. The plaintiff company afterwards entered into possession of the premises, and the lease was granted to them on April 9, 1898. Mr. MacRae had since died, and defendants claimed to build on the second or opposite plot, having purchased it from his representatives. On the plot were now being erected buildings for the *Church Times*, on the further side, which did not come into the present action, and on the nearer portion premises for the defendant company. The learned counsel contended that Mr. MacRae, having sold his equitable lease to the plaintiffs, he could not derogate from his own grant, nor could he make that lease useless by allowing the lights to be obstructed. Plaintiffs were willing to surrender some of their absolute right, and would offer no objection if the defendants' building did not obstruct a free passage of light over an angle of 45 deg. The learned counsel then dealt with the cases on which the defendants relied, namely, "*Beddington v. Atlee*," "*Birmingham, Dudley, and District Banking Co. v. Ross*," "*Goodwin v. Schweppes*," and "*Crick v. Chapman*," contending that the limitations of grant existing in those cases did not apply to the one then before the court.

Evidence having been given by Mr. George Eaton Hart, a director of the plaintiff company, and manager of the printer, and District Banking Co. v. Ross, a director of the plaintiff company, as to the negotiations with Mr. MacRae and the company, and Mr. Beebe having summed up the case on behalf of the plaintiffs,

Mr. Rowden, in opening the defence, said that the case was a very important one for his clients, because they bought the site for the purpose of building upon it, and if the plaintiffs succeeded in the action it would be practically useless to them. He contended that the plaintiffs had made out no case to have an injunction. In this matter they had nothing whatever to do with the law as to ancient lights. To succeed, the plaintiffs must show a disposition of the grant of the light by Mr. MacRae to the plaintiff company. He submitted that there was no disposition of the light by grant at all. Neither in the lease nor in the agreement was there any implied grant. Indeed, until the lease was obtained Mr. MacRae was only a tenant at will.

Mr. Edward R. Musto, examined, said he carried on business at No. 61, Great Ormond-street, W.C., as a sign and glass writer. For thirty years he had executed work for Patman & Fotheringham. He remembered having an order from them in April, 1897, to write two signboards. Those boards he wrote on the following words:—"For flats, residences, and business premises. To let on lease. For particulars apply to Mr. Walter Emden." Mr. Emden was the architect for Mr. G. D. MacRae. The boards in size were about 5 ft. 6 in. by 4 ft. He remembered seeing one of the boards placed on the vacant plot of land facing Portugal-street. He could not say whether he saw the other board up. The board he saw was placed in position two or three days after he supplied the boards.

Mr. S. H. Egan, examined, said he was manager to Mr. Walter Emden, the well-known architect, and Mr. Emden was then in Berlin and unable to attend to business; otherwise he would have been present to give evidence in the case. He had been with Mr. Emden since 1885, and had been his manager since 1887. He knew the land which was described as the hospital land. Mr. Emden acted for Mr. MacRae in the purchase of that land, and Mr. Emden approved the "conditions" on behalf of the hospital land. Witness in 1897 prepared the plans for building on that site. The completed plans had been delivered to Mr. MacRae's executors. These plans had been prepared on the instructions of Mr. MacRae, and they were settled on January 28, 1897. The plans prepared contemplated the building over the whole site. Copies of the completed



plans were sent to Mr. MacRae in July, 1897. He knew that the boards mentioned by the last witness were put up on the land. Those boards were put up on the written instructions of Mr. MacRae. He had something personally to do with the proposed letting of the site by Mr. MacRae for building.

Other formal evidence having been given in support of the defendants' case.

Mr. Rowden, in summing up the case on behalf of the defendants, submitted that at the time Mr. MacRae entered into the negotiations with the plaintiff company he had no interest in the dominant tenement at all. He was merely a tenant at will until the lease was granted. A tenancy at will was not assignable at all, the tenant being a mere licensee. He challenged his learned friend, Mr. Levett, to point to a single case where it had been held that a grant of an easement could be implied where the dominant tenement was held merely by a tenant at will. A tenant at will had no estate at all. He submitted that that point was fatal to the plaintiffs' case. The evidence was clear that Mr. MacRae's intention as soon as he got the servient tenement was to build to a substantial height.

Mr. Levett, in replying on the whole case on behalf of the plaintiffs, contended that if Mr. MacRae had intended to block the light of the plaintiffs' building, he would have been committing a fraud on the company. Mr. MacRae was the managing director of the company, and he sold to the company the building with the windows in it. The object of those windows was to have the light, and Mr. MacRae could not take back what he had sold. The duty of a managing director of a company was to protect the company. He was in the position of being a trustee for the company. Mr. MacRae had a large interest in this company, and it would have been against his interest to cheat the company. He did not want the company to have printing works where they could not see to print. It was not Mr. MacRae's interest to lay a trap for the company. It was his interest to have a good and effective establishment. The plaintiff company paid for the light 9,000l. in cash, and relieved Mr. MacRae from all further burdens under the building agreement. Assuming that Mr. MacRae could not have found the money to carry out his obligations under the building agreement, he had every interest in selling to the company. If the company had not come in, away would have gone his rights to a lease, and away would have gone his 9,000l. If Mr. MacRae had told the company that he had meant to "drop" the light, the company would never have bought. He contended that the company were entitled to the relief claimed.

Judgment was reserved.

#### POINT UNDER THE METROPOLIS MANAGEMENT ACT, 1855.

THE case of Kendal v. The Metropolitan Borough of Lewisham came before Mr. Justice Kekewich in the Chancery Division last week, an action by the plaintiff, the owner of seventeen houses situated in Montem-road, Forest Hill, Lewisham, for a declaration that an order of the Lewisham Borough Council, dated July 3, 1901, apportioning the paving expenses of the road between the owners of the several houses abutting thereon was void, and for an injunction to restrain the Council from collecting there expenses from the plaintiff's tenants. The plaintiff's case was that the estimated expenses of the paving in question were determined by Mr. Ernest Van Patten, who at the time was not the Surveyor of the Council within the meaning of Section 105 of the Metropolis Management Act, 1855, that section enacting that the amount of the estimated paving expenses should be determined by the Surveyor, for the time being, of the Vestry or Board. It appeared that on July 18, 1900, the Lewisham District Board of Works passed a resolution that Mr. Van Patten, the Assistant Surveyor, should in future be designated a Surveyor to the Board, and on May 8, 1901, the Council, as the successors of the Board, passed a resolution abolishing the office of Surveyor to the late Lewisham District Board of Works, then held by a Mr. Carline, as from March 25, 1901. On September 25, 1901, a resolution was passed appointing Mr. Van Patten Surveyor of the Council from September 25, 1901.

At the conclusion of the arguments of counsel, his Lordship, in giving judgment, said that by Section 105 of the Metropolis Management Act, 1855, the amount of the expenses was to be determined "by the Surveyor for the time being." He thought that expression meant something different from the permanent Surveyor. It was impossible to say that it meant one particular officer. Although Mr. Van Patten was not the permanent Surveyor, he at any rate fulfilled the position of Surveyor for this particular purpose, and was the Surveyor for the time being. He thought that that objection of the plaintiff, as well as other objections he took to the apportionment, failed, and that the action must be dismissed with costs.

Mr. A. Glen, K.C., and Mr. W. A. G. Woods appeared for the plaintiff, and Mr. Macmorran, K.C., Mr. Avory, K.C., and Mr. Poyser for the defendants.

#### POINT UNDER SECTION 250 OF THE METROPOLIS MANAGEMENT ACT, 1855.

THE case of Silles v. The Fulham Borough Council came before the Court of Appeal, composed of Lords Justices Vaughan, Williams, Stirling, and Mathew, on the 7th inst., on the appeal of the defendants from a judgment of Mr. Justice Wright in the King's Bench Division.

It appeared that the plaintiff was the owner of two houses in Fulham, and he brought the action against defendants to recover money spent by him in abating a nuisance which arose from an underground pipe, under a threat of proceedings on the part of the defendants. The main question to be decided was whether the pipe was a drain or a sewer. The two houses joined, and had a gutter running along under the eaves which carried the rain-water from the roof of both houses into a pipe which carried off the bath water, &c., of one of the houses. This down-pipe discharged into a gully, and from thence into the pipe in question which communicated with the main sewer. Mr. Justice Wright held that this pipe was a sewer, and gave judgment for the plaintiff. From this decision the defendants now appealed.

Without calling upon counsel for the respondent (plaintiff) Lord Justice Vaughan Williams in giving judgment following the decision of Mr. Justice Bruce in the case of Hollis v. Lazarus and the Divisional Court in the case of Green v. the Vestry of St. Mary, Newington, thought the appeal must be dismissed. In both those cases it was held that where there were two drains carrying sewage matter which ran into one another and served two buildings, and not a block of houses drained by a combined operation sanctioned by the Vestry, the two drains running into one another became a sewer within the meaning of Section 250 of the Metropolis Management Act, 1855. He thought the learned Judge in the Court below had properly applied those two decisions to the present case.

The other Lords Justices concurred. Mr. Macaskie, K.C., and Mr. S. Mayer appeared for the appellants; and Mr. Mattinson, K.C., and Mr. L. M. Richards for the respondent.

#### PATENTS OF THE WEEK: APPLICATIONS PUBLISHED.\*

5,079 of 1902.—V. L. THEVENIN: *Locks for Doors and the like.*

An electric alarm lock, consisting in the combination of a lock casing connected with one of the poles of a source of electricity, a plate within said casing, and electrically insulated therefrom, a key the bit of which is provided with insulating strips in such a manner that when this key is inserted in the lock the electric circuit is not closed and the alarm is consequently not operated as would be the case if any ordinary key were employed.

6,532 of 1902.—J. C. M. WILSON: *Apparatus for Opening, Closing, and Automatically Locking Windows and Ventilators.*

This invention relates to apparatus for opening, closing, and automatically locking windows and ventilators. According to this invention, a bracket fixed on the framework of a window or wall is provided to support an arm or lever working on a pivot and having an eccentric slot therein, which slot engages a pin or roller fixed to the movable part of the window or ventilator. The pin or roller is moved by means of cords, wires, or metal rods. By depressing the arm, the pin or roller is made to travel in the eccentric slot, thereby opening the window or ventilator to any degree desired. When the arm is raised, the window or ventilator is closed and locked by the pin or roller pressing against the top inner part of the circular end of the slot. When the window or ventilator is narrow one bracket with attachments is sufficient, but with heavy windows one bracket and attachment should be placed on each side and connected by a rod so that the two arms work evenly together.

7,217 of 1902.—J. COLLINS: *Hinges or Joints for Screens and the like.*

Each hinge or joint consists of two side pieces shaped to match the semi-circular edges of the screen, and fastened on by screws. These side pieces have one, two, or more transverse slots in them to receive connecting bars. The connecting bars are jointed by pins or rivets to the side pieces, the centres of the pins or rivets being the same distance apart as the thickness of the screen and keeping the side pieces close together in whatever position the folds of the screen occupy.

12,753 of 1902.—TOMES, LTD., and W. SPARKS: *Enlightenment.*

This consists essentially in the employment of a tubular arm hinged or jointed to the one part and a telescopic and screwed arm hinged or jointed to the other part, and the combination therewith of a screw box secured to the end of the tubular arm, and means for rotating the screw box when out of reach.

15,314 of 1902.—J. WALKER: *Window Sashes.* A window-sash comprising an inner swinging frame, outer sliding portions or frames, said swinging

\* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

frame being connected at or about midway of its vertical length to the outer sliding portions or stiles by pivots or hinges in such wise that the inner frame when swung inwards for cleaning purposes, hangs vertically in a plane in front of its normal vertical plane.

13,904 of 1902.—E. V. BAILEY: *Manufacture of Cupboard Turn and other like Metallic Knobs and the Means of Connecting such Knobs to their Spindles.*

The manufacture of cupboard turn and other knobs having cylindrical bar spindles, by making such spindles as a separate part from the knob neck, permanently securing these two parts together and also to the spindle through the medium of the said spindle, by passing the spindle and neck up to a shoulder on the spindle end and then riveting up the head over the latter.

22,062 of 1902.—M. W. NOBLE: *Safety Device for Windows.*

In safety devices for windows the combination of an upper and lower window-sash, a chain, a rigid fastening at one end thereof, a ring at the other end, a hook and means for regulating and opening of the window.

6,468 of 1902.—J. P. BAYLY: *Brick Making and Moulding Machines.*

In a brick making and moulding machine, the combination with an endless series of moulds having compressing dies in their lower portions, a vertically-fitted shaft with spiral blades on it arranged above the mould, a preliminary packing plunger arranged above the mould, and having an horizontal actuating shaft with cams and upwardly moving pressure-blocks arranged below the moulds to act against the dies, and an horizontal actuating shaft for said blocks having lifting cam surfaces on the same for raising the blocks.

9,203 of 1902.—F. W. ADAMS: *Flushing Siphon Tanks or Cisterns.*

In flushing siphon tanks or cisterns, the method of starting a siphoning operation by depressing the ball or float, so as to raise the level of the water.

9,388 of 1902.—H. L. DOULTON and R. J. PLEACE: *Flushing Siphons for Sewage and the like.*

In flushing siphons, the adoption of an auxiliary pipe carried from the bend of the trap to the outlet of the trap for the easier escape of air.

12,207 of 1902.—F. DE MARE: *Electrothermic Ventilator.*

The manner of heating air or other gases by an electric current through a casing ventilator, of which the wings of the turbine are replaced by wires, through which the current passes.

20,557 of 1902.—I. G. WATERMAN: *Electrical Control of the Water Supply of Lavatories, Bath Tubs, Showers, Baths, and Bowls.*

The combination with a main or feeder circuit and a return circuit, of a flow controlling the return circuit, electro-magnetically operating valves each in a branch circuit, and in circuit with the return circuit aforesaid, a switch controlling the current supply to the branch circuit of the electro-magnets of the valves, means for locking the switch, and an electro-magnet for releasing said locking means, which is in a shunt or branch circuit, and energised on the breaking of the return circuit by the flow.

28,475 of 1902.—J. S. CAMPBELL: *Locks and Fastenings.*

A lock convertible into a spring push-fastening, comprising a plurality of detachable concentric tubes, one of which carries the master key-hole and the other encloses a slotted movable and changeable disc (or a plate) which, when brought into register, by means of a key, with said master key-hole allows the key to enter this and then act directly and release a retaining catch, a third tube (or a rod) being in some cases employed to form a push-piece on which the key then acts and causes it to release the retaining catch.

23,280 of 1902.—H. PAUL: *Stone Cutting or Shaping Machine.*

A stone cutting or shaping machine, consisting of a large-toothed wheel driven by a worm around a horizontal axis and provided on its face with holders, each of which carries a series or row of knives or cutters, whose cutting edges are arranged in a radial line from the centre of the wheel, and a table for supporting the stone to be operated upon in front of the wheel and provided with suitable gear for causing the forward or backward travel of the same.

24,692 of 1902.—G. H. HOLTZMANN: *Hinges.*

A hinge comprising two parallel connecting rods located in the same horizontal plane, means whereby the adjacent ends of said rods may be pivotally connected to a door and a fixed member in the form of a shaped metal casting to which the opposite ends of said rods are pivotally connected.

#### MEETINGS.

MONDAY, APRIL 13.

Bristol Society of Architects.—Annual general meeting. Election of Council and Officers. 8 p.m.

WEDNESDAY, APRIL 15.

Builders' Foremen and Clerks of Works' Institution.—Quarterly Meeting of the Members. 8 p.m.



Edinburgh Architectural Association.—Associates business meeting. 8 p.m.

SATURDAY, APRIL 18.

Edinburgh Architectural Association.—Visit to Edinburgh Architectural Association, where a number of buildings will be inspected.

# SOME RECENT SALES OF PROPERTY:

## ESTATE EXCHANGE REPORT.

March 20.—By MORRIS & PLACE (at Nottingham)	
Nottingham.—Mansfield-rd., The Mapperley Hall Estate, 120 a. 3 f. 3 p. f. ....	£74,500
By G. B. HILLIARD & SON (at Chelmsford)	
Blackmore, Essex.—Blackmore Wood, 37 a. 0 r. 22 p. f. ....	630
March 24.—By MORRIS, MARSHALL, & POOL (at Wentworth)	
Wentworth, &c., Salop.—Freehold farm, house, and 65 a. 1 r. 15 p. f. ....	1,900
Allotment of land, 78 a. 2 r. 4 p. f. ....	300
Freehold cottage and o. a. 0 r. 38 p. f. ....	105
Various enclosures of land, 58 a. 1 r. 39 p. f. ....	1,650
A small holding, 24 a. 3 f. 4 p. f. ....	450
March 26.—By CHINNOCK, GALSORTHY, & CO. (at York)	
Cuisborough, Yorks.—Galley Hill Farm, 85 a. 0 r. 6 p. f. 1 r. 12 p. f. ....	4,000
Morton, Yorks.—Morton Carr and Morton Grange Farms, 585 a. 3 r. 20 p. f. y. r. 670 l. ....	16,500
By RAYNER & BRIDGLAND (at Gravesend)	
Gravesend, Kent.—Wrotham, Ruckling House, and 1 a. f. ....	3,900
6 and 7, Horn-yd., f. w. 20 l. ....	200
Saddington, f. w. 13 l. ....	100
13, High-st. (S), f. w. 13 l. ....	355
By GRIMLEY & SON (at Birmingham)	
Loughborough, Worcester.—Bromsgrove New-rd., the Colmers Estate & The House Farm, 60 a. 0 r. 39 p. f. and c. ....	1,900
March 27.—By FREDK. WARMAN (at Crouch End)	
Crouch End, Western-rd., Llantarnam, ut. 91 yrs., g. r. 6 l. 7 s. y. r. 65 l. ....	3,525
By PROTHORPE & MORRIS	
Caledonian-rd., 5, Delhi-st., ut. 55 yrs., g. r. 6 l. y. r. 33 l. ....	540
By F. R. R. & CO.	
Notting Hill.—207, 209, and 211, Lancaster-rd., ut. 60 yrs., g. r. 21 l. w. r. 147 l. 18 s. ....	1,060
March 30.—By C. M. STANFORD (at Colchester)	
Great Horkeley, Essex.—The House Farm, 60 a. 0 r. 39 p. f. and c. ....	1,300
An enclosure of land, 5 a. 3 r. 23 p. f. ....	105
Bickley, Kent.—Southborough-rd., Springhurst and 3 r. 17 p. f. p. ....	2,925
Beckenham, Kent.—51, Copers Cope-rd., ut. 60 yrs., g. r. 7 l. 5 s. y. r. 45 l. ....	500
Bromley, Kent.—Park-av., a freehold building plot	400
London-lane, a freehold building site	250
41, Recreation-rd., ut. 75 yrs., g. r. 4 l. w. r. 13 l. 4 s. ....	125
By ELLIOTT, SON, & BOYTON	
New Oxford-st.—112 (S), ut. 22 yrs., g. r. 52 l. 10 s. y. r. 20 l. ....	1,950
St. John's Wood, Hampden-rd., ut. 40 yrs., g. r. 10 l. p. ....	200
By FRITH, GARLAND, & CO.	
Hornsey.—53, Raleigh-rd., ut. 80 yrs., g. r. 6 l. 6 s. y. r. 33 l. ....	345
Hampden-rd., f. g. r. 36 l. reversion in 94 yrs. ....	500
Hampden-rd., a freehold building site	210
Tottenham.—6, Bruce-villas, ut. 95 yrs., g. r. 6 l. y. r. 32 l. ....	210
By WAGSTAFF & SONS	
Highbury.—Highbury-cres. West, f. g. r. 14 l. 10 l. reversion in 40 yrs. ....	1,350
Tottenham.—Caledonian-rd., ut. 147 l. 8 s. also 1, 3, and 5, Braemar-rd. (S), y. r. 60 l. ....	2,400
Ilford, Essex.—Thorold-rd., 85 plots of freehold building land	4,938
March 31.—By BEARD & SON	
Bayswater.—45, 47, and 49, Chestnut-place, ut. 40 yrs., g. r. 50 l. y. r. 208 l. ....	2,950
Kensington.—19, Campden-gv., ut. 40 yrs., g. r. 7 l. e. r. 75 l. ....	800
9, Maxill-lane, ut. 72 yrs., g. r. 10 l. y. r. 60 l. ....	560
Battersea.—144, Meyrick-rd. (S), ut. 37 yrs., g. r. 4 l. y. r. 30 l. ....	215
Ealing.—2, Melbourne-av., ut. 98 yrs., g. r. 7 l. 7 s. e. r. 108 l. ....	403
East Ham.—Higsett North, f. g. r. 108 l. reversion in 95 yrs. ....	275
By ALLAN BOOTH	
Holloway.—3, Middleton-rd., ut. 44 yrs., g. r. 2 l. e. r. 30 l. ....	630
By BROWNETT & TAYLOR	
Battersea.—79, Wakehurst-rd., ut. 74 yrs., g. r. 5 l. y. r. 32 l. ....	335
Clapham.—65, Stuyvesant-rd., f. g. r. 108 l. also 3 l. ut. 34 l. yrs., g. r. 5 l. 13 s. 4 d. ....	390
Battersea.—5, Golden-st., ut. 74 yrs., g. r. 5 l. y. r. 32 l. ....	222
Balmain.—Northfield-lane, f. g. r. 104 l. reversion in 197 yrs. ....	265
Hessel-rd., f. g. r. 26 l. reversion in 99 yrs. ....	600
By C. H. BROWN	
Pimlico.—15, Sutherland-st., ut. 31 yrs., g. r. 8 l. w. r. 89 l. 14 s. ....	475
79, Winchester-st., ut. 26 yrs., g. r. 9 l. w. r. 89 l. 16 s. ....	480
Balmain.—144, Meyrick-rd., ut. 99 yrs., g. r. 7 l. e. r. 42 l. ....	410
Thornton Heath.—Penrith-rd., Belmont, ut. 93 yrs., g. r. 5 l. w. r. 84 l. 18 s. ....	233
By MONTAGU & CO.	
Croydon.—Bredon-rd., f. g. r. 218 l. reversion in 98 yrs. ....	4,830
Ealing.—Egerton-gdns., f. g. r. 16 l. 8 s. reversion in 92 yrs. ....	420
The Av. f. g. r. 107 l. reversion in 92 yrs. ....	1,070
Montagu-rd., f. g. r. 42 l. reversion in 93 yrs. ....	1,070
Walhamston.—Chelmsford-rd., f. g. r. 22 l. reversion in 95 yrs. ....	495

By HUNTER & HUNTER	
Kentish Town.—Peckwater-st., i. g. rents 10 l. ut. 45 yrs., g. r. 10 l. ....	£165
Kensington.—31, St. Andrew-rd., ut. 53 yrs., g. r. 8 l. y. r. 54 l. ....	530
By ROBINS, GORE, & MERCER	
Brondesbury.—34, Kelson-st. (S), ut. 76 l. yrs., g. r. 8 l. w. r. 54 l. 12 s. ....	335
By RUTLEY, SON, & VINCE	
Hampstead-rd.—24, Amphill-sq., ut. 40 yrs., g. r. 10 l. 10 s. y. r. 65 l. ....	720
Kentish Town.—65, Bartholomew-rd., ut. 55 l. yrs., g. r. 10 l. ....	580
Maylebone.—67, Earl-st., 12 yrs., g. r. 6 l. 6 s. y. r. 52 l. ....	165
By WATERBURY & DICKINS	
Bromley, Kent.—Park-av., a plot of building land	200
By E. H. HENRY (at Clapham)	
Clapham.—Klea-av., 17 plots of freehold building land	2,907
By G. TINKER & SON (at Huddersfield)	
Bradley, Yorks.—Bradley-ryd, f. g. r. 24 l. 14 s. 8 d. reversion in from 45 to 49 yrs. (with option of renewal and payment of fine)	700
Bradley-ryd, f. g. r. 13 l. 14 s. reversion in 96 l. ....	365
Leeds North-rd.—Cooper House, f. g. r. 20 l. ....	450
Bradley-ryd, a plot of building land, area 655 gns. ....	165
Bradley-ryd, The White Cross Inn, area 2 a. 2 r. 11 p. f. y. r. 57 l. ....	2,095
Upper Quarry-rd., a close of land, 1 a. 1 r. 33 l. 8 s. y. r. 57 l. ....	150
Lamb Cole Farm, 74 a. 2 r. 17 p. f. ....	1,600
High Park Farm, 38 a. 1 r. 17 p. f. ....	1,000
Grange Farm, 50 a. 3 r. 3 p. f. ....	2,300
Bradley Hall Farm, 28 a. 2 r. 28 p. f. ....	2,775
By J. HAXELL (at Mason's Tavern)	
Walworth.—York-st., the Lock Tavern "b. h., ut. 24 l. yrs., y. r. 50 l. with goodwill	2,910
By DRYSDALE, NURSE, & CO.	
Stoke Newington.—75, Lordship-rd., ut. 45 yrs., g. r. 9 l. 15 s. e. r. 95 l. ....	380
By FOSTER & CRANFIELD	
Pimlico.—79, Alderney-st., ut. 29 yrs., g. r. 9 l. y. r. 53 l. ....	500
Kilburn.—31, 35, 37, and 39, Princess-rd., ut. 59 yrs., g. r. 80 l. y. r. 330 l. 12 s. ....	1,025
55, Princess-rd., ut. 59 yrs., g. r. 8 l. 10 s. e. r. 40 l. ....	355
By LEWIS & GOLDSCHMIDT	
Regent's Park.—4, Regent's Park-rd., ut. 161 yrs., nil, e. r. 130 l. ....	1,025
By THURGOOD & MARTIN	
Smithfield.—23 and 24, Whitehorse-alley, f. w. r. 30 l. ....	1,275
Fleet-street.—5, Wine Office-cour., area 600 ft. f. y. r. 50 l. ....	2,800
9, Wine Office-cour., area 1,250 ft. f. y. r. 100 l. ....	490
By DONOVAN & YOUNG & CO.	
Wandsworth.—17, Ringford-rd., f. y. r. 30 l. ....	615
7 and 9, Ringford-rd., ut. 77 yrs., g. r. 13 l. y. r. 61 l. ....	500
32, Amerland-rd., f. y. r. 34 l. ....	230
Battersea.—30, Simpson-st., ut. 53 yrs., g. r. 5 l. 10 s. y. r. 31 l. 4 s. ....	230
45, 45, and 47, Brynmaer-rd., ut. 67 l. yrs., g. r. 18 l. y. r. 108 l. ....	1,085
Clapham.—10, Richmond-rd., ut. 25 l. yrs., g. r. 8 l. e. r. 52 l. ....	370
By FAREBROTHER, ELLIS, & CO. (at Hereford)	
Bishops Cleeve, Hereford.—Instone Court Farm, 203 a. 3 r. 4 p. f. y. r. 180 l. ....	3,100
Avenbury, Hereford.—Lower Venn Farm, 126 a. 0 r. 38 p. f. y. r. 122 l. 12 s. ....	2,200
Stocks Farm, 85 a. 3 r. 30 p. f. y. r. 80 l. ....	700
Freehold cottage and enclosures, 45 a. 1 r. 38 p. f. y. r. 35 l. 13 s. ....	750
April 2.—By BRIANT & SON	
Kenningington.—25, Vauxhall Bridge-rd., f. y. r. 30 l. ....	750
Paddington.—39, Westbourne-rd., North, ut. 47 yrs., g. r. 10 l. 10 s. y. r. 52 l. ....	1,175
Forest Gate.—Forest-st., f. g. r. 34 l. reversion in 51 yrs. ....	390
Limehouse.—Thomas-st., f. g. r. 108 l. ut. 92 l. yrs., g. r. 21 l. ....	1,125
By COLE & HICKS	
Ealing.—87, The Av., f. g. r. 55 l. ....	1,550
Whitechapel.—6 and 8, Well-st. (S), f. y. r. 156 l. ....	600
Bow.—17 and 19, Chiltern-rd., ut. 60 yrs., g. r. 7 l. w. r. 67 l. 12 s. ....	1,150
Forest Gate.—100, 109, 104, and 106, Ramsey-rd., f. w. r. 114 l. 8 s. ....	300
Hackney.—37, Queen Ann-rd., ut. 42 yrs., g. r. 5 l. y. r. 40 l. ....	395
By NEWBORN, EDWARDS, & SHEPHERD	
Paddington.—6 and 7, Amberley Mews, ut. 59 yrs., g. r. 5 l. y. r. 42 l. ....	1,240
Islington.—104, 106, and 108, Church-rd., ut. 35 yrs., g. r. 12 l. y. r. 62 l. ....	800
Spitalfields.—267 to 269 (odd), Brick-lane (S), ut. 50 yrs., g. r. 75 l. w. r. 252 l. 4 s. ....	830
Willden.—Villiers-rd., f. g. r. 34 l. 10 s. reversion in 83 yrs. ....	675
Regent's Park.—26, Regent's Park-rd., ut. 41 yrs., g. r. 12 l. e. r. 70 l. ....	660
Crouch Hill.—56 and 58, Sparsholt-rd., ut. 43 yrs., g. r. 12 l. y. r. 76 l. ....	320
Victoria Park.—25, Cadogan-ter., ut. 92 l. yrs., g. r. 5 l. 10 s. e. r. 34 l. ....	700
Kingsland.—351 to 357 (odd), Kingsland-rd., ut. 15 l. yrs., g. r. 16 l. y. r. 14 l. ....	230
De Beauvoir Town.—47, Buckington-rd., ut. 41 yrs., g. r. 4 l. 10 s. e. r. 42 l. ....	355
Holloway.—18, Devonshire-rd., ut. 49 l. yrs., g. r. 6 l. e. r. 34 l. ....	1,010
74, Barnsbury-rd., ut. 14 l. yrs., g. r. 5 l. y. r. 42 l. ....	160
By NOTT, CARTWRIGHT, & ETCHES	
Pimlico.—397, Vauxhall Bridge-rd., ut. 21 l. yrs., g. r. 10 l. y. r. 16 l. ....	1,435
35, Churton-st. (S), y. r. 85 l. also 1 g. r. 34 l. ut. 34 l. yrs., g. r. 3 l. ....	
8, Moreton-ter. mews, ut. 30 l. yrs., g. r. 4 l. y. r. 20 l. ....	
By STIMSON & SONS	
Lambeth.—1, 2, and 5, Pearman-st., ut. 56 yrs., g. r. 30 l. y. r. 198 l. 18 s. ....	

Blacfriars.—2 to 10 (even), Friar-st. 2 and 4, Lancaster-st.; and 9, Friar-pl. (S), ut. 70 yrs., g. r. 36 l. y. r. 270 l. ....	£1,650
North.—85, Beckway-st., f. w. r. 137 l. 17 s. ....	690
Brixton.—7 and 8, Western-rd., ut. 19 l. yrs., g. r. 10 l. y. r. 76 l. ....	320
Crouch End.—31 and 33, Barrington-rd., ut. 86 yrs., g. r. 12 l. 12 s. y. r. 70 l. ....	705
Forest Gate.—122, Whytemill-rd., f. w. r. 34 l. 10 s. ....	290
Kentish Town.—9 and 27, Graton-rd., ut. 37 l. yrs., g. r. 10 l. 10 s. y. r. 75 l. ....	750
Canterwell.—158 to 164 (even), Southampton-st. (S), also The Royal Oak b. h., ut. 15 yrs., g. r. 15 l. y. r. 169 l. ....	270
2, Rignold-rd., ut. 63 l. yrs., g. r. 5 l. w. r. 35 l. 25 s. ....	240
By TYLER, GREENWOOD, & CRIBB	
Gunnersbury.—Harvard-rd., Sans Souci, ut. 68 yrs., g. r. 20 l. e. r. 120 l. ....	1,400
By WEBB & NELSON	
Chiswick.—12, Woodstock-rd., ut. 74 l. yrs., g. r. 12 l. y. r. 60 l. ....	640
Tooting.—40 and 42, Hendham-rd., ut. y. r. 66 l. ....	1,595
Hendham-rd., f. g. r. 18 l. 15 s. reversion in 80 yrs. ....	470
By WYATT & SON (at Chichester)	
Chichester, Sussex.—West-st., The Royal Oak p. h., f. p. ....	330
West-st., The Eagle p. h., ut. 1,677 yrs., g. r. 8 d. p. ....	630
Tower-st., freehold Stabling, y. r. 15 l. ....	625
Southgate, The Railway Inn, f. p. ....	270
Ochard-ter., The White Hart p. h., f. p. ....	200
By WOODFORD & HAYWARD (at Dover)	
Dover, Kent.—38 and 30, St. James-st., f. p. ....	370
20, St. James-st., with stabling and stores in rear, f. p. ....	303
April 3.—By CHARLES CANEY	
Camberwell.—72, Coldharbour-lane (S), f. e. r. 55 l. 11, Windsor-rd., ut. 51 yrs., g. r. 10 l. e. r. 65 l. ....	820
By SIM & RANDALL	
Ilford, Essex.—47 to 61 (odd), Westwood-rd., f. w. r. 208 l. ....	1,950
33, 35, and 37, Westwood-rd., f. w. r. 84 l. 10 s. ....	830
Bow.—38, Colonn-rd., ut. 13 yrs., g. r. 1 l. 10 s. y. r. 46 l. 10 s. ....	130
By S. WALKER & SON	
Dalston.—10 and 11, Albion-rd., ut. 36 yrs., g. r. 7 l. 25 s. 6 d. y. r. 60 l. ....	545
40 and 42, Albion-rd., ut. 40 yrs., g. r. 12 l. 12 s. y. r. 72 l. ....	675

Contractions used in these lists.—F.g. r. for freehold ground-rent; i. g. r. for improved ground-rent; g. r. for ground-rent; r. for rent; f. for freehold; e. for estimated rental; w. r. for weekly rental; q. r. for quarterly rental; y. r. for yearly rental; u. r. for unexpired term; p. a. for per annum; y. r. for years; l. for lanes; s. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; g. for grove; b. h. for beer-house; p. h. for public-house; o. for office; s. for shop.

## PRICES CURRENT OF MATERIALS.

\* \* \* Our aim in this list is to give, as far as possible, the average prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

	BRICKS, &c.	£ s. d.
Hard Stocks	1 10 0 per 1,000 alongside, in river.	
Rough Stocks	1 14 0 " " " " " "	
Glazes	2 12 0 " " " " " "	
Facing Stocks	2 12 0 " " " " " "	
Shippers	2 12 0 " " " " " "	
Flattons	1 7 6 " " " " " "	
Red Wire Cuts	1 12 0 " " " " " "	
Best Fareham Red	3 12 0 " " " " " "	
Best Red Pressed	5 0 0 " " " " " "	
Rusbon Facing	5 0 0 " " " " " "	
Best Blue Pressed	5 0 0 " " " " " "	
Staffordshire	4 5 0 " " " " " "	
Do, Bullnose	4 11 0 " " " " " "	
Best, Stourbridge	4 11 0 " " " " " "	
Fire Bricks	4 8 0 " " " " " "	
GLAZED BRICKS.		
Best White and Ivory Glazed	13 0 0 " " " " " "	
Stretchers	13 0 0 " " " " " "	
Headers	12 0 0 " " " " " "	
Quoins, Bullnose, and Flats	17 0 0 " " " " " "	
Double Stretchers	13 0 0 " " " " " "	
Double Headers	16 0 0 " " " " " "	
One Side and two Ends	19 0 0 " " " " " "	
Two Sides and one End	20 0 0 " " " " " "	
Spalls, Chamfered, Squints	20 0 0 " " " " " "	
Best Dipped Salt Glazed	20 0 0 " " " " " "	
Glazed Stretchers and Headers	12 0 0 " " " " " "	
Quoins, Bullnose, and Flats	14 0 0 " " " " " "	
Double Stretchers	15 0 0 " " " " " "	
Double Headers	14 0 0 " " " " " "	
One Side and two Ends	15 0 0 " " " " " "	
Two Sides and one End	15 0 0 " " " " " "	
Spalls, Chamfered, Squints	14 0 0 " " " " " "	
Second Quality White and Dipped Salt Glazed	2 0 0 " " " " " "	
Wastes and Pit Sand	7 0 per yard, delivered.	
3 Grades Ballast	6 0 per ton, delivered.	
Best Portland Cement	30 0 per ton, delivered.	
Best Ground Blue Lias Lime	21 0 " " " " " "	
NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.		
Grey Ston. Lime	10 s. 6 d. per ton, delivered.	
Stourbridge Fire clay in s. cks.	27. 6 d. per ton at ryd.	

[See also page 403.



## COMPETITIONS, CONTRACTS AND PUBLIC APPOINTMENTS.

(For some Contracts, &amp;c., still open, but not included in this List, see previous issues.)

## COMPETITION.

Nature of Work.	By whom Required.	Premiums.	Designs to be delivered
Public Baths .....	Gillingham (Kent) U.D.C. ....	20s., 10s., and 5s. ....	May 30

## CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c., supplied by	Tenders to be delivered
Isolation Hospital at Thatch Hill, Knaresborough ..	Harrogate & Knaresborough Hos. Bd.	G. H. Stranger, F.R.I.B.A., Queen's Chambers, Wolverhampton ..	April 13
Cottages, Carr Bridge, N.B. ....	The Clerk, Parish Council Offices, Ditch, Carr Bridge ..	C. Leitch, Parish Council Offices, Ditch, Carr Bridge ..	April 11
Street Works, Avenue Road and Manor Road, Woolston	Irish (Hants) U.D.C. ....	T. A. Collingwood, Surveyor, Council Offices, Woolston ..	do.
Sewerage Works, &c. ....	Westgate U.D.C. ....	J. Humphreys, Civil Engineer, Town Hall, Chambers, Mansfield ..	do.
Road Works, Leith Road, &c. ....	Manchester Corporation ..	E. F. Valance, Surveyor, White Hart Chambers, Mansfield ..	do.
Road Works, Bishop-street ..	do.	do.	do.
Brickwork, Bishop-street Station ..	Hastings Corporation ..	P. H. Palmer, Civil Engineer, Town Hall, Hastings ..	do.
Road Metal, Bishop-street ..	West Ashford U.D.C. ....	A. Sims, Surveyor, Charing, Kent ..	do.
Public Offices at the Station ..	Adwick U.D.C. ....	C. L. Hutchinson, Architect, 11, John-street, W.C. ....	do.
Club Premises, Napier-street ..	Hazel Grove Reform Club ..	Mr. Hallam, Hazel Grove, near Stockport ..	April 15
Sorting Office, Hales, &c. ....	Office of Works ..	The Secretary, Storey's Gate, S.W. ....	do.
Post Office, Burnley ..	do.	do.	do.
Twenty-five Houses, Haslemere, Hampshire ..	N. E. Railway Co. ....	Wm. Bell, Architect, York ..	do.
Reservoir, &c. ....	T. Applemore (Ireland) U.D.C. ....	Moyman & Gill, Engineers, Nenagh ..	do.
Cottages, Backley Estate ..	Manchester Corporation ..	City Architect, Town Hall, Manchester ..	do.
Church Restoration, Warrington, &c. ....	do.	C. H. Fowler, Architect, The College, Durham ..	do.
School Chapel, &c. ....	do.	E. F. Smith, Architect, 115, Victoria Road North, Southsea ..	April 16
Business Premises, Barrow, &c. ....	do.	D. S. Jones, Barrow ..	do.
Store Buildings, Ferry Hill ..	Bishop Auckland Co-op. Soc., Ltd.	F. H. L. L. L., Architect, Bishop Auckland ..	do.
Private Street Works, Warrington ..	Irish (Hants) U.D.C. ....	E. A. Collingwood, Surveyor, Council Offices, Woolston ..	do.
Destructive Furnaces, &c. ....	Gordon Town Council ..	Borough Engineer, Town Hall, Croydon ..	April 17
Stone Base for Bandstand, Avenue Park ..	Preston (Lanes) Corporation ..	Borough Surveyor, Town Hall, Preston ..	do.
Paper Mill, Burneside, near Kendal ..	do.	J. Hulton, Architect, Kendal ..	do.
Presbyterian Church, Convoys, Co. Donegal ..	Messrs. J. Cropper & Co., Ltd. ....	J. McIntyre, Architect, Letterkenny ..	do.
Road Works, Manor House, &c. ....	do.	C. H. Spencer, Surveyor, Silver-street, Spennymoor ..	April 18
Refuse Destructor, &c. St. Paul's Road ..	Preston Corporation ..	Borough Surveyor, Town Hall, Preston ..	do.
Presbyterian Church, Roseyards, Co. Antrim ..	do.	S. J. McEdden, Civil Engineer, Queen-street, Coleraine ..	do.
Sewerage Works, &c. ....	Chirk (N. Wales) R.D.C. ....	Bremner & Co., Engineers, Oswestry ..	do.
Additions to Pioneer Works, Parkinson-lane, Halifax ..	Messrs. C. Redman & Sons ..	M. Hall, Architect, 1, Harrison-road, Halifax ..	do.
Road Materials ..	Southborough U.D.C. ....	P. Hanner, Council Offices, Southborough, Kent ..	do.
Church and school, &c. ....	do.	Swan & Bain, Architects, Newport, Mon. ....	April 20
Engine House, &c. at Waterworks, Osborne ..	Swindon Corporation ..	Borough Surveyor, Town Hall, Swindon ..	do.
Workhouse Infirmary ..	Tanworth Guardians ..	J. W. Goldridge, Architect, 4, Bebbidge-street, Tamworth ..	do.
Sewerage Works, &c. ....	Newhaven (Sussex) U.D.C. ....	P. Hanner, Council Offices, Southborough, Kent ..	do.
Chapel of Rest, &c. at Woodlands Park ..	Royal Borough of Kensington ..	Town Hall, Kensington ..	do.
Underground Conduits, &c. at Woodlands Park ..	Islington Borough Council ..	Council's Engineer, Town Hall, Upper-street, N. ....	do.
Side Entrances, &c. to Sewers and Wood Paving Works	Hornsey U.D.C. ....	Council's Engineer, Southwood-lane, Hichgate, N. ....	do.
"Sewering and Roadmaking Works ..	do.	do.	do.
"Making-up Roads ..	Tottenham U.D.C. ....	Council's Engineer, 712, High Road, Tottenham ..	April 21
"Water Supply, &c. Works ..	Daventry Borough Council ..	Council's Surveyor, The Moor Hall, Daventry ..	do.
"Making-up Roads ..	Acton District Council ..	Council's Surveyor, 212, High-street, Acton ..	do.
"Sewerage Works, &c. ....	Colwyn North Wales U.D.C. ....	P. Hanner, Council Offices, Southborough, Kent ..	do.
"New Sorting Office, Manor Park, E. ....	Commissioners of H.M. Works ..	H.M. Office of Works, Storey's Gate, S.W. ....	do.
"New Sorting Office, Walsall, Green ..	do.	do.	do.
"New Sorting Office, Kenilworth, N.W. ....	do.	do.	do.
"Electric Light and Plant ..	Brillington Corporation ..	Medhurst & Co., Engineers, 11, St. Anne's-square, Manchester ..	April 22
"Pipe Sewers (two miles) ..	Tarpoley U.D.C. ....	B. Latham, Civil Engineer, Parliament Mansions, Victoria-st., S.W. ....	do.
"Fire Hydrants, Main and Put up at Northern Hospital ..	Metropolitan Asylums Board ..	Office of Board, Embankment, E.C. ....	do.
"Wood Block Flooring, &c. ....	Canterbury Union ..	Villor & Laikes, 62, Temple-row, Birmingham ..	do.
"Framework for Ornamental Gates, &c. ....	Bradford Corporation ..	Town Clerk's Office, Bradford ..	April 23
"Timber ..	Director-General Ordnance Survey ..	Office in Charge of Stores, Ordnance Survey Office, Southampton ..	do.
"Erection of Fire Station ..	Eastbourne Corporation ..	P. A. Robson, Architect, 9, Bridge-street Westminster ..	April 25
"Road Making and Paving Works ..	Walthamstow U.D.C. ....	Council's Engineer, Town Hall, Walthamstow ..	do.
"Cast Iron Tank, &c. at Canning Town ..	County Borough of West Ham ..	Borough Engineer, Town Hall, Stratford, E. ....	April 26
"Excavators and Bricklayers' Work (Foundations) ..	Manchester Corporation ..	City Treasurer, Town Hall, Manchester ..	April 27
"New Buildings to be attached to Infirmary ..	Holbeach Union ..	Union Workhouse, Holbeach ..	do.
"Approach Road to Marine Drive ..	Scarborough Town Council ..	Beard & Smith, Engineers, Town Hall, Scarborough ..	April 29
"Asylum Building, Exeter ..	Devon County Asylum Committee ..	E. H. Harbottle, Architect, County Chambers, Exeter ..	May 1
"Technical Institute and Free Library ..	Portsmouth Corporation ..	G. E. Smith, Architect, 115, Victoria Road North, Southsea ..	May 5
"External Painting Cobbold-road School, &c. ....	Wansley School Board ..	J. T. Bressy, 70 and 71, Bishopsgate-street, Widdin, E.C. ....	May 11
"Proposed Municipal Offices ..	Crewe Corporation ..	Borough Surveyor, Municipal Offices, Crewe ..	No date
"Two Villas, Brynmawr-place, Maresfield ..	do.	W. B. Rees, Architect, 37, St. Mary-street, Cardiff ..	do.
Additions to Reading Rooms, Bideford, Essex ..	do.	J. W. Waylett, High-street, Bideford ..	do.
Villas, Lenton Sands, Nottingham ..	do.	F. H. Collier, Architect, 8, Bridlesmith Gate, Nottingham ..	do.
School, Milton, N.B. ....	Old Kilpatrick School Board ..	Smellie & Co., 167, St. Vincent-street, Glasgow ..	do.

## PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
Clerk of Works ..	York Asylum Committee ..	Not stated ..	April 14
Clerk of Works ..	Swindon Corporation ..	22. 3s. per week ..	April 29
Architectural Assistants ..	London County Council ..	17. 1s. to 37. 7s. 6d. per week ..	April 21
Borough Engineer and Surveyor, &c. ....	Manchester Royal Infirmary Board ..	Not stated ..	May 1

Those marked with an asterisk (\*) are advertised in this Number.

Competitions, iv.

Contracts, iv. vi. viii. and x.

Public Appointments, xvi.



ENGLISH SHEET GLASS IN CRATES.

VARNISHES, &c.		Per gallon.
Fine Pale Oak Varnish		8 9
Fine Copal Oak		9 0
Superfine Pale Hard Copal Oak		10 6
Fine Extra Hard Churn		12 6
Superfine Hard-drying Oak		10 0
Churches		
Fine Elastic Carriage		14 0
Superfine Pale Elastic Carriage		12 6
Fine Pale Maple		16 0
Fine Pale Durable Copal		16 0
Extra Pale French Oil		11 0
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			A
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W. Burkitt .....	162	10	6
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[See also next page.]



GRIMSBY.—For erection of corrugated iron hospital and administrative block at Laceby, County Borough of Grimsby. Mr. H. Gilbert Whyatt, Borough Engineer, Grimsby:

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Swallow .....	760 0 0	530 0 0	530 0 0	1,780 0 0
Wrench & Sons .....	560 0 0	460 0 0	460 0 0	1,480 0 0
Bruce & Still .....	495 0 0	420 0 0	410 0 0	1,325 0 0
Crossley & Carter .....	580 0 0	389 0 0	389 0 0	1,358 0 0
Westminster Iron Roof and House Building Co. ....	458 0 0	410 0 0	410 0 0	1,278 0 0
Hewins & Goodhand .....	490 0 0	396 15 0	396 15 0	1,282 10 0
MacManus .....	455 0 0	398 0 0	398 0 0	1,251 0 0
Chick .....	460 0 0	390 0 0	370 0 0	1,220 0 0
Ginger .....	445 0 0	415 0 0	405 0 0	1,265 0 0
Kovell .....	449 0 0	397 10 0	397 10 0	1,244 0 0
Palmer .....	457 10 0	387 0 0	285 10 0	1,130 0 0
Sanbury .....	495 0 0	350 0 0	350 0 0	1,195 0 0
Thomas .....	395 0 0	349 0 0	349 0 0	1,093 0 0
Smith .....	398 0 0	346 0 0	330 0 0	1,074 0 0
Waterman .....	387 0 0	334 0 0	334 0 0	1,055 0 0
Mitson & Harrison .....	377 0 0	330 0 0	330 0 0	1,037 0 0
Hawkins .....	388 0 0	385 0 0	390 0 0	1,163 0 0
Harlow .....	370 0 0	395 0 0	325 0 0	1,090 0 0
Humphreys, London* .....	374 0 0	351 0 0	321 0 0	1,046 0 0
C. W. Dixon† .....	299 0 0	262 0 0	262 0 0	823 0 0

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# The Builder.

VOL. LXXXIV.—No. 324.

APRIL 16, 1903.

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Haggerston Public Baths: Detail Drawings..... Mr. A. W. S. Cross, F.R.I.B.A., Architect.

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### The London Education Bill.



THE London Education Bill was, as our readers are all aware, introduced into the House of Commons immediately before it rose for the Easter vacation. This gives ample opportunity for those who are interested in the subject of education to express their views upon this important measure. The first question which appears to arise is as to the necessity of a Bill at all. It seems to be the idea of the Government that as they thought it desirable to legislate for the rest of England, it was therefore necessary to bring in a measure to affect London also. The cardinal principle which underlay the Education Act of 1902 was to harmonise Educational Authorities, and, as far as possible, in every county and large town to create one supreme authority for elementary, secondary and technical education. It was also desired to lessen the number of Local Authorities, and for this purpose the County and Borough Councils were made the educational Governing Body. But because such a measure was necessary and desirable for the rest of England, it by no means follows that the principles of that measure were applicable to London.

Let us see for a moment what is the present state of affairs in the Metropolis. A large part of the elementary education is in the hands of the London School Board, though a certain proportion of children are also educated in the Church of England Voluntary Schools, which latter, from a purely educational point of view, should long ago have been handed over to the School Board. Technical and secondary education is in the hands of the Technical Instruction Committee of the London County Council, and there are also voluntary bodies which supply the same sort of instruction. Parts of the higher elementary and of the secondary education necessarily overlap a little, and it is pretty obvious therefore that, if possible, the whole of the education of London should be in the hands of a single body. But if one thing is more clear than another, having regard to the vast size of the Metropolis, the

number of the children and young people to be educated, and the immense sums of money involved, it is that there should be one body of first-class importance, to whom the duty of supervising the education of London should be entrusted. No comparison can be made between London and any other large town or county in this respect.

What, then, do we find to be the chief lines of the Government measure? It is to be enacted that the Elementary Schools shall be provided by, and subject to, the general directions of the Local Education Authority. This Authority is to consist of an Education Committee of ninety-two members, thirty-six of whom are appointed by the County Council, thirty-one by the Metropolitan Boroughs and the City, and twenty-five co-opted by the County Council from outside; but the Councils of the Metropolitan Boroughs are to be the managers of the public schools within each Borough, and they are to have qualified powers and duties of management. Technical and secondary education will be in the hands of the Committee, while the Voluntary Church Schools will be in pretty much the same condition as under the Act of last year. It is obvious, therefore, that so far from harmonising and systematising the education of London, the measure just introduced has really a reverse effect. At present, as we have said, though there is a division of authority, it is not wholly unsystematic, for we have the County Council responsible for higher education, the School Board for elementary education, and working by its side voluntary committees of Church people. By the new Bill these divisions are to all intents and purposes retained, with the addition of the Borough Councils as part managers, if we may use this expression, of the schools which are now wholly under the jurisdiction of the School Board.

Jeffrey commenced a celebrated review of a certain great poem with the words—“This will never do!” Adopting a phrase which (however misapplied in that particular case) has become traditional, we may most emphatically say of the present measure, regarding it entirely from the point of view of the improvement of the education of London, “This will never do!” It has in it all the elements of strife and of jobbery which are just the very things which one wishes to get rid of. The Borough Councils

are, for example, to purchase the sites for future schools; a fatal blot on the Bill, because the boundaries of these boroughs—in other words, of the old vestries—are not harmonious; it might very well be, if the Bill became law, that two adjoining boroughs would select sites for schools close to each other on the edge of their jurisdiction. Even supposing that this proposal was not carried out, it is clear that there would have to be negotiations between the two boroughs, in which the County Council would also have to intervene, and likewise the Board of Education. Under present conditions, at any rate, we have in the London School Board one undivided authority for the whole of London. It can survey the Metropolis and build a new school here or there, as the case may be, according to the general necessities of the district, and having regard to the proximity or the character of other schools in the vicinity. This example shows very clearly the faultiness of the new measure; but one of the chief objects, as we have always understood it, of legislating for London was to bring elementary and higher education into line, to place them under one authority, so that elementary education in its higher grades could, so to speak, be dovetailed into secondary education, and scholars be enabled to move upwards without difficulty. Here, again, the new measure is obviously seriously wrong; for we get the same division very largely continued, with, as we have said, the undesirable intervention of the Borough Councils. Over and over again last Session, when the Water Bill was under discussion in the House of Commons, and it was urged that as Liverpool and Manchester managed the water supply through their Corporations, London should be in the same position, the reply came that the Metropolis was so different from the other towns of the country that legislation for it could not be on the same lines. It is clear that, as regards education at any rate, London must be looked at as unique. It contains twenty thousand teachers, a million of pupils and students, and expends some four millions a year on education. This represents work which can only be done by a first-class body. Therefore, the education of London should either be in the hands of the County Council, enlarged in numbers so as to be able to deal with this great matter, and with power to co-opt on its Education Committees men and women



who have become skilled on the subject, or in parts of it which relate to manufactures or art; or it should be in the hands of the London School Board, enlarged it may be in numbers, and elected not by the cumulative vote, but by direct election. Either of these alternatives would result in the harmonising and improvement of the elementary, secondary, and technical education of the Metropolis, and would put an end to troublesome existing divisions. It might fairly be hoped, too, that the voluntary schools would presently be absorbed by such a great authority. It is, however, equally clear that to destroy existing conditions and replace them in the manner proposed by the new Bill would be no improvement, but would increase confusion and deteriorate the condition of education in London.

#### SHRINKAGE OF THE THAMES AND LEA.

THE chief engineer to the London County Council has presented an interesting report to the Water Committee of that body on the "Shrinkage of the Thames and Lea." It is marked throughout by the careful compilation of statistics, and by the absence of any proposals for remedial measures.

We do not accept the main conclusions presently to be referred to, primarily because they do not apply to that portion of the Thames basin drawn upon for the supply to the Metropolis; whilst the gaugings of the flow of the river at Teddington weir are notoriously incomplete. All the same, the engineer has done a good service in calling attention to several important points in connexion with the water-supply to the Metropolis, and we value the Report accordingly.

The Chief Engineer was desired by the Water Committee to report with reference to the diminution of the volume of water in the Thames and Lea, and dealing as far as possible with the question of the drying up of springs in connexion with those two rivers. But he suffered from not having any authorised expenditure to enable him to carry out his investigations. He begins by stating his conclusions, and we may as well review them in the order they stand in the Report.

The first conclusion arrived at is, as regards rainfall, that for the past twenty years there has been a decline over the Thames watershed of an annual average of nearly  $2\frac{1}{2}$  in. below the mean rainfall of 28.50 in., as computed by the late Mr. Symons for the forty years 1850-1889. To substantiate this statement, the rainfall at Greenwich since the year 1815 is quoted, amongst other tables. The rainfall at Greenwich is no great factor in regard to the rainfall of the Thames basin as a whole, and has little to do with the question of water supply, except, perhaps, as regards the wells of the Kent Water Company. Nevertheless, we will take the table as it stands as follows:—

##### Greenwich Rainfall in Eight Decennia, 1815-95.

1815—1825	= 26.27 inches.
1825—1835	= 22.07 "
1835—1845	= 23.39 "
1845—1855	= 24.42 "
1855—1865	= 23.00 "
1865—1875	= 25.15 "
1875—1885	= 25.69 "
1885—1895	= 23.00 "

The engineer observes that, as will be

seen from the above table, there are really no definite indications of any permanent shrinkage of the rainfall, but he remarks that when we come to analyse the records of the past ten years a very different and a very disturbing element enters into consideration, for it is at once apparent that a succession of low rainfalls has set in during the last decennium. All this is quite true, but it is in the highest degree improbable that such a condition of things can continue, if we may judge from past experience. We have cycles of high temperature and of low temperature, and it is certain that we have also cycles of high and low rainfall. The report is made at a period most favourable for the establishment of the view that the volume of the Thames and Lea is decreasing, but if we refer to the table just quoted we shall see that a similar, or worse, state of affairs existed between 1825 and 1835, and they were no better between 1855 and 1865. The period between 1835 and 1845 was not much better. We deprecate this lumping together of ten years to find an average result. It is far better, from a scientific standpoint, to take one year with another. It must be well known to the engineer that it takes a long time for rain to percolate to a sufficient depth, and so to form the staple source of spring-water which keeps the rivers flowing. One year is not enough to consider, and ten years are too many. In other parts of the Thames Basin the statistics practically point to the same conclusion, and our observations apply in each case.

Another conclusion arrived at is that the decline of the rainfall is reflected in the diminished flow of the river as gauged at Teddington Weir, the natural flow having fallen to an average of 1,110½ million gallons daily at the intakes for the twenty years, compared with 1,350 million gallons over the 1850-1889 period, showing a loss to the river of 239½ million gallons per day. Now the period 1850-1889 was, on the whole, one of high rainfall, and the engineer is undoubtedly right; but we do not quite see the point of his conclusion. If he tells us this to emphasise the fact that great storage is necessary to provide for a period of low rainfall, we are at one with him; but if, on the other hand, he desires to convey the impression that the rainfall in the Thames and Lea Basins is steadily decreasing we should join issue with him on scientific grounds, even if the many statistical tables quoted by him did not disprove his own conclusions. He is astute enough not to draw any conclusions a scientific character, and, to show his impartiality, observes that "against these facts (diminished rainfall) we have the possibility of a long series of wet years, which may bring back the state of affairs which existed on the average during the long period mentioned."

In regard to the remainder of the engineer's conclusions, they chiefly deal with the decrease in the water level in the chalk under London, and the drying up of springs in Hertfordshire. These are facts that have been known for years, and no new light is thrown on the subject. This decrease is known to proceed chiefly from the enormous quantities of water pumped both by the water companies and by private individuals and public institutions, from the chalk; depending upon the locality. When the engineer tells us that this proves that the

chalk formation cannot any longer be regarded as such an important water-bearing formation as was formerly thought, we should remind him that there are plenty of areas within the London basin (westwards) and in East Kent to which this fact of the lowering of water level under London does not apply.

Whilst we make these criticisms, however, we do not desire them to be taken as in any sense condemnatory of the Report. There is much food for reflection in the latter, and it bears the impress of careful compilation and consideration.

#### NOTES.

The Venice Campanile.

IN the *Times* of the 10th inst. Mr. E. C. Clark writes a very sensible letter from Venice

showing reasons against the proposed rebuilding of the Campanile. One of his points, which is a good one, is that the front of St. Mark's is seen to far better advantage now that the Campanile has gone. No one, of course, would have thought of demolishing the Campanile for that reason; but now that it has died a natural death, it does seem absurd to rebuild a copy of what was in itself an ugly structure, the rebuilt edition of which will have neither historic nor architectural value. As Mr. Clark says:—"The new building will not be the historic tower which is gone, and there are other Campanilli. But there is no other front of St. Mark's." We doubt if the money required for the rebuilding will really be forthcoming. But if it is, we predict that those who have subscribed it will realise, after the thing is done, that they have made a mistake.

Concrete Steel.

EVEN engineers are beginning to question the advisability of regarding steel as a universal

material for the framework of structures. Both in this country and in the United States, steel has been employed in the construction of railways, steamships, bridges, office and warehouse and factory buildings, markets, theatres, exhibition buildings, chimney-stacks, water-towers, and water mains. For some of these purposes, there is no doubt that steel alone is perfectly suitable, and in others it is properly used to afford the strength required. But it is clear that the age of steel, as a universal material, is on the wane, and that a return is being made to masonry construction. This reversal has been commenced, and is being continued, by the introduction of artificial stone, formed by the combination of concrete and steel. Concrete alone is not an economical material, because it has high compressive strength and low tenacity. Hence, in the case of a beam, the upper part may be strained to no more than one-twentieth of its ultimate strength, when the lower part has reached the breaking point. This inconvenient property of concrete is remedied by imbedding steel rods at the part where tensile strain may be expected to exist in a member after erection. Considerable attention is now being devoted to the evolution of definite rules for the guidance of those concerned in the employment of the new material, but the following are the bases upon which all rational combinations of concrete and steel should be made. 1. The co-efficients of expansion of concrete and of steel are practically equal. 2. The adherence between concrete and



steel is very high, and a perfect bond exists when steel is imbedded in concrete. In fact, if a steel rod has a length of more than thirty times its diameter, it will break before it can separate from the concrete. 3. Concrete fully protects the steel against corrosion. 4. The ratio of the moduli of elasticity of concrete and of steel are as 1:15, so that if two fibres of concrete and steel, of the same length, be subjected to equal elongation, the resulting stresses will be in the ratio of 1:15. The theory of concrete-metal construction is now clearly enunciated, but economy and reliability can only be attained as a result of scientific design, and it is important that the new material should only be employed by those who are thoroughly acquainted with all essential knowledge.

COMPARATIVELY little is heard about the important irrigation works that, in one form or another, are constantly in progress in the Indian Empire. Moreover, the land itself is more or less a sealed book to most people in this country, even to those who take an intelligent interest in geography, but have only access to small scale maps. Two recent works, one completed and the other well in hand, may serve to indicate the valuable nature of the operations carried out from time to time by the Irrigation Department. The first is a weir constructed to facilitate the reclamation and irrigation of a large tract of territory, with an area of some eighty square miles, at the delta of the Bhādar River, which, rising in the Mandhāv hills, falls into the Indian Ocean at Navi-Bandār. Bordering the shore line are salt marshes, termed in India "ranns," to which the sea had free access until recent times. These marshes were originally shallow lakes, apparently formed by the gradual elevation of the shore, and in process of time they became silted up with alluvial soil brought down by the river. In the year 1895, a dam about 1,800 ft. in length was built, so as to exclude the sea from the greater part of the rann, and quite lately the weir already mentioned was executed, with the object of retaining the silt and of preventing its dissipation in the form of dust during the dry season. The new work is 600 ft. long, and resembles a regulating bridge, of the kind recently built in various parts of Egypt. The sill is capable of being raised by the aid of wooden shutters, and a navigation lock is provided at one end. The second undertaking to which we refer includes the construction of a large canal intended to provide perennial irrigation for the whole district between the Chenab and Ravi rivers, in the Punjab. This region includes an extensive area of Crown waste lands, and the scheme in question is one of the most important that have been undertaken in India for a long time. A very complete system of water distribution is being worked out both in Government canals and in the village watercourses, and there is no doubt whatever that the final completion of the works will result in an immense boon to the Empire.

It is generally recognised that the quantity of work derivable from the waste heat of the steam-engine is sufficient to justify serious efforts for its realisation. Experiments have

been made in Germany with a binary-vapour system, in which sulphur-dioxide is the secondary fluid, the physical properties of this gas rendering it particularly suitable for employment in such a manner. In addition to tests made upon binary engines at the Berlin and Charlottenburg high schools, a similar machine has been subjected to the test of practical use in one of the Berlin electric-lighting stations. In the last-named instance, the "waste-heat" engine is independent of the steam-engine. It receives the exhaust of the steam-engine and is so attached that the latter may be worked alone in case of accident, or intentional detachment of the auxiliary machine. This combination has proved to be particularly satisfactory, thus confirming in a practical manner the experimental results previously obtained. The cycle of operations in connexion with an engine of this kind is as follows:—Steam exhausts into and is condensed in a condenser, the heat given up serving to vaporise the liquid sulphur dioxide contained in the tubes; the sulphur-dioxide vapour then passes into the cylinder of the "waste-heat" engine, where it is used; the exhaust then enters a surface-condenser, where the sulphur dioxide is liquefied, and whence it is pumped back to the condenser first mentioned. Briefly summarising the results hitherto obtained, it may be said on one hand that the best examples of the best builders of steam engines consume about 11 lbs. of dry steam per horse-power-hour, equal to 11,000 British thermal units per hour, and to 0.75 lbs. of coal per hour; while on the other hand, the combination heat-waste engine is capable of reducing the consumption of steam, heat and fuel to 8.35 lbs. of steam, 10,000 B.T.U., and 0.66 lbs. of coal. Those interested in the introduction of this engine believe it to be so far perfected that nothing stands in the way of its general adoption, and that apart from new installations, considerable advantage will follow the application of the system to existing steam plants. Later experience will indicate whether depreciation, accidents, and interruptions of operation are likely to be greater or less than in the case of well-constructed steam engines.

In countries where water power is conveniently provided by Nature, there is more excuse for neglecting blast furnace gas as a source of energy than is the case in Great Britain. So long as coal has to be employed for the development of power in steam and gas engines, it will be hopeless to anticipate the distribution of electric current for industrial and domestic purposes at low rates. There are, however, great possibilities in blast-furnace gas, as the following figures will serve to demonstrate. Using round numbers throughout, the weight of coke consumed in making each ton of pig-iron is 2,000 lbs.; the weight of gas produced in the blast furnace, and derived from fuel, ore, flux, and air blast, being, say, 10,500 lbs. per ton of pig. The calorific value per lb. of this gas may be safely taken as 1,000 British thermal units. Various records show that it will be reasonable to assume that 25 per cent. of the heat energy contained in the gas can be realised in effective power by the employment of internal combustion engines, and, on the basis of 778 foot-pounds per B.T.U., as the

mechanical equivalent of heat, we have 2,545 units as the equivalent of one horse power. Hence 10 lbs. weight of gas is required per horse power hour. Deducting from the total weight of gas produced per ton of pig, the amount required for heating the blast, say, 1,800 lbs., we have left 8,700 lbs., which is equal to 870 horse power per ton of iron produced per hour. From this may be deducted, say, 220 horse power for actuating blowing engines and other auxiliary machinery, leaving a surplus of 650 horse power available for useful work. The production of pig iron in Great Britain is considerably above 1,000 tons per hour, but taking that figure, the total surplus power for the whole country is found to be 650,000 horse power. At the present time, coal-fired boilers are still used in blast furnace plants for the operation of engines and pumps. This is a wasteful practice, requiring immediate abolition, and afterwards means should be devised for making use of the tremendous amount of energy which is now continuously and absolutely wasted.

Sanitary Regulations and Houses Let in Flats. SECTION 94 (1) of the Public Health (London) Act, 1891, confers on the Sanitary Authority the power of making by-laws for the regulation of the number of persons who may occupy a house which is let in lodgings or occupied by members of more than one family. In the recent case of *Kyffin v. Simmons* the Divisional Court decided that what constituted a "house" within the meaning of this Section was a question of fact to be determined by the magistrates, but in these days, when flats and tenement houses are becoming daily more used, it appears that some intimation by a superior Court on the principles to be considered in determining this question of fact would have been acceptable as diminishing litigation and securing some uniformity in decisions. As it is, the decided cases furnish no principles. In *Kyffin v. Simmons*, the house was capable of being let rather as one house, or in flats. Each floor had one door to the staircase through which access was obtained to all the rooms on that level, but the sanitary conveniences were common to the whole house when let in flats, this was held to be within the Section. But in *Weatherett and Cantley*, a block of artisans' dwellings in which there was a common staircase and in which the sanitary conveniences were used in common by the tenants of three and four tenements, an opposite conclusion was arrived at. The principle on which the Divisional Court in that case seems to have acted was that the building had, strictly speaking, no front door, each tenement being shut off from the common staircase by its own front door, but this is hardly a satisfactory guiding principle, and in that case the Court submitted the Section was difficult of interpretation since the occupation of one set of rooms by lodgers or by members of more than one family might suffice to bring the whole building within the Act.

BURLEIGH-STREET stands on Burleigh-street, Strand, the site, in part, of Cecil, since Exeter, House, the home of Sir William Cecil, afterwards Lord High Treasurer. Stow says that the house had been originally built on the site of St.



Martin's parsonage house and its close, by Sir Thomas Palmer, temp. Edward VI. On his attainder in 1 Mary the property passed to the Crown. Queen Elizabeth bestowed it upon Lord Burghley, who enlarged the house, and on July 19, 1561, gave a great entertainment there to his Sovereign. Nine years afterwards he leased more ground from his neighbour, the Earl of Bedford. The house and grounds extended from his descendant, Sir Edward Cecil's mansion, Wimbledon House (at the corner of Wellington-street), to the Earl of Bedford's (Southampton-street). Norden writes that it was a very fair house, raised with bricks proportionately adorned with four turrets placed on the four quarters of the house. Cecil House, wherein Evelyn was arrested and for a while kept a prisoner for observing Christmas day, 1657, "the superstitious time of the Nativity," became the home of the first Earl of Shaftesbury, and the birth-place of his grandson, author of the "Characteristics." During six years after the Great Fire, it was used for the Courts of Doctors' Commons, and ultimately gave way to Barbon's Exeter Change which, until 1830, projected into the Strand at the south end of the present Burleigh-street. The two Corinthian columns drawn in G. Cooke's view, and other materials, belonged, reputedly, to the older building. J. H. Burn, quoted by Timbs, avers that at the demolition of the Change in 1830, he saw "Exeter Change, 1670," cut in the stone architrave above the window at the east end. The date is noteworthy as being much earlier than that commonly stated for the alteration of Cecil House as the Exeter Change.

#### THE Directors of the Lyceum Theatre will offer for sale at the Mart on Thursday next—

a day which a newly-formed Society will celebrate as "Shakespeare's Day"—the freehold property, covering more than half an acre, which comprises the Lyceum Theatre, and Nos. 33-7, Exeter-street, and 21, Wellington-street. The present theatre, a successor of one of the oldest playhouses in London, was opened for English Opera on July 14, 1834, having been built at a cost of 35,000*l.* from plans and designs by Samuel Beazley, who had been architect of the former theatre, built in 1816, at a cost, it is said, of 80,000*l.*, and consumed by fire on February 16, 1830, of which the site was shortly afterwards taken for the laying-out of Wellington-street as an approach to Waterloo Bridge. In a letter written at No. 29, Soho-square, to the *Times* (July 16, 1834) Beazley mentions his builders, Grissel & Peto, and replies to some criticisms that had been made as to his alleged omission of a gallery staircase. He points out that for security's sake

"all the entrances, together with wardrobes, green-rooms, dressing-rooms, and offices, are placed on the outside of the main wall of the theatre, and the staircase to the gallery is in that compartment on the north side . . . [as yet uncompleted for Arnold]."

Beazley built a new green-room in 1838, and a room at the Lyceum for the recently revived "Sublime Society of Beefsteaks," founded at Covent Garden Theatre by Rich and Lambert in 1735. The original Society, whose effects were dispersed at Christie's in April, 1869, had migrated to the (old) Lyceum in S. J. Arnold's time, and in 1838

to a suite of rooms entered from Exeter-street in the present theatre. Twelve years ago C. J. Phipps carried out some alterations of the house, with new entrances and exit-doors, and an enlargement by the taking in of the two restaurants on either side in Wellington-street. The first house, opened as an academy under that name by the Incorporated Society of British Artists, and of which Garrick, fearful of rivalry, bought up the lease, stood in the Strand near the existing south-east corner of Wellington-street. It was bought in 1799, by Lingham, of the Strand, a breeches-maker, for musical performances, and rebuilt on an extended site in 1795-6 for Dr. Arnold, the composer, whose son enlarged the premises in 1809 for his English Opera and Ballet House, which gave way to the former theatre by Beazley. It appears that the sale arises from the shareholders' unwillingness to expend 15,000*l.*, or more, upon certain structural alterations required by the London County Council. On July 12, 1901, we gave the particulars of Sir William Emerson's award in the arbitration before him as between the proprietors and the Council.

#### MAGAZINES AND REVIEWS.

THE *Magazine of Art* is a most interesting number. Mr. Wylie's third article on "Nature's Laws and the Making of Pictures"—in other words, on the principle of seeing landscapes and objects in perspective, deals chiefly with marine subjects and the placing and drawing of ships in reference to the spectator's position and the direction of the wind. In regard to this latter point he shows, what we think is sometimes overlooked, that the direction of the wind and the manner in which it influences the pictorial position of sailing ships and the direction in which smoke seems to blow from steamers, is all reducible also to the theory of the vanishing point for parallel lines; in his fig. 2 the smoke seems to blow to opposite sides from the steamers to right and left of the "wind's eye," the natural effect of perspective of parallel lines; yet one can imagine the careless spectator saying—"He is making the smoke blow opposite ways." All this article should be studied by those who are painting ships at sea. Again, for the drawing of water: "you can suggest the heave of a big wave if you make the rump and the ripples vanish to different points higher up or lower down, according to the slope you wish to represent." In this article the references to the numbered sketches are all clearly given. Mr. G. H. Palmer, keeper of the Art Library at South Kensington, contributes an interesting article on the history of the Campanile at Venice, illustrated from various old engravings of different dates. In a paper under the title "Strangers within the Gate" (the subject of a drawing which suggested the article), Professor Herkomer gives an interesting analysis of the genesis and working out of a picture. In the course of this he comments on the mistake (to which we have before drawn attention) of confusing that which is of value as a study for the artist with that which should be exhibited as a picture. "When the human model is simply used for pictorial experiment, and the title of 'picture' is given to the result, a great want must be felt by all thinking people." There is a fashion for publishing artist's studies now, and in the pages of an illustrated magazine this is all very well; but mere studies are out of place in an exhibition; it is like offering to the public, as an end in itself, that which should have been only the means to the end. "Artistic working-out is the crux of art, and the sustained effort proves the master. And let it be understood that so-called impressionistic work is contained in all great art work." That is the true philosophy of "impressionism," when seriously assumed as constituting a school of art. It merely consists in offering to the spectator the unfinished conception instead of the finished work. The same issue contains an article by Miss Crozier on Mr. Percy Anderson's work as a designer of theatrical costumes. Under

"Notes and Queries" Mr. G. Clausen contributes a very sensible letter on the true value of Mr. Raffaelli's solid oil colours, which he rightly characterises as very useful for sketches and studies but in no way calculated to supersede oil and the brush. "Painting," as he says, "is not an easy art;" and no new medium will make it so. The criticism comes with the more force from Mr. Clausen, as he has himself made important experiments with the new material.

The *Art Journal* opens with an account, by Mr. J. Morris Moore, of "The Royal Raphael Academy at Urbino," or, strictly speaking, of the history and sculptural decorations of the beautiful Renaissance mansion, formerly the home of the Counts of Montefeltro, and now the home of the Raphael Museum and Academy. The details given represent the most beautiful type of work of late fifteenth-century Italian Renaissance. An article on the Loukmanoff cartoons of Raphael's tapestries, offers very strong reasons, as put here, for the belief that these, and not the South Kensington set, are the real work of Raphael; but the article seems rather written in a spirit of advocacy, and we should like to have what facts and arguments can be adduced on the other side; and we may add that the subject is one on which we should rather desire the handling of an accomplished artist than that of the lady amateur who contributes the article. As put here, however, the argument against the authenticity of the English set of cartoons is certainly strong. Mr. R. E. D. Sketchley contributes an article on Blake's wonderful series of designs for the Book of Job—designs, which, in their strange and mystical symbolism, seem almost as if they must have come to us from the far-off early world of religious thought to which the Book itself must be attributed. The author hardly does justice to the wonderful expression of the countenance of Job in the subject where Elihu is speaking; it is not that Job is "docile to Elihu's leading;" it is far more than that; it is the enlightened expression of a face on which hope has dawned at last. Mr. Sketchley draws full attention to the remarkable symbolism of the decorative borders.

The "Easter annual" published in connexion with the *Art Journal* deals with the works of Mr. Alfred Gilbert, and the editor hopes that it will prove of exceptional interest, partly because the artist's creations have been so seldom reproduced, and partly because of the popularity of the author of the article. The first is true, though the fact that Mr. Gilbert's works have been so seldom reproduced is entirely the fault of the artist himself, who for years threw every obstacle in the way of any one who wished to illustrate his work. As to the popularity of the author, it is a popularity only with what may be called the secondary class (intellectually of readers, and we cannot say that Mr. Hutton's opinions on Mr. Gilbert's work are of much importance to us. The fine collection of illustrations, with merely a brief biographical note, would have been more to the purpose. Nor is the sculptor's position benefited by the record of some of his rather captious conversations. Mr. Gilbert seems to have been especially sore because people would not understand that his design for the Shaftesbury Memorial Fountain was never intended to have any reference at all to Lord Shaftesbury. Then we can only say that it *ought* to have had. He was commissioned to design a fountain in memory of a great philanthropist. Anywhere in Paris (and French sculptors can hardly be said to be inferior to English in artistic perception) a monument designed under such conditions would unquestionably have had some obvious relation to its subject, either by symbolical sculpture or by inscription, or both. There was at first an inscription tablet connecting the fountain with Lord Shaftesbury, but it was abandoned apparently because the sculptor did not like its effect. In short, the monument which was commissioned in honour of Lord Shaftesbury was carried out by the sculptor with entire neglect of the object of the commission, which we cannot think right. With some faults, it is the only artistic street fountain we have in London, and we are glad to have it; but one cannot help feeling that it is not what the artist was commissioned to do. *An resto*, the number contains many fine illustrations of works which are among the most beautiful and original of modern artistic productions; but we should have been better pleased to have them without



the letterpress. We regret to learn that the sculptor destroyed the clay model, one of his earlier works, of the "Enchanted Chair," in our opinion a most beautiful and poetical piece of sculpture, well worthy of execution in more durable material. As it is gone, we are glad at any rate that we secured a good illustration of it—a much better and larger one than that in the *Easter Art Annual*.

The *Architectural Record* (New York) contains an article by Mr. Montgomery Schuyler on "The New White House, Washington," which is of considerable interest. The reader is not to suppose that the historic house of the President of the United States has been demolished and rebuilt; it has only been remodelled internally under the direction of Mr. M'Kim, the well-known architect, with some exterior alterations which are really a restoration of the original design; for Mr. Schuyler, who sketches the history of the building and of the rather bad treatment which it has received at different times, is of opinion that Mr. M'Kim's remodelling has to some extent been a return to the intentions of Hoban, the original architect, who appears to have known better what he was about than some of his improvers. Judging from the illustrations, the interior seems now to present about as fine and dignified a suite of reception rooms as one could wish to see, and it need hardly be said that all the architectural and decorative details are in the most unexceptionable taste. The aim has been to keep throughout the character of what is known in the States as Colonial architecture—i.e., the late English Classic which was transplanted to the new land during the Colonial period. At the end of the number is a description and illustration of the new grand piano made for the White House, designed by Messrs. J. M. Hunt and R. H. Hunt, and decorated by Mr. T. W. Dewing. The designers were commissioned to make "as beautiful a piano as they could," under no restrictions. The work would have been well worth a larger illustration (with details) than the small and inadequate one given with the article; but it seems to be a fine piece of work. The supports are formed by eagles with outspread wings perched upon short legs which form terminals beneath them; the sides of the wider (front) portion of the instrument are boldly carved with escutcheons and emblems; the receding portions are apparently inlaid with foliage scrolls of Renaissance type. What is done with the top is not shown. The whole is completely French in type, but there is a fine style about it, and it shows that in America, when artists are asked to produce a beautiful piano, they know better than to make it like an oak cistern with iron hinges. In an article on "Living in Paris on 3,000 Dollars a Year" (600*l.*) by Mr. F. Mazade (we presume he is an American as he estimates in dollars), we observe that the celebrated First Empire architects, Percier and Fontaine, are twice referred to as "Percier and Fontaine." One expects mistakes of this kind in a general magazine, but surely they should not occur in an architectural magazine.

The *Berliner Architektur-Welt* contains some interesting competition elevations for the treatment of galleries in the Berlin Art Exhibition. A gymnasium in Friedenau, by MM. Engelmann & Blunck, of Berlin, is a well-treated building. The detail of the gable of the premises of MM. Trunk & Co., in the Kronenstrasse at Berlin, by MM. Hart & Lesser, is a characteristic specimen of the horrors of modern German taste; to us in England it is really inconceivable how any architects could deliberately draw out such detail. It is shown on p. 21 of the number. We are glad to see on p. 32 some furniture of a more sober and rational style than the "art nouveau" work which is too prevalent in Germany now.

The *Architektonische Rundschau* contains plans and full illustrations of a fine building, the Karl Müllersche Public Baths at Munich, by Professor Hocheder of that city. This a building planned on a very liberal scale, and designed in a plain severe round-arched style, but grouped so as to produce a fine architectural effect. The principal swimming-bath, of which an interior view is given, is a fine hall, with a vaulted roof of elliptical section, decorated with an elaborate design in panelling. The substructure, with massive piers, between which is an arched gallery under which the bath is reached, is effective in architectural design. The other illustrations present nothing for special comment. The "Lindenhof," a

hotel at Berlin, by Herr Carl Sichel, is a good example of street architecture, somewhat Gothic in general feeling as well as in some of the minor details, though not imitative.

The *Century* has also its article on the White House—"The Restoration of the White House" it is here called; the article is an enthusiastic one by Mr. Charles Moore, and gives us some details as to the architectural and decorative treatment. He emphasises the point, which was also referred to in the *Architectural Record*, as to the increased dignity which the building has gained by simply restoring the flanking terraces and colonnades to their original architectural purpose; it appears that they had been masked and built up by greenhouses. This article confirms the impression given in the other one, that the interior as remodelled is now a very fine and stately one.

In *Scribner* Mr. Russell Sturgis writes, under "The Field of Art," on "How to Beautify the City"; that is, the American city in particular; but we cannot say that we gather anything very decisive from his article, except that he thinks centralised squares and vista lines matters of little importance; and in that we entirely disagree with him. An article by Mr. Clarence Cary on "Dalny—a Flat City," is interesting as information. By the odd phrase "a flat city" the author, we suppose, means a city built to order. Do our readers know where Dalny is? We certainly did not; it is the new terminus city of the Trans-Siberian railway on the North China Pacific coast, and appears to have been built and laid out in advance, for a large residential and manufacturing population, before the advent of that population; certainly, as the writer says, an unusual kind of enterprise in these days. To judge from the illustrations, it appears to be a horrible place, absolutely devoid of beauty or picturesque quality, the only things that are interesting and not hideous (because they do not pretend to be anything but engineering construction) are the dry-docks and wharves.

The *Pall Mall Magazine* contains, under the title "A Rescued Masterpiece," an account by Mr. E. Vicars of the antique statues fished up last year at Anticythera, with various illustrations of the beautiful figure which has been christened a Hermes, and of the method adopted of putting together the parts, fortunately little injured in themselves. We do not know the writer's name in connexion with Greek archaeology, but the article is said to be based on information given on the unimpeachable authority of M. Kavvadias.

The *Antiquary* contains the continuation of an article by Dr. William Martin on "The Law of Treasure-trove," a subject of considerable practical interest to archaeologists. The present number goes into the legal definitions of treasure-trove. An article on Mont St. Michel, by "W. H. D." is ostensibly a review of a recent publication, but is a suggestive and interesting article in itself, not a mere review. An article on "Some Essex Brasses Illustrative of Stuart Costume," with reproductions from rubbings of brasses, is furnished by Mr. Miller Christy and Mr. W. Porteous.

In *Knowledge* there is a correspondence between Mr. F. C. Burkitt and Mr. Antoniadi in reference to the assumption of the latter that there was an exterior cross on the dome of St. Sophia, of which Mr. Burkitt asserts that there is no evidence. It is partly a question of right or wrong translation of Paul the Silentiary's account, on which point honours seem to be divided. Mr. Antoniadi's translation of "ἐν πάσῃ," as signifying the modelling of the cross in the round, seems very unusual and far-fetched; γράφειν undoubtedly means, in one sense, to engrave, but it means engraving on or cutting into a plane surface, either of a drawing or a writing, not the modelling of any substance in the round. On the other hand Mr. Antoniadi's translation of ἐν πρὸς ἀποκρίσιν κορυφῆς—"above the most extreme Summit," is certainly more accurate than the late Mr. Swainson's "at the highest point," though that might pass as a free translation. In his St. Sophia article of this month Mr. Antoniadi gives reasons for thinking that the interior crown of the dome was occupied by a mosaic figure of the Saviour in a circle. In itself this would be a very probable supposition. If there were a cross on the exterior of the dome it would of course have been removed at the Mahometan conquest, but the traces of its former existence might in that case still be there. Has that been ascertained? The same issue of *Knowledge* contains a

thoughtful article by Mr. Walter Maunder on Dr. Wallace's article in last month's *Fortnightly*, "Man's Place in the Universe," to which we have already referred. Mr. Maunder considers, as we did, that Dr. Wallace's argument is illogical and not in the proper sense scientific.

#### ELY-PLACE, HOLBORN.

THE large block of offices and chambers now being erected by John Greenwood, Ltd., are planned and designed by, we are informed, Mr. Hyman H. Collins and Mr. M. Evelyn Collins as joint architects. The new buildings occupy the site of Nos. 15-20, the Fife Hotel, and Nos. 1-13, Ely-mews, with the dwellings in the rear, containing an area of 15,000 square feet. That freehold property, yielding a rental of 1,968*l.* per annum, was sold at auction on Feb. 23, 1901, for 36,500*l.* The seven houses in Ely-place, and those in the mews, were built in or about 1775 by Charles Cole, Surveyor to the Crown, as architect and builder of the present Ely-place, instead of, as was at first proposed, a new Fleet Prison, upon land which had vested in Christopher, Lord Hatton's son-in-law, Daniel, Earl of Winchelsea and Nottingham. The new chambers, on their south side, stand close to the Roman Catholic church of St. Etheldreda; and their site, with that of the mews, was formerly the pleasure and garden-ground of Ely Place, the "inn" in London of the Bishops of Ely. The relative positions of the former buildings lying on the south of the church are shown in the foreground of Mr. H. W. Brewer's two-page drawing—"A Monastic Suburb of Old London in the Sixteenth Century"—published in the *Builder* of January 1, 1898. To his description of the buildings we may here add that Bishop John de Kirkeby (obit 1290) bequeathed to his successors in the See a messuage and ten cottages there, on ground rising from the right bank of the Fleet. William de Louth added to the land and devised the property to the See in 1297 on a condition that divine service should be maintained in the chapel. John de Hotham, who died in 1337, planted the vineyard, kitchen-garden, orchard, &c., which are plotted in Agass's map; after his prebend to the bishopric in 1374 Thomas de Arundel reinstated the chapel erected in the closing years of the preceding century, and the Palace, and also built the Stone-gate in Holborn where is now Holborn Viaduct. With Agass's map may be compared A. Van Wyngaerde's view, taken about 1550, preserved at the Bodleian Library, and the bird's-eye view, 1572, in Braun and Hogenburg's "Civitates Orbis Terrarum." Of later drawings the best are those by J. Carter, S. Hooper, Royce, R. Godfrey, and Neale in the Guildhall and national collections. Though the Bishops of Ely made many attempts to recover their property after its enforced bestowal by Queen Elizabeth upon Sir Christopher Hatton, advantage was taken of Bishop Wren's long imprisonment in the Tower for the laying out of the greater portion of the northern precincts as Vine, Kirby, Cross, Charles, and other streets, Saffron-hill, Hatton-garden, Bleeding Heart-yard, and Hatton-wall. Sir Christopher's nephew inherited Hatton House (formerly Ely Place), and his widow, commonly called "Lady Hatton," who married the celebrated Chief Justice Sir Edward Coke, died there on January 3, 1646, defying her husband as well as the deprived bishops to the last. The latter established their rights to some extent; Bishops White, Wren, and Laney (or Lancy) lived and died there. During the occupancy of Bishop Patrick—1691-1707—a rent-charge of roof, upon the Hatton estate was created on behalf of the See, and a plot of ground in Hatton-garden was appropriated for a new chapel erected by Christopher, Lord Hatton, which is now the St. Andrew's parochial schools at the corner of Cross-street. In an indenture of conveyance executed on April 4, 1862, under which the Bishop of Ely and the Church Estate Commissioners convey the St. Andrew's schools in Hatton-garden to the surviving lessees, the schoolhouse, having a small burial-ground attached, is described as having been "intended for a church." The Act 12 Geo. III., c. 43, finally vested in favour of the Crown "the capital mansion-house called Ely House, situate in Holbourn, and the scite thereof . . . in order to erect thereon public offices," in exchange for a capital sum of 6,500*l.*, and a per-

\* See *Builder* of January 1, 1887.



retail annuity of 200l. to the occupant of the See, and the building of a house upon ground belonging to Lord Chetwynd in Dover-street, Piccadilly. In 1776-81 all of the old Place, the chapel excepted, was pulled down. The latter structure, which, in its general proportions, resembles St. Stephen's, Westminster, and La Sainte Chapelle, Paris, had meanwhile been put to baser uses; it had served in turn as a military prison and hospital (in the time of the Commonwealth), a soldier's canteen, and beer and wine vaults. In the earlier years of last century it formed a school-room and offices of the National Society, and then, having been opened on December 19, 1843, as a Welsh Episcopalian church, was acquired twenty-eight years ago for 5400l. by the Lazarist Fathers of Charity, and restored by Mr. John Young, jun., and Mr. Bernard Whelan, for purposes of divine worship. The oaken posts in the crypt supporting the floor above were replaced with stone pillars. The Duke of Norfolk presented, for the beautiful east window, some stained glass executed by Saunders & Co., after designs, based upon the older designs, by Lonsdale and Mr. F. Weeks. On St. Etheldreda's Day, June 23, 1879, the chapel was rededicated and reopened by Cardinal Manning. Mr. Bentley designed the Gothic screen and gallery at the west end for the organ (by Lewis & Co.); the stained glass representing the martyrs in the west window, where the tracery in the upper part remained, is by Mr. John Hardman. It is to be noticed that the chapel is depicted as without a roof in R. Godfrey's print of 1775. In the course of the repairs in 1875 the timbers of the roof were found intact but concealed by a segmental ceiling of plaster. The removal of the slates in a line up to the ridge disclosed the original timber roof built after the simple manner of the period.

"Its construction is that of a coupled-rafter roof. There is no ridge-piece, and no longitudinal tie except the two wall-plates and the external boarding. The rafters, averaging 8 in. by 6 in., laid flat-wise, are about 9 in. apart. There is a vertical strut framed into the inner wall-plate and the rafters, and above are cross-pieces and a collar, all about 8 in. by 4 in. All the pieces are united by double tenons and secured with projecting wooden pegs. The material used appears to be chestnut-wood [*Quercus castanea*] and is in good preservation."—*Builder*, April 24, 1875.

#### THE KING'S SANATORIUM SCHEME.\*

It is hardly too much to say that the awards of the Advisory Committee in the great competition instituted by his Majesty the King for the best essay and plans for the erection of a sanatorium in England for tuberculosis, were awaited with the keenest interest in all parts of the civilised world by those interested in the open-air movement. The facts of the case are fresh in the memory of all, but perhaps few of the general outside public realise what a great conception it was—this determined effort of a great ruler to be the means of restoring health to thousands, and to prevent ill-health to hundreds of thousands more. Consumption is our national disease, and modern research has shown that it is preventable and curable if the people would but learn the lesson lying ready for their use. No more potent means could have been devised for driving home this lesson to the masses, and, when the history of the twentieth century is written with the perspective of years, surely this great effort to stamp out a fell disease will be appreciated at its full and true value.

The competition was open to medical men of all nationalities, and the Advisory Committee contained the names of the highest medical authorities in England, and the prize essays and plans will be read and studied by every public authority striving to eliminate the disease.

The movement is spreading with wonderful rapidity, and fresh impulse must be given to it by this evidence of his Majesty's thought and care for suffering humanity; the opinions,

\* The three Prize Essays. 1. "The Erection of a Sanatorium for the Treatment of Tuberculosis in England": By Arthur Latham, M.A., M.D., with whom is associated as architect, A. William West, deputy treasurer of St. George's Hospital. 2. "The Erection of a Sanatorium in England for the Treatment of Tuberculosis": By F. J. Wethered, M.D., F.R.C.P., Lond., with whom are associated as architects, Messrs. Law and Allen, London. 3. Essay and Plans for the Erection of a Sanatorium for Tuberculosis: By Egbert Colby Morland, M.B., B.Sc., Lond., in association with Geoffrey Morland, architect. Published in the *Lancet* of January 2.

therefore, of the prize-winners will be received as the final and most weighty yet recorded, and as such will have a very important bearing upon the immediate future of the movement. It must have been the wish, not only of every competitor, but of every interested individual, that the prize essays and plans should be as near perfection as possible, and that the result should go out to the whole world challenging criticism without fear.

In any case, we must expect a flood of criticism upon these essays and plans; partly, no doubt, from disappointed competitors; partly from those whose practical experience of open-air sanatoria is in direct conflict with views expressed or dicta laid down therein; and partly from those, who, having a clear grasp of the subject, and taking a broad and impartial view, will judge the essays on their self-evident merit or the reverse.

It is therefore a matter for much regret that of the three prize-winners the third alone has apparently had practical experience. The two first are, it is true, attached to the Brompton Hospital for Consumption, but Brompton is not an open-air sanatorium.

"Brevity will be an important consideration" was one of the conditions laid down, and on this ground it is difficult to see why the first essay is not put out of court. It is an exhaustive inquiry into the history of the treatment and cure of tuberculosis, together with the plans for alternative schemes worked out in detail, supplemented by no less than twenty appendices and thirteen sub-appendices, twenty-five of which give statistics of various sanatoria. These may have had a considerable bearing on the award, but the method obviously places at a disadvantage those competitors who more strictly adhered to the conditions. The method is the more striking when it is seen that the authors of the second essay preface it by the statement that—

"The principles of the treatment are so well known to members of the Committee that we deem it unnecessary to enter at length into theoretical considerations. The main problem resolves itself into the preparation of architectural designs to meet medical requirements. A few preliminary observations are necessary, however, to indicate the basis upon which we have formed our plans."

The third essay follows on similar lines to the second in this regard, and all the remaining five competitors named by the Committee as worthy of honourable mention are associated with architects, and therefore presumably submitted careful plans. The deduction is, therefore, that the plans of the proposed sanatorium were the chief consideration in the eyes of competitors, inasmuch as such plans are the direct expression of their views "on the medical requirements."

It is the plan, then, which must be criticised, for it is only reasonable to suppose that each medical man considers his plan the correct embodiment of his opinion, and is prepared to abide or fall by it. The outward expression of the medical requirements is carried into effect by architects, and their interest in the movement is not less than that of the medical profession.

The following criticisms are from the constructional, or architect's, point of view, and are not intended to express any opinion upon the correctness of this or that treatment.

Let us, therefore, first take a general comparison between the three essays and plans before proceeding to a detailed criticism of each. The result is surprisingly disappointing, for the views and plans of the two first are in marked conflict on most essential points, while the third differs from each of the other two in many respects. The effect on the mind is confusing.

If A condemns and B strongly advocates a certain feature, such as the verandah or Liegehalle method, which is right? Apparently A, in the opinion of the Committee, because he is placed first. But, if he is right, why is B, second? And if both systems are right each competitor is wrong in condemning the other, which at once weakens the whole case.

It is well, then, for us to take in order the features advocated by No. 1 and condemned by No. 2, and it will be seen what a terrible state of confusion the man will be in who attempts to piece out the right from the medley spread before him. For the sake of brevity, the essays will be referred to as Nos. 1, 2, and 3.

No. 1 advocates the separate block system, and says:—

"Although our plans have been drawn up from

the point of view that the system of several separate houses is the best, we have added an alternative plan, which embraces the same principles on the one block system, in case either the site or financial considerations should necessitate its adoption."

But is this not a contradiction in terms? How can a separate house system and a one block system be on the same principles? Surely it is just the principle which is radically different?

No. 2 frankly embraces a one block system, having an almost unbroken front of 700 ft., and in this regard the authors say that the detached blocks or cottage system is attractive, but for various enumerated reasons recommend the erection of a two-storied building. Clearly, in their minds, the two systems are not on the same principle.

No. 1 contends "there is no danger from constant exposure in England," and strongly advocates the patients being acclimatised to exposure

"for his life, not only when in a sanatorium but ever afterwards, depends on his being hardened and on his becoming habituated to an open-air life of every and any degree of inclemency."

No. 2 insists on an elaborate system of heating on the low pressure hot-water system with radiators in every conceivable place, even on the verandahs, as this latter plan "adds greatly to the comfort of the patients as at any time they can remove their couches close to the radiators and obtain warmth if the air feels chilly." Also they refer to the advantages of a brick or stone building over wood as the latter cannot "be so easily maintained at an agreeable temperature."

No. 1 "That the use of recreation rooms or other places of assembly such as churches, must be restricted within narrow limits, and everything avoided which is calculated to tempt patients to stay indoors." And in passages too long to quote fully it is stated that "great injury may result from free indulgence even in such apparently trivial amusements as games of cards," and that "when patients understand that indulgence of any kind retards their recovery they readily adapt themselves to the necessary discipline," though occasional short entertainments and amusements, such as photography and botany, are advocated, and a recreation-room and a small library are provided.

No. 2 takes an entirely contrary view all through; in fact, a great point is made of the monotony of the treatment. "Life in the sanatorium" should be "rendered sufficiently varied and attractive (without detriment to medical details)," and further, "the last-named condition," viz., recreation, "has been greatly overlooked," both in English and foreign sanatoria, and they have made special arrangements to render the time spent in the sanatorium as comfortable and cheerful as possible, and provide a huge recreation-room, with a billiard-table and bagatelle-board (especially condemned by Nos. 1 and 3), as well as a chapel (if required by the Committee). In fact, the recreation idea has a great influence on both their treatment and plans.

No. 1 contends that "a few open-air galleries are of service, but nothing approaching the Liegehalle system should be erected," and adduces cogent reasons against the adoption of a long verandah.

No. 2 provides a deep verandah along the whole 700 ft. of frontage, and insists on the importance of this feature.

Many other points of contrast could be enumerated, but enough have been given to show what a striking difference there is, both in method and in plan, between Dr. Latham and Dr. Wethered; a contrast which careful perusal of the essays only serves to heighten. It seems evident that the Committee deliberately chose these essays for this reason. But the impartial observer naturally wonders which they consider right, for as has been already said, either one is right and one is wrong, or both methods are correct. In the latter case, why is one placed first, for both essays are so far wrong that each considers its particular tenet only in the right. In any case, the direct contradiction in terms must serve only to darken counsel in those who would learn from these selected essays.

Let us now consider each plan, and see how far it carries out the views of its authors. The plans attached to the first essay are difficult to criticise, inasmuch as there are two complete

\* The italics are the essayist's own.



schemes, and, as previously shown, these, despite the authors' statement to the contrary, are each on an entirely different principle; are, in fact, as widely different as such plans well can be; and the Committee have not enlightened the public as to which plan they considered best. The separate block system is the one favoured by the authors, and shall be considered first. The system consists of a central administration block, connected at each end by a curved covered way with a block for thirty-six male and thirty-six female patients on left and right respectively. The extremities of these latter blocks are again connected by similar ways with a block for paying patients on the left, and a block for sixteen patients in bed, on the right. The extreme distance from the administration block to the end of each wing is at least 1,000 ft. It is hard to see how four medical men can "constantly supervise" 100 patients spread over such an enormous area, especially when we are told that "during three months of the year one or other of these will be away" on leave! Yet the conclusion arrived at by the authors in their essay is—

"The buildings of a sanatorium should not extend over so large an area that effective medical supervision is in any way interfered with."

The block for twelve well-to-do patients is a small sanatorium in itself. It is entirely self-contained, and the authors generously provide for each patient not only a bed and sitting-room but a bathroom and water-closet as well, a "superior accommodation" indeed, as the conditions asked for, but hardly in accordance with another condition, "that economy in construction will be an important consideration." The block for sixteen patients in bed who must consequently have every particle of food brought to them is not provided with a kitchen of any kind. The authors specify that food will be brought in Swedish cars from the main kitchen (at least some 1,000 ft. distant)! It will traverse one half of the administration block, the two covered ways, and the entire length of the thirty-six female patients' wing. Consider the service and labour involved in feeding these unfortunate individuals so far removed from the administrative!

If we now pass to the administrative block we find that the arrangement of the plan contradicts the dicta laid down in almost every single particular. The dining-room has staff-rooms and bedrooms on either side of it, and part of it is inadequately ventilated. The nurses' bedrooms are sandwiched in between the upper parts of the recreation-room and dining-room, which so project in front of them that sunshine and air for the nurses must be seriously curtailed. The medical men's rooms are so placed between the dining-room and another projecting wing that they have but a limited outlook over grounds and buildings, and yet we are told that "the quarters of the medical staff should as far as possible overlook the grounds." The maid-servants' bedrooms, of which only five are shown in the administration block, would in two instances disgrace a third-rate hotel. These have internal walls and top lights only! While a distinct feature of this building is the indiscriminate way water-closets are dotted about in every direction, and dead spaces are called "stores." Mention must also be made of the matron's rooms, which are too badly placed to pass over. Her sitting-room faces west, but her bedroom has a north aspect only, while a bathroom and water-closet open immediately off it.

But the kitchen department is probably the climax of this unfortunate plan. The remarks on kitchens are so strong that it is impossible to refrain from giving them at some length. In one of the many flattering references to members of the Advisory Committee scattered throughout the essay, Sir R. Douglas Powell is quoted as having said that "the sanatorium cook is second only in importance to the physician," and we are told that the diet must range from the fever diet of a hospital to the full diet of plain and wholesome food, and, finally, that the "kitchen and larder and other offices should be dry and well ventilated and free from any source of contamination." What we find is that the larder and pastry-larder open directly out of the kitchen, with consequently inadequate ventilation, and in immediate proximity to brushing-room, boot and knife-cleaning rooms; and the scullery is so arranged that a minimum of light and air can be obtained. The cook is clearly considered of so little importance that the kitchen is the only room provided for her use, while the whole

department is inconveniently and inadequately planned. One would like to know, for instance, what provision is made for milk after it is received from the farm. Is it kept in the meat larder or the pastry? Or does it stand in the kitchen? Considering that a column and a half is devoted to the "nature of kitchen requirements," &c., the omission of a milk larder is, indeed, striking.

The service block contains the engine and accumulator rooms, water tank, refuse destructor, laundry, mortuary, icehouse, and animal house, and, from what has been already seen, it is not surprising to find the laboratory and research rooms here also! This means that the admittedly very dirtiest and dustiest place in the whole establishment is deliberately selected for the position of the building in which the most minute and delicate operations of research will be carried on, for the three research room windows look on to the yard into which come

"infected rags, paper, old mattresses, pillows, dusters, &c., which are no longer required, together with the various forms of dust and refuse, and their receptacles," which "should be dealt with in a dust-destructor attached to the engine-house."

The alternative plan submitted in the event of the foregoing proving too costly (or perhaps not appealing to the Committee) it is impossible to take seriously. It is more charitable to conclude that the authors prepared it as an after thought, and do not put it forward as in any way exemplifying the views expressed in their essay.

The building is arranged in one long front with inclined wings with the administration block projecting considerably forward in the centre. The dining-hall is at the back of this latter, between it and the kitchen block, and so placed that, except in the summer months, it can obtain little or no sunshine. The kitchen arrangements are on the same lines as before, but in this case servant's bedrooms are arranged over larder and scullery, while over the pastry larder is a servant's water-closet and bathroom, which means that the bath waste discharges on to a trap immediately beneath the pastry window; water-closets are again interspersed with "stores."

The dining-hall occupies a central position between the kitchen block and the administration, without any cross-ventilated passage in between either; it opens, in fact, directly off the entrance hall corridor, in direct opposition to the advantages claimed in the essay for the other method, where the air of the dining-room is referred to as "contaminated." But the most inexplicable feature in this plan is an enclosed court round which the administration block is arranged. Now the air in an enclosed court cannot be of the purity and freshness so much insisted on by Dr. Latham, both for patients and staff. In spite of his saying that the medical officers should be, if possible, so placed that their rooms command the grounds, he actually places four of these rooms looking into the court only, while the four others look on to a sanitary tower and the back of the female patients' wing. In view of the fact that "in most sanatoriums as time goes on a large proportion of the staff consists of former patients," the exceedingly poor accommodation provided throughout for doctors, matron, and staff, is a serious blemish.

In spite of the restrictions on recreation in the text, such as deduction No. 10 in the "tabulation of requirements to be met by a sanatorium" that—

"No provision so far as the buildings are concerned need be made for amusements beyond an entertainment-room, which may also serve the purposes of a library,"

and the fact that in the first scheme only one recreation-room and a small library are provided, in Dr. Latham's second scheme he provides a large recreation-room, over 50 ft. square, with a large bow window, but apparently partly ventilated from the court, and two large libraries only 10 ft. high, though over 30 ft. square, with big angle bays, the whole projecting, so that they completely shut out morning or afternoon sun from the patients' rooms on either side. It may be also mentioned that the five or six medical men have a library and billiard-room over the patients' libraries, and these two rooms together equal in area at least eleven patients' bedrooms.

Other points might be named, such as servants and nurses bedrooms above patients' rooms, and the scattered way they are arranged. Little or no convenient provision for cleaning

patients' boots, and the general inattention to efficient and effective service; but probably enough has been said to show that neither plan correctly gives expression to the statements laid down, while in some ways the second plan is in conflict with the first, and certainly does not bear out the authors' view that in principle they are one.

It has been already shown that the first and second essays and plans are at complete variance in many important particulars. Let us now see how far Dr. Wethered has been successful in making his plans and essay agree, and whether the plan at all fulfils the superior advantages claimed for it. In type the plan is somewhat similar to Dr. Latham's No. 2, namely a one block system, consisting of a central building, with segmental two-story wings, the well-to-do patients being placed in the centre, with the administrative block and kitchen offices centrally placed on the north side, the latter being connected with the main building by a corridor.

"Fifty single bedrooms are placed on the ground floor (six for well-to-do patients and forty-four for the more necessitous classes), and a wide corridor running at the back gives access to each room. As will be noticed on the plans, each of the room doors is situated exactly facing a window placed in the external wall of the corridor. This arrangement has been carefully considered and designed for the purpose of providing thorough ventilation, and is a point to which the authors wish to call the special attention of the judging Committee."

But this statement is not correct. The twelve rooms of the well-to-do patients (six on each floor) open on to the corridor, it is true, but immediately opposite them is placed the entire administration block. Two of these rooms on each floor are situated at the ends of cross corridors, one leading to the kitchen block; two are next the block dining-room, and almost opposite the entrance-hall of the institution; two are next the library; whilst four are next cloakrooms and immediately opposite staircases and lifts, where it may reasonably be inferred dust is most likely to be found. Consider then the dust, the noise, and the disturbance, especially as the food service for nearly the whole establishment passes these six ground-floor rooms. Almost the whole executive life is therefore carried on by means of this corridor, and the ventilation of this portion of the building will be largely through the fanlights over the doors of these "well-to-do" patients' rooms. Thus the above-quoted statement of the authors that each door exactly faces a window is at complete variance with the plan. When it is remembered that No. 1 and No. 3 consider it essential to place these well-to-do patients in an entirely separate and self-contained block the contrast is the more glaring.

"It will be noticed that every patient's room in the sanatorium faces south and all are well ventilated."

In spite of this statement the following arrangements are made for cloakrooms and boot-cleaning rooms, which are placed in each wing on right and left of the patients' entrance from the grounds:—

"On the left of the entrance from the grounds a large cloakroom fitted up with hat and coat hooks, boot-lockers . . . and which will be heated with hot-water pipes for drying the clothes, &c., in wet weather. The bootroom on the left" (*sic* ? right) "will be for cleaning the boots and store for any material the boot cleaner may require; this room will also be heated with hot-water pipes."

It is almost inconceivable that this dusty smelling bootroom has no outside wall, but is ventilated and lighted from the main corridor on one side and from the patients' stairs on the other, while a window to the cloakroom on one side of the entrance, and a window next the bootroom borrowed light on the other—and through which each will naturally ventilate—are in immediate proximity to patients' bedroom windows! Of what value, then, are the elaborate precautions against dust and the parade of pure air, when eight patients' rooms are thus situated.

Perhaps the most striking feature of this scheme is the liberal dining-room accommodation, no fewer than six being provided, as follows:—One for the well-to-do patients, one for the forty-four male patients, one for the forty-four female, one for nurses, one for matron, and one for the assistant medical officers, who, therefore, presumably are not expected to dine with the patients. The size of the dining-rooms for the forty-four patients is given as 35 ft. long by 18 ft. 6 in. broad;



mention of the height, however, is carefully avoided. It will scarcely be believed that the plans show this height to be only 10 ft. 6 in., the same, in fact, as the patients' bedrooms, which are 12 ft. long by 10 ft. 6 in. wide. Moreover, windows are only placed in one half of the room. That the authors have some dim perception of the inadequacy of this arrangement may be gathered from the following amusing note on their dining-room plan, "All windows to open!"

A patient's bedroom window is in immediate proximity to one of the dining-room windows, and the dining-rooms are not cut off in any way from the patients' quarters. Compare this with Dr. Latham's summary:—

"The dining-room and kitchen should be completely cut off from the patients' rooms; but no separate dining-room need be provided for the medical staff."

The authors of No. 2 say that in summer the plan of having meals out of doors "has been adopted in some sanatoriums with marked success." Quite so: and one would imagine they would therefore endeavour to provide a room or rooms for meals in which the purity of the atmosphere could be ensured. "A life spent in the open air," one of their first requirements, is hardly carried into effect by the adoption of such rooms as these. They make a great point of these rooms facing south; but surely this advantage is entirely discounted by the disadvantages enumerated above.

Two bedrooms, "which are intended to serve as isolation rooms," and to which patients could be removed "in order to secure greater quiet than can be obtained in the ordinary rooms, or in case circumstances should occur which should render isolation imperative," have been placed in close connexion with the recreation-hall on the second floor—a somewhat novel position, seeing that billiards, musical entertainments, and other forms of amusement are proposed to be held in this room. It would really seem as if they had overlooked the fact that in an open-air sanatorium windows are sometimes open!

As to the kitchen block, it would naturally be inferred that a kitchen that has to provide food for 136 persons would at least conform to the authors' description as being "large, well-lighted, and ventilated." We find, however, that it is completely enclosed on three sides and above, the remaining side being lighted only from a yard some 34 ft. wide and 56 ft. long, with two-story buildings on three sides and a meat larder in the centre. Here, again, we are not told the height, but the second floor extends over it, and over the whole of the adjoining offices, which are shown the same height as the kitchen, and this means that either there is enormous waste of space in the upper parts of these smaller rooms, or the height of the kitchen is entirely inadequate. The "head chef" is assigned a bedroom over the kitchen, and no less than seven of the nurses' and servants' bedrooms are 18 ft. long and less than 8 ft. wide; mention must be made of a water-closet which is also 18 ft. long, though but 3 ft. wide.

These may seem carping criticisms, but it must not be forgotten that this is the second selected essay out of 180, and if the authors and the Committee seriously consider that these plans express their views, it cannot be too strongly urged that such views are not "on the best lines which past experience and original thought can suggest," to obtain which the competition was inaugurated. Many other points might be adduced, but surely those mentioned are of such intrinsic importance that a scheme containing them is practically worthless. Dr. Wethered has stated in a paragraph already quoted that "the main problem practically resolves itself into the preparation of architectural designs to meet medical requirements," and therefore the whole value of his essay is bound up in his plans. It has been clearly demonstrated that the plans fail in nearly every important particular claimed for them. Of what value then is the essay?

It is refreshing to turn to Dr. Morland's essay, and to find that he, at least, does not claim more for his scheme than his plans show; indeed, it is an epitome of brevity and clearness. His opening paragraphs are worth quoting, for it is interesting to note that neither of the former essays refer even to the hut system, which Dr. Morland clearly considers ideal:—

"The Ideal Sanatorium.—In the opinion of the authors of this essay, the ideal sanatorium consists

of a series of isolated huts, with windows on all four sides, in which the patients spend their whole time except when they are actually out in the grounds; here they sleep and have their meals, breathing the while an atmosphere beyond the risk of contamination. On a small scale this appears to be practicable; but for a sanatorium of 100 beds, the difficulties of heating, of carrying meals, and of supervision over so large an area, render the scheme impossible with due regard to economy.

*The Compromise.*—The chief problem, then, is to effect a compromise whereby each patient's room obtains a maximum of sunshine and fresh air, and yet is so placed as to ensure economy of management. Hence the unit of our sanatorium is a room facing south, with unobstructed aspect, with a large window space, with a door on the north side opening on to a wide corridor in which there is a large window exactly opposite the door. These rooms occupy the whole south frontage and everything else has been made subservient to the one essential of providing that a current of pure air shall constantly flow through them."

The scheme resembles Dr. Latham's first, inasmuch as it is on the separate block system, but Dr. Morland does not weaken his argument by providing an alternative, and his scheme is far more compact and simple. The patients' blocks are entirely detached except by short covered ways, and separate buildings are provided for library, administration, dining-hall, kitchen block, and well-to-do patients, all, however, connected by short covered ways.

Separate buildings, but without covered ways, are provided for the engine block, laboratory, isolation, nurses, and chief medical officer. In disposition, therefore, these plans are markedly different from the others, and the following extracts serve to show how much this difference is accentuated when each part is considered in detail:—

*Library and Reading-room.*—This is the only common room provided for the patients, as it is intended that, apart from meals, they shall only meet in the open air."

Great care has been exercised in the planning of patients' cloak and boot-cleaning departments, which are so arranged that entry is from the outside only, though attached to the patients' blocks.

"Superior accommodation has to be provided for twelve well-to-do patients, and it was considered inadvisable for these to share a building or even to use the same corridors as the others. The annexe is designed for their accommodation and is complete in itself, except that the patients use part of the common dining-hall."

*Library attached to the Annexe.*—This again is the only common room provided for the annexe patients; the deprivation may appear to be severe, but it is the only really effective method of accustoming them to an outdoor life. A billiard-room is out of the question, as, under the conditions of the treatment, a table would soon be worthless."

The dining-hall is a detached, one-storied building, with an open roof, with linen-room, pantry, and servery on the north side, but so arranged that each table seats seven patients only, in order to facilitate classification; each table is under a window, the windows on the north side being above the pantry, &c. The kitchen is a top-lighted, one-story building, with windows on two sides, and the plans of this department generally fairly express what the authors claim for them; plentiful accommodation being provided for servants and stores. It will thus be seen what an important point the authors make of the ventilation of all these departments, contrasting most favourably with the provisions made by the authors of No. 2 in this respect. It must not be inferred that no adverse criticisms could be passed on Dr. Morland's plans, but they would be on minor points; the main fact remains that his essay accurately describes them, and the more they are studied, the more it is found that practical points have been everywhere considered, and the details are well arranged.

At the risk of repetition it is now necessary to enumerate the conclusions which can be fairly deduced.

1. (a) The first essay is anything but brief, is, in fact, an exhaustive inquiry into the history and cure of tuberculosis, which was not asked for, and has not been given in the next two essays.

(b) It contains the plans for two completely distinct and opposite schemes, neither of which entirely bear out the author's opinions expressed in the text.

2. (a) The opinions expressed in the second essay are almost diametrically opposite to the opinions expressed by the authors of the first and third essays.

(b) It resolves itself almost entirely into a

description of the accompanying plans, which, in many striking instances, have been shown to lack entirely the merits claimed for them by their authors.

3. (a) The third essay is brief almost to a fault, and is simply an accurate description of a plan for a sanatorium for 100 patients; but the authors consider that it is, at best, a "compromise," as 100 patients are too many for an "ideal sanatorium."

(b) The lines upon which they consider an ideal sanatorium should be constructed, containing less than 100 patients, are not even touched upon by the authors of the first and second essays.

Do these essays, then, contain "the most valuable opinions which the past experience and original thought" of 180 competitors can suggest, or have the inconsistencies of the first two essays and their respective plans escaped the notice of the Advisory Committee, who, as constituted, cannot be expected to be experts in mastering intricate plans?

Referring, then, to 3., a and b, it seems almost a pity that competitors were not invited to state their opinion on the number of patients an ideal sanatorium should contain. The number 100 was apparently determined by the Committee, and it is well known that the new Brompton Open-Air Sanatorium now building at Frimley will contain 100 beds; but this building is in the form of a X, a construction implicitly, or explicitly, condemned by the authors of all three essays.

The London Sanatorium at Pinewood, recently erected, is placed on level ground, with no prospect at all except the dreary sight and sound of the sighing pine; but prospect is one of the essential features of the treatment, equally insisted on by all three essayists. Moreover, fireplaces were inserted in each patient's bedroom—an arrangement since found impracticable, and again equally condemned by all three essayists. Serious mistakes, according to these essays, have, therefore, recently been made, and too much care cannot be exercised in the avoidance of them in the future.

The great importance of the competition does not so much lie in the fact that one sanatorium may be built on the basis advocated but that these essays and plans go out to the whole world ear-marked with the approval of the Committee, while the large number of competitors enhances their value in the eyes of the interested public. The bearing these views, then, will have for the next few years, at least, on the constructional arrangement of open-air sanatoria will be great; and it will, indeed, be a national calamity if the noble idea conceived by his Majesty fails to exert its influence in any direction but the very best.

X. Y. Z.

#### COMPETITIONS.

WESLEYAN CHURCH, SOUTHPORT. — The plans of Mr. F. W. Dixon, of Manchester and Oldham, have been accepted for a new Wesleyan church in High Park, Southport. The church, which is to seat 600 persons, is designed in Late Gothic, and will be built of Accrington bricks, with Yorkshire stone dressings. The cost is to be 4,000l.

METHODIST CHURCH, OLDHAM. — The plan of Mr. F. W. Dixon have been accepted for a new Independent Methodist church in King-street, Oldham. The church will seat 400 persons, and is to cost 3,000l.

#### ARCHITECTURAL SOCIETIES.

THE ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND. — A regular meeting of the Council was held at the Institute Rooms, 20, Lincoln-place, Dublin, on the 6th inst., Mr. G. C. Ashlin, President, in the chair. A letter was read from Mr. Fuller, dated April 3rd, on the subject of the duties of an architect. The hon. secretary was directed to reply that in the opinion of the Council it is not part of the recognised duty of an architect to sink trial pits, to ascertain the nature of the ground upon which a building is to be erected, although in exceptional cases he may, if he thinks it advisable, recommend this to be done at the expense of the employer. The Council consider that the system universally adopted at present is equitable, as the employer only pays for the work which is actually executed. A deputation from the Master Builders' Association waited on the Council on the subject of rules for tendering. The depu-



tation consisted of Mr. James Beckett, Mr. John Good, Mr. Kiernan, and Mr. Foley. A communication was read from the Institute of British Architects, dated March 28, on the subject of a Conference to consider the question of registration. The Council approved of the proposed reply submitted by the President. A letter was read from the hon. secretary of the Master Builders' Association of Ireland, dated April 1. The hon. secretary was instructed to reply that the Council consider a deputation premature at present, pending the receipt of the report of the Professional Practice Committee.

### Illustrations.

#### ANTE-ROOM DECORATION.

**H**IS shows the elevation of a scheme of ante-room decoration designed by Mr. T. Wallace Hay.

The wall is divided into panels and pilasters by mouldings, the decorated panels in the angles having for subjects "The Seasons," painted on vellum grounds in tones of brown and Limoges enamel blue. The smaller pilasters are in grey grounds, with ornaments in gold; the portrait heads being painted in Limoges enamel. Between these is a panel in painted

tapestry, having flower borders on deep blue ground. The dado rail is formed by mouldings into panels decorated in browns and Limoges enamel and gold. Under the cornice there are coved panels, decorated with a processional frieze in tones of blue on gold ground.

The doors are walnut with black panels and Limoges enamel decorations. The chairs are in walnut and gold; blue china vases flank the doors on either side.

#### HAGGERSTON PUBLIC BATHS.

WE give this week a series of constructional detail drawings for Haggerston Public Baths, Mr. Cross having kindly sent us tracings of these. This is a kind of illustration which we very much wish that our friends in the architectural profession would more often enable us to give. Nothing should be more instructive or more interesting to young architects than a set of working drawings for a building by an architect of experience; and we thank Mr. Cross for setting the example.

The buildings are now in course of erection by Messrs. Kilby & Gayford, whose contract amounts to between 50,000*l.* and 60,000*l.*

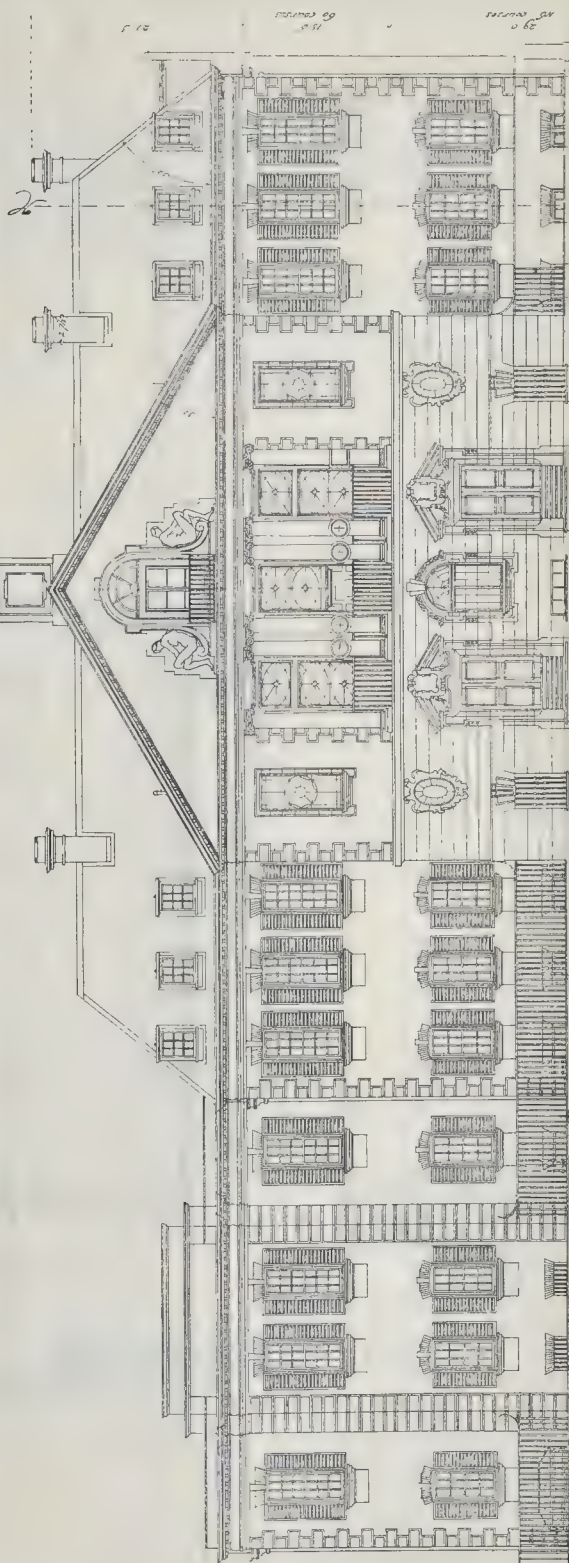
The accommodation provided comprises ninety slipper baths, a public laundry for sixty persons, and a swimming pond with a water area of 100 ft. by 35 ft. arranged on what is known as the amphitheatre system.

The building is heated by means of three Lancashire boilers placed in the basement; and a Green's fuel economiser, heaters, &c., are also provided.

Mr. Alfred W. S. Cross, of London, is the architect.

**PRIMITIVE METHODIST CHURCH, LOWESTOFT.**—A new Primitive Methodist Church is being erected at Oulton. Mr. F. W. Richards is the architect for the new chapel, which is being built by Mr. J. S. Youngs, of Oulton Broad. The building will be 40 ft. long by 28 ft. wide inside.

**WESLEYAN CHAPEL, LADYMOOR, STAFFORDSHIRE.**—Memorial stones were laid recently of a new chapel at Ladymoor, to take the place of the present one which has been wrecked by mining operations. The new erection is estimated to cost 1,000*l.*, and it will accommodate 250 persons, with the necessary classrooms and a vestibule. The front will be of Leicestershire sand-faced bricks and stone dressings. The architect is Mr. Moses Johnson, Wolverhampton, and the builders Messrs. R. Speake & Sons, Wolverhampton.

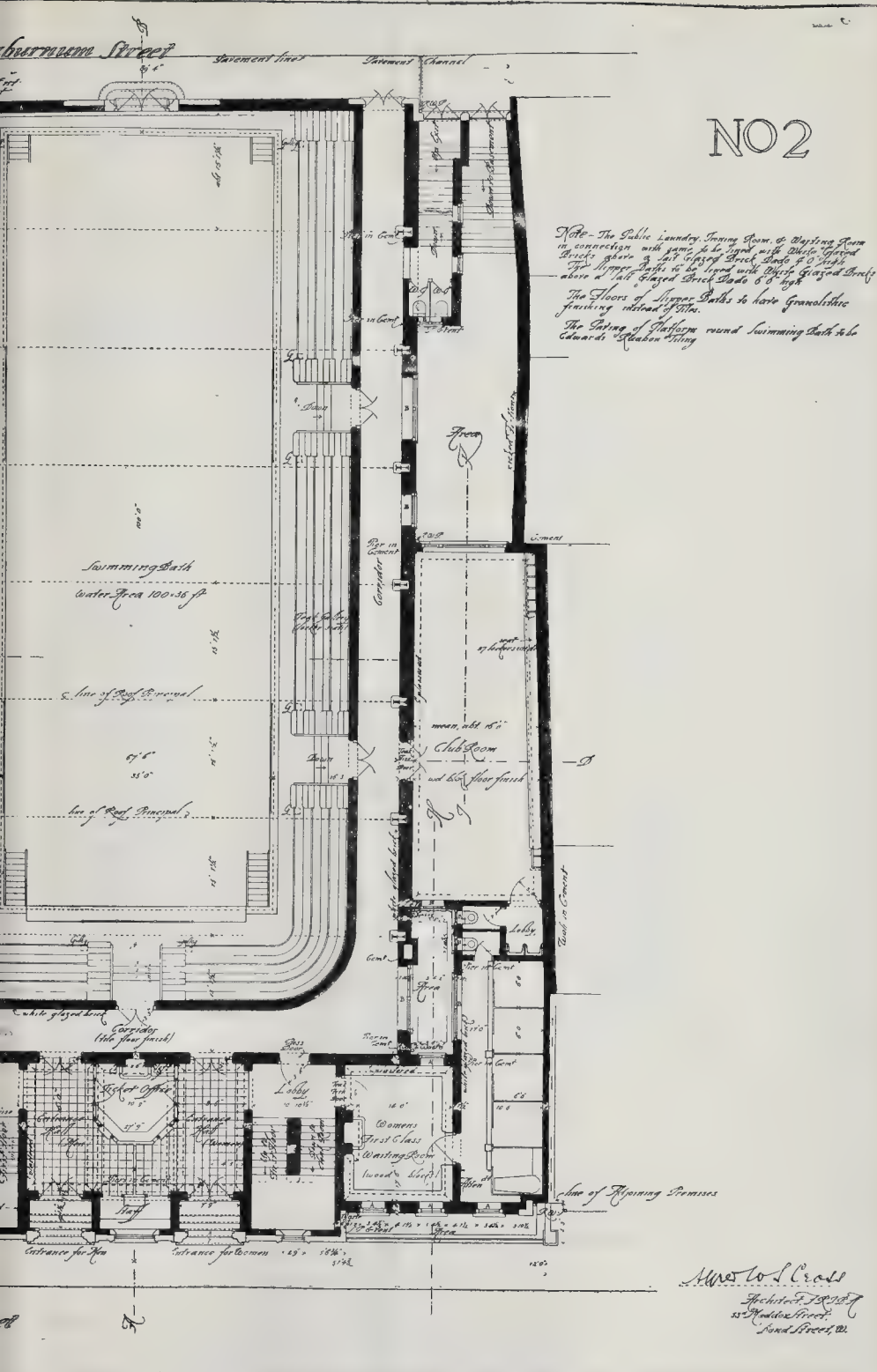


Haggerston Public Baths. General Elevation.











## ARCHÆOLOGICAL SOCIETIES.

ROYAL ARCHÆOLOGICAL INSTITUTE.—A general meeting of this Institute was held on the 1st inst., Sir Henry H. Howorth, K.C.I.E., President, in the chair. The following exhibitions were laid before the meeting:—A tally lent by the Nottingham Museum, and exhibited by Mr. Philip Norman, F.S.A.; a silver porringer, or cauld-cup, date 1683-4, and a stone-ware jug with silver-gilt mounts, date 1590, exhibited by Lady Reade, with note by C. J. Proctorius, F.S.A.; photographs of two Bedwardine tympana by the President; photograph of a curious tympana from Ulgham, Northumberland, by Mr. C. E. Keyser; and four eighteenth-century scratch-backs by Mr. C. Garaway Rice, F.S.A. Mr. R. Garaway Rice, F.S.A., read a paper on an illuminated pedigree of the "de Ferrers" family, made in 1612, and presented to the Worshipful Company of Farriers in that year. The pedigree was made by Robert Glover, Clerk of the Company, and freely given by him on October 8, 1612. The original pedigree, although in the possession of the Company as late as 1827, is now lost. In that year it was engraved by W. S. Jenkins at the expense of the Company. The copper plate is also now lost. Three copies of the engraving are known to be extant, viz., one in the possession of the Company, another is owned by Earl Ferrers (it having been presented to his predecessor in 1830), and the one in the possession of Mr. Rice. All of these have been illuminated. The pedigree consists of an elaborate genealogical tree tracing the Earldom of Ferrers from "Henrie de Ferrars or Ferrer, a Norman, whose came over with William the Conqueror, who gave to him the honor of Tutbury in the countie of Stafford" to "Robert, Earl of Essex and Ewe, Viscount Hereford and Bouchier, Lord Ferrer of Charley, Bouchier, and Lovayne, who is now living [1612] and keeps an honorable house in Staffordshire." There are also numerous shields of arms. In fifty lines of laudatory poetry in praise of the Farriers Company, Robert Glover attempts to show the connexion between the "de Ferrers" family and his company. Representations of nine instruments used in the art of farriery are worked into and form part of the decorative border. These form, perhaps, a unique series as showing the instruments in use early in the seventeenth century. They are upwards of seventy years earlier in date than those figured by Randle Holme in his "Academy of Armory and Blazon," printed in 1688. It would seem that there was thought to be some connexion between the Earldom of Ferrers and the Farriers' Company, even as late as 1830, for in that year the then Earl Ferrers, in a letter to the Master, expressed his intention "to send a present to the court of half a doe every year." It was in acknowledgment of this that the Company presented to the Earl a copy of the engraving of the pedigree. Captain Ferrers and Mr. C. J. Proctorius added a few remarks on the paper. Mr. C. E. Keyser, F.S.A., read a paper on Swalcliffe Church, Oxfordshire, and exhibited a series of photographs. Mr. Peers, Mr. Howorth, Mr. T. Blashill, and the President took part in the discussion that followed.

BRITISH ARCHÆOLOGICAL ASSOCIATION.—A meeting was held at 32, Sackville-street, Piccadilly, on the 1st inst., Mr. C. H. Compton, V.P., in the chair. The following articles were exhibited, viz., a fine example of a Pectoral, in silver, from Russia, by Mrs. Collier. A very fine specimen of a polished celt of dark grey whinstone, found by Dr. Manby on the King's Estate, on the "Ailesway," near Dersingham, Norfolk. The "Ailesway" runs parallel with the "Peddar's-way," and runs into it just above West Acre. The celt is of oval section and according to Sir John Evans, belongs to the third class of Neolithic implements. The celt was exhibited by the Rev. H. J. Dukinfield Astley, who also submitted a broken water-worn flint implement of uncertain use, but probably a sinker, found in the river Wensum at Rudham, Norfolk. Two coins, one of Elizabeth, the other of William III., both found at Rudham, and one of James I., from a bog in the North of Ireland, were also shown by Mr. Astley. A paper on "The Effects of the Dissolution of the Monasteries upon Popular Education in England," by the Rev. H. J. Dukinfield Astley, hon. editorial secretary, was read by him. He said we all know what Oxford was like during the Middle Ages, and we know that it was possible for poor men to go there and obtain

all the advantages of its learning, culture, and refinement—therefore he would not dwell upon the question of the mediaeval universities. It was to be remembered that down to the period of the Renaissance and the invention of printing the people generally, including kings and nobles, were largely ignorant of even the rudiments of letters. The monastic orders were the guardians of such learning as existed, and their houses were the nurseries for the spreading of education wherever they were situated. Upon the education of the bulk of the people the dissolution of the monasteries had a most disastrous effect, for the new schools which were founded, both grammar schools and independent schools, were for the sons of the middle class, notwithstanding statements in their foundation deeds which seem to point in a different direction. On the other hand, the monastic houses and the hospitals were places of learning for the "pauperes et indigentes"—they were the schools of the artisan and the peasant—and with their destruction rural England was left to a large extent destitute of all instruction for over 200 years. An interesting discussion followed the paper, in which Dr. Winstone, Mr. Duppa Lloyd, the Chairman, Mr. Baxter, and Mr. Cheney took part, the latter remarking that "taking the poll-tax return of 1377 as a basis of the population, and comparing the schools of 1546, this gives 1 for every 8,300 people; and the Report of the Schools Enquiry Commission of 1865-6 gives no more than 1 secondary school for every 23,700 people. In the poll-tax return forty-two towns are given, every one of which, with the possible exception of Dartmouth, had its grammar school.

## ENGINEERING SOCIETIES.

INSTITUTION OF CIVIL ENGINEERS.—At the ordinary meeting on April 7, Mr. J. C. Hawshaw, M.A., President, in the chair, it was announced that eleven Associate Members had been transferred to the class of Members, viz., Messrs. N. G. Bell, A. Cleghorn, A. Dickinson, R. Henderson, H. P. Hill, H. A. Humphrey, D. McLellan, W. Oxtoby, W. O. Rooper, A. D. Thomas, W. H. Wellsted. It was also reported that eighty-three candidates had been admitted as students. The monthly ballot resulted in the election of three Honorary Members, viz., The Prince Auguste D'Arenberg; the Right Hon. Joseph Chamberlain, P.C., F.R.S., M.P.; Sir Archibald Geikie, F.R.S.; four Members, viz., Messrs. H. S. Bidwell (Cumberland); E. Holbrook (Kansas City, Mo.); S. A. Kirkby, M.A. (Cantab.); Wh.Sc. (Queenstown); S. J. Loane (Madras), and fifty-two Associate Members.

SOCIETY OF ENGINEERS.—At a meeting of the Society of Engineers held at the Royal United Service Institution, Whitehall, on the 6th inst., Mr. J. Patten Barber, President, in the chair, a paper was read on "Road Maintenance and Administration," by Mr. Robert J. Thomas, M.Inst.C.E. Prefacing his remarks by emphasising the necessity of keeping to the legal definition of a "Main Road" in discussing roads, the author stated that there were now 26,978 miles of main roads in England and Wales, as compared with 18,070 in 1889 and that sixty County Councils were responsible for them, whether they maintained them directly, allowed District Councils to do so, or had to leave them to the control of Urban Authorities entitled to keep the maintenance in their own hands. He also stated that forty of these County Councils had adopted direct management, the advantages of which he enumerated. Discussing materials and pointing out the enormous growth in the sale of granite during recent years to the exclusion of other softer stones, he expressed the opinion that for country main roads a size not exceeding 1½ in. or 2 in. gauge was the most desirable, and that too much reliance should not be placed upon tests made under artificial conditions not met with in the daily wear and tear of the roads. Giving the results of tests made in actual wear, he stated that on a country main road, granite surface, steam-rolled, with an ascertained traffic of 100,000 collars per annum, the actual wear averaged 1 in. in five years, that 1½ in. wear took place along the 7 ft. in centre, and rather more than 1 in. along each of the 6 ft. 6 in. sides. After discussing steam-rolling, scarifying, cleansing, and watering, he defended road labourers against unmerited attacks, and expressed his conviction that, as a class, they were far in advance of their predecessors, and

equal to the labour employed in any other industry. The system in force in Buckinghamshire until recently, whereby the County Council contributed towards all other roads, was described, also the improvements effected in the roads. Referring to metropolitan and town streets, and to the exaggerated statements made relative to the streets of foreign towns being so much better than those in London, the author instanced towns in Russia which had been held up as patterns, although they were anything but satisfactory. He laid stress on the unique size of the Metropolis, its variations of climate and temperature, the phenomenal traffic, and particularly the power which companies had been given by Parliament to cut open and block streets, and which was exercised to such an extent that the rights and access of the public to their own thoroughfares were already small and fleeting, and the cost of restoration of surfaces enormous; all which might be obviated if subways were constructed and the companies compelled to move their pipes and cables into them. He expressed the opinion that slow traffic should be better regulated, that vehicles should be kept close to the near side of the street, that omnibuses should stop at fixed points, and that the loading or unloading of railway and other goods vans should be prohibited in busy thoroughfares. Admitting the necessity for tramways in large towns, and their help in solving the housing question, the author strongly advocated that country roads should be widened to 40 ft. where a double line of tramways was laid, in order to provide at least 12 ft. of metalled roadway at each side. He suggested that traction-engine traffic would be far less objectionable to the travelling public if drivers were licensed and could be dealt with for inconsiderate and obstructive conduct. Dealing with motor-cars, he said that, from his experience in that form of locomotion, the greatest need was the reduction of dust and mud on granite roads, but that the question of additional expense incurred in doing so was one which had to be considered. As to hill-lowering schemes, he expressed the view that this work meant more difficulties and expense than appeared at first sight, and that, as residents in hilly localities should not be called upon to pay more than their share for such work, the cost should be a national one. New road construction for motor and other fast traffic he did not consider feasible, but suggested that the cost of widening existing roads in rural districts sufficiently to provide a dry, hard track might be borne by the State, a tax at per horse-power per car being levied sufficient for its up-keep, and which tax would necessarily diminish as the number of motors increased. Having referred to numerous alterations and amendments which were desirable in highway law, he pointed out how difficult, if not impossible, it would be to make every county of district pay an equal share of the country's road bill, unless the nationalisation of every highway was effected. Failing that, a contribution of one-half the cost would be a partial remedy, or the creation of one highway authority in each county would equalise matters so far as each county was concerned. Stating that agriculture, with its 106,700,000 l. of invested capital, was entitled to every consideration when the motor-car industry, with its 4,000,000 l., obtained so much attention, he expressed the opinion that the introduction of cheap, reliable motors for agricultural work would make powerful allies where sympathy was now at a discount.

## Correspondence.

## THE MOATED MOUND.

SIR.—The communications of "B. T. R. C." and Professor Baldwin Brown, with regard to the ruins of the Saxon Church at North Elmham are of value in more respects than one.

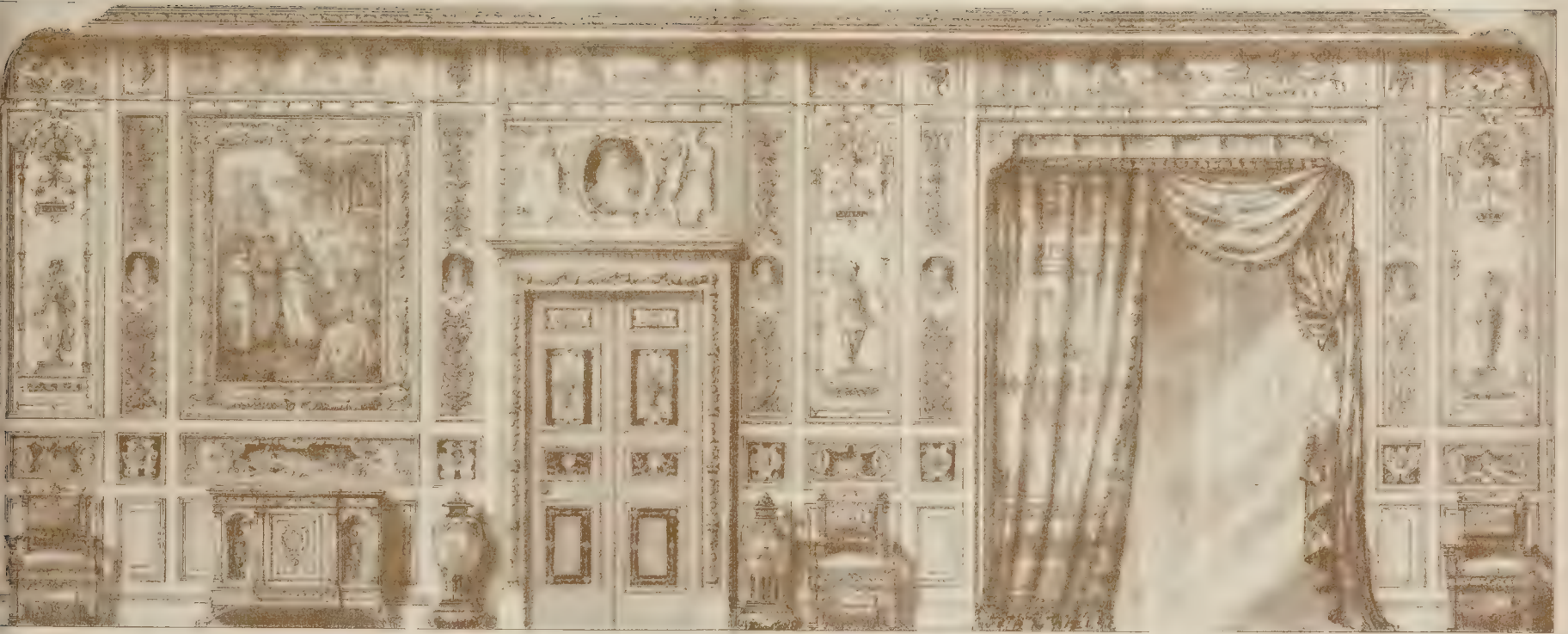
As a side issue, they raise a point to which I wish to draw attention, and it is this, i.e., that they appear to throw—by means of relative and circumstantial evidence—considerable light upon the date of origin of the moated mound.

If I have read them aright, it is evident that a portion of the base-court had to be cleared away, before that part of the Saxon church which dates from the tenth century could be erected.

The obvious and necessary conclusion is that the mound and its base-court is of earlier date than some portions of the Saxon church. It is immaterial

\* See our issue for March 14.





OF THE BUILDING, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

ANTE-ROOM DECORATION BY MR. THOMAS WALLACE HAY



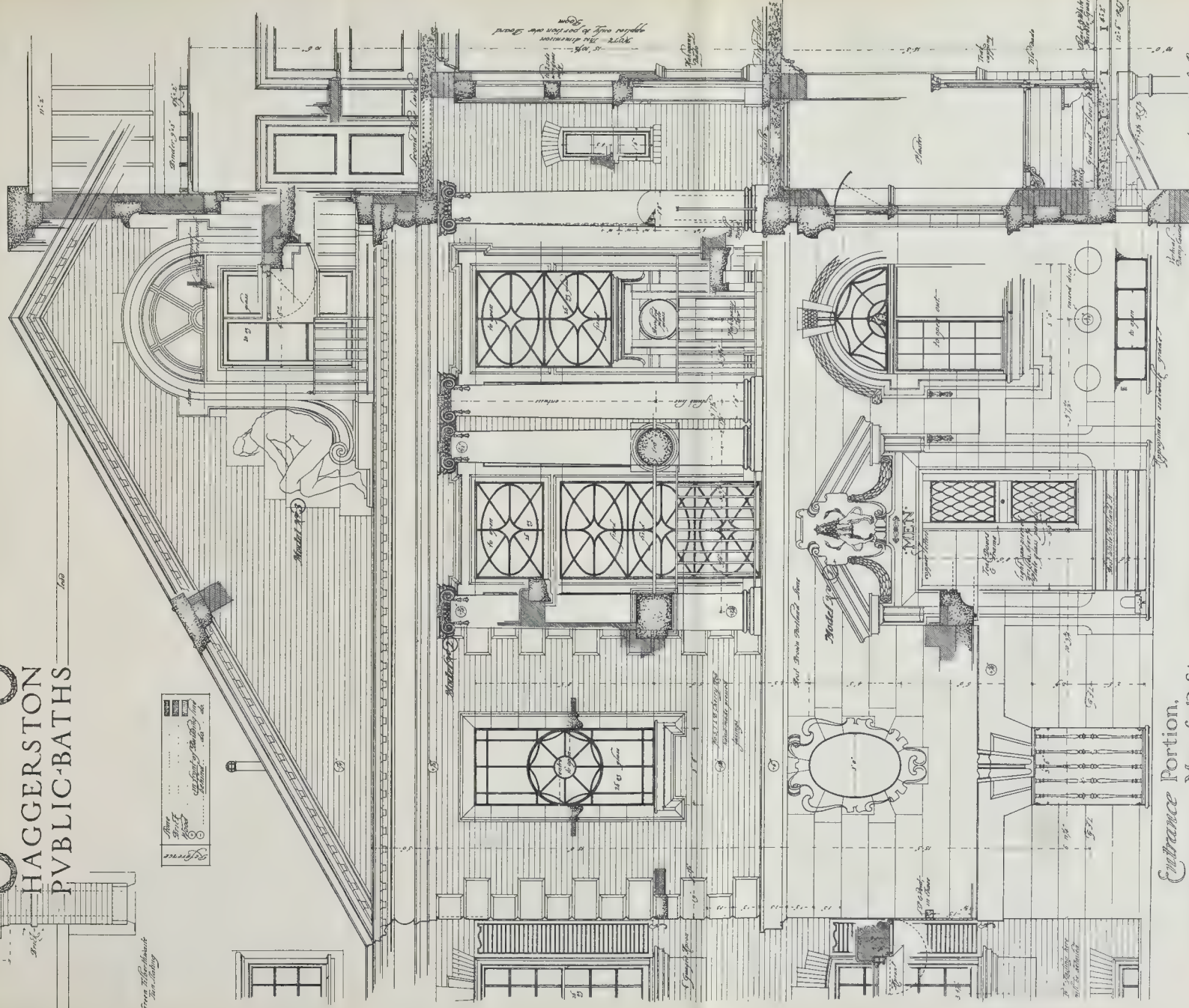




# HAGGERSTON PUBLIC-BATHS

Scale Drawing No 8  
Drawing by Mr. A. W. S. Cross, F.R.I.B.A.  
1/2" = 1' 0"

From the Architects  
Drawing



Entrance Portion,  
Mansfield St.  
Front

Scale Drawing No 8  
Drawing by Mr. A. W. S. Cross, F.R.I.B.A.  
1/2" = 1' 0"

Mr. W. S. Cross  
The Architect  
33, Abchurch Lane  
London E.C. 4

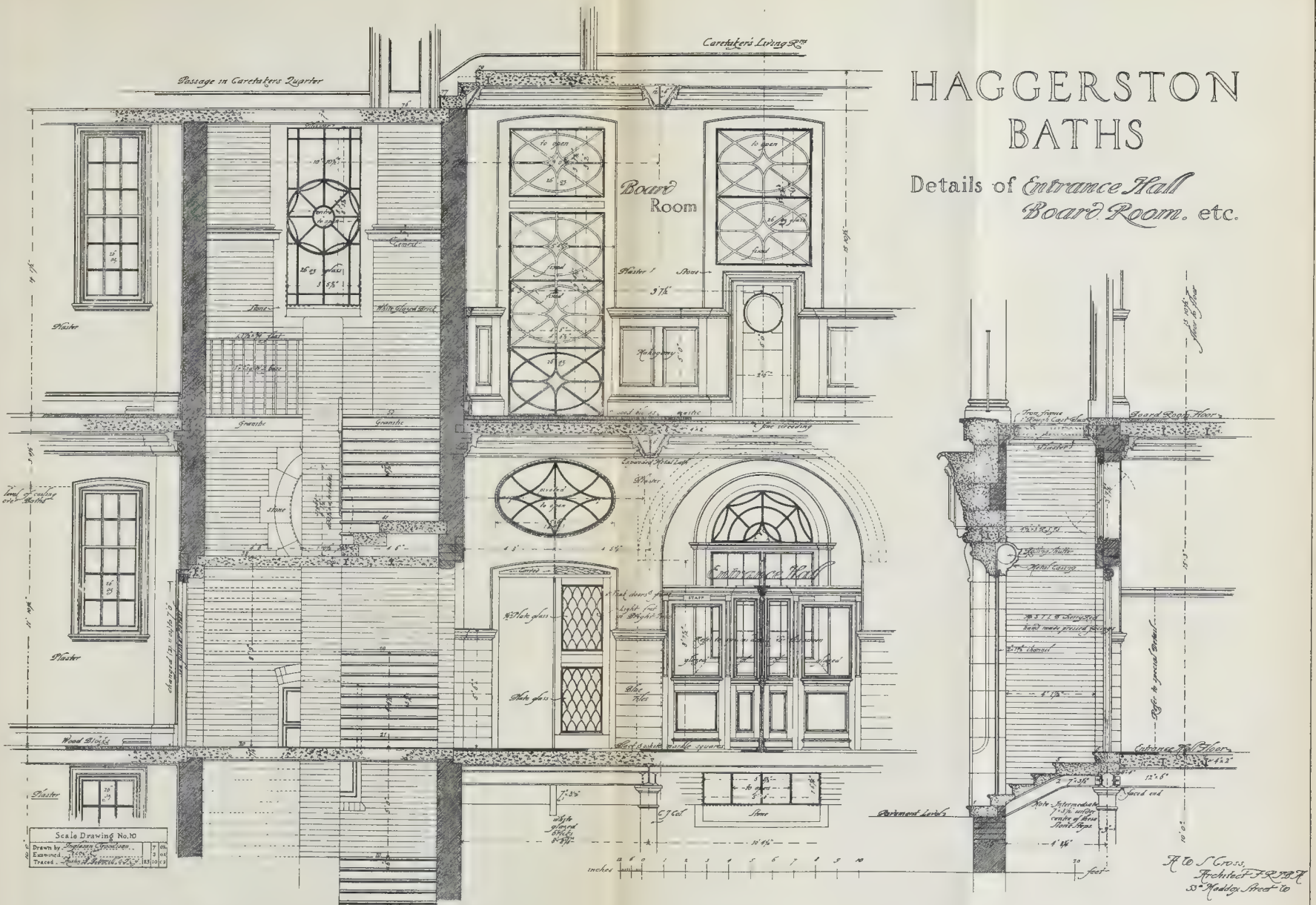






# HAGGERSTON BATHS

Details of *Entrance Hall*  
*Board Room. etc.*











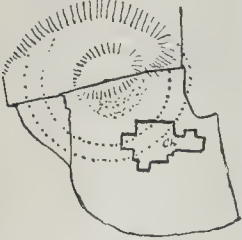






to the question which I wish to raise—Whether the Saxon walls are of two periods, as "B. T. R. C." contends, or are wholly of tenth century date, as Professor Baldwin Brown argues.

It is interesting to note in this connexion that the Saxon tower of Earls Barton Church probably stands upon a site once occupied by a portion of the ditch and crenelle of the partially-destroyed moated



Earls Barton Church and Mound.

mound which rises immediately from its north-western side.  
I enclose an explanatory sketch of Earls Barton Church and Mound, reproduced from the Ordnance map. The probable outlines of the original mound are indicated in dotted lines.

T. DAVIES PRYCE.

April 6.

# RE COMPETITION FOR BUILDING SCHEME AT YEovil.

SIR,—The following facts relating to this competition may prove of interest to your readers, and may serve as a warning to intending competitors.

On January 24 last a notice appeared in the *Somerset Herald* to the effect that the Corporation of Yeovil intended to invite competitive plans for the development of some Corporation property in High-street and South-street. Provision was to be made for a technical institute, free library, Town Hall, municipal offices, corn exchange, fish, vegetable, and fruit market, fire station, together with justices' rooms, county court, Mayor's parlour, &c. In addition to these as much as possible of the ground floor in High-street was to be laid out in shops, and the competitors were to decide whether there should be a wide street or a covered arcade in place of a court which at present connects High-street with South-street.

Premiums of 20 gns. and 10 gns. were offered for the schemes placed first and second respectively.

It was to be understood that the Council had no intention to proceed immediately with the carrying out of the whole scheme, the idea being to begin with the Free Library and Technical Institute.

The attention of the Royal Institute of British Architects was called to the matter, and a letter was written by their secretary to the Corporation pointing out the inadequacy of the premiums and urging the appointment of a professional assessor to draw up the conditions upon the basis of the Institute's "Suggestions." In the meantime, the members of the Competition Reform Society had been requested to abstain from competing, and no notice having been taken by the Yeovil Corporation to the Royal Institute of British Architects's letters, a statement to that effect was published in the *Royal Institute of British Architects's Journal* of March 21, with a request that members of the Institute would abstain from entering the competition.

I have recently received a copy of the list of the Council's replies to competitor's questions arising out of the conditions and particulars issued by the Town Council for the guidance of architects.

The following extracts will give an idea of the spirit in which the competition has been conceived:—

Questions.	Replies.
1. Will the architect whose design is chosen be engaged to carry out the buildings as the Council's architect?	No. Not necessarily.
2. Should any amount as regards cost be considered in designing? If so, how much?	No. Arrangement to be considered only. Question of cost will be considered in carrying out.
3. Is there any likelihood that the conditions will be at all revised, as the premiums offered seem low for the value of work proposed?	No.
36. Will the Corporation give a guarantee that the author of the selected design will be employed to carry out the work?	No.
38. Will a professional assessor be appointed to adjudicate upon the schemes?	No.

These particulars will be sufficient to show that

the Yeovil Corporation expects to receive schemes for laying out a large area of ground. The planning of the schemes should entail considerably more work than will be apparent upon the plans submitted, for, in justice to the Corporation, it must be stated that "detail plans of the various buildings are not required," although explanatory drawings to a larger scale (1 in.) may be submitted at the architect's option. For a scheme of this sort to be of the slightest value it would be necessary to plan roughly the various municipal offices, exchanges, markets, fire station, technical institute, free library, county court, justices' rooms, shops, &c., a task requiring a special knowledge of almost every class of building of a public nature.

For the very considerable amount of thought, work, and special knowledge which would have to be displayed in the preparation of a scheme in order that it might do credit alike to the competition and to the town of Yeovil, the following inducements are offered:—1. Premiums of 20l. and 10l. respectively to the authors of the two designs placed first. 2. No professional assessor. 3. No undertaking that the author of the selected design will be engaged as the Corporation's architect, or that he shall be employed to carry out the work.

Unfortunately for Yeovil, there have been at least thirty applications for the conditions, and there seems little doubt that a certain number of designs will be submitted. It has been ascertained that the Corporation has little or no money to spend upon the majority of the buildings. Mr. Carnegie has promised 2,500l. for a free library, and there is a similar sum available for a technical Institute, one or both of which may be erected shortly.

It is satisfactory to know that the architects of Yeovil have no intention of competing, and that they have already made their protest to the Corporation. It is to be hoped that all architect readers of your journal will do likewise, and so assist in making of the Yeovil competition as big a failure as the recent case of the St. Ives Municipal Buildings.

HENRY A. SAUL,  
Hon. Secretary,  
Competition Reform Society.

# QUANTITY SURVEYORS' ASSOCIATION.

SIR,—Your issue of April 4 with Mr. Leaning's long letter has been forwarded to me here. I regret exceedingly that that gentleman has made it such a personal matter as, although I had the honour to be voted to the chair at the preliminary meeting of the Association, I did not issue the circular referred to, which was the joint production of the meeting.

I may, in the first place, reiterate "that no wise London architect would employ a London quantity surveyor for any work he had in the North or Midlands unless his client had unlimited means." This I know from professional experience both on behalf of the builder and building owner. I have appeared for and in opposition to some of the leading London surveyors and architects, and I do not think that, without the aid of this Association, either the London or Provincial surveyors are a sufficiently strong body to enforce any particular system of measurements, and one would think that it would be the greatest advantage to a gentleman of extensive practice, who has time to write books, to have one system made universal. No doubt the London system has more polish and has more theory about it, but the north country surveyor certainly has more practical experience and knowledge.

The misfortune of using unusual words, some of which appear sadly misplaced, and of lapsing into poetry, is to be deplored in writing a business letter to a professional journal, but the success of the Quantity Surveyors' Association is already assured, as far too many surveyors of eminence, equal even to that of your correspondent, have already joined the Association for us to draw back.

The profession of the quantity surveyor is vigorous, while that of the surveyor *per se* is dying out owing to Ordnance survey and other causes. So also will the Quantity Surveyors' Association flourish. Is it not wiser therefore to join hands in good fellowship, as I can assure you that with or without the kind assistance of your correspondent, with or without the goodwill of the Surveyors' Institution, the Quantity Surveyors' Association is already in existence and it is intended to hold the first meeting at the end of the month, and we cordially invite the co-operation of the Institution and also of Mr. Leaning, who will do better for himself and for us by giving us the benefit of his advice and experience instead of making rude remarks about the profession we all live by.

W. HOFFMAN WOOD (of Leeds).

Specia (Rivera).

# THE VENTILATION OF SCHOOL BUILDINGS.

SIR,—I have been hoping to see some one write on behalf of the heating and ventilating profession in answer to Mr. F. G. Clay's letter in your journal for March 27, but as no one appears to have done so, I would like to make a few remarks in answer to his theories in connexion with the application of the "Plenum System."

Mr. Clay says that "he cannot touch the practical

details of the subject in a letter," but I feel sure that those in the business will agree with me that it is mainly a question of practical detail which governs the success or otherwise of a "Plenum" system.

1st Mr. Clay states that in winter the air enters the room at a high temperature, and is cooled by the walls, windows, &c., and that the children breathe the hot air. I do not see how this can be the case, because the temperature of the incoming air is governed in such a way that by the time it comes in contact with the children it is at a temperature of 60 deg. Fahr.

Mr. Clay also speaks of the deleterious effect of heated air. Everything depends upon the way in which the air is heated. There are, of course, firms who, with the idea of reducing the first cost, so reduce the piping and heating surfaces that a pressure of steam sometimes reaching 20 lbs. to 30 lbs. per square inch (250 deg. to 274 deg. temp. Fahr.) has to be carried. Steam at such a pressure and temperature deprives the air of much of its oxygen, and renders it less wholesome for the occupants of a building to breathe; but a properly-designed plant, working under a low steam pressure of from 1 lb. to 3 lbs. per square inch (215 deg. to 210 deg. temp. Fahr.), sometimes working at atmospheric pressure and oftentimes less, does not change the constituents of the incoming air, and causes no deleterious effect upon the occupants. On the contrary, it can be proved over and over again where the "Plenum" system has been erected for board schools, and even asylums, that the beneficial effects have been very marked indeed. The health and physical properties of the teachers, children, and inmates have been considerably improved by the use of such system, and I think that perhaps if Mr. Clay made inquiries from teachers who have been working in a school both before and after the application of the system he will find how much it is appreciated.

2nd Mr. Clay makes objection to the method of forcing air into a room at a high level in summer and extracting the air at a low level, mainly because he claims that the air being cold will "short circuit" from the inlet to the outlet; but he overlooks the fact that the air will enter the room at a velocity of some 5 ft. or 6 ft. per second, and will travel across an average sized room spreading itself when descending.

It is most unpleasant to be in a room with the inlets arranged near the floor. The reason for this is obvious, as they necessarily cause draughts for those who have to sit near them, and I feel sure that if Mr. Clay will take the trouble to obtain some practical experience with a "Plenum" system, or even an automatic system, where the air enters at a high level, as compared with a system where the air enters at a low level, he will soon become favourable to the high level method either in winter or summer.

Mr. Clay admits that "downward ventilation" proves successful in models, but I can assure him that it proves successful in actual operation. I happen to notice that good ventilation in buildings is frequently conspicuous by its absence and were I desirous of advertising myself I could mention many buildings, public and private, where the air inlets in the ceiling itself and the outlets at the floor level work perfectly, and are giving the most satisfactory ventilation in summer and winter alike.

R. W. S.

# LONDON DISTRICT SURVEYORS.

SIR,—There are too sides to most questions and I feel I cannot allow your correspondence who signs himself "Building Act" to pass without a word from one who has been grossly victimized by district Surveyors I think 300l. a year is twice as much as these fellows are worth for interfering with a man as is trying to get a honest living I flatter myself I no how to make a yard of lime go as far as most people and a ole brick is better has a good menny new uns I for one shal welcome a reduction in the salary of these ofishous gentleman and think the young fellers as Mr. Building Act refers to will be much easier to get on with I desay they will be glad to mak a bit extra on there low wages and they can alwis look to me for a bit if they don't sea two much. JERRY BUILDER.

P.S.—If you here of a good little "spec" you might let me know.

# OBITUARY.

MR. DAY.—We regret to announce the death at his residence, No. 18, Bloomsbury-square, on April 6, after a painful illness, of Mr. Richard Philip Day, Diocesan Surveyor for London. Mr. Day was elected an Associate member of the Royal Institute of British Architects in 1882, and was until recently surveyor for the two dioceses of Canterbury and London. Of his more important architectural works, we may instance the following:—The church of St. John the Evangelist in Brunswich-square, Herne Bay, which when completed will cost about 8,000l., and of which the nave and aisles were begun in the summer of 1898; the decoration, re-seating, and other improvements of Christ Church, Newgate-street; the re-building of St. Paul's Church, Thornton Heath, near Croydon, of which, as the first portion of the entire designs, the nave, west aisles, and baptistry were erected two years ago by



Messrs. Stewart & Sons, of Wallington, at a cost of about 6,500l.; St. Mark's Church, Newnham, Cambridge; the church of St. Augustine, at Crayford, Kent; and a church, after the early English style, at Slade Green, Erith, of which the aisle and three bays of the nave were built in 1899 at an initial expenditure of 2,000l.; he was the architect also, we believe, of the church of St. Mary, at Milton-next-Sittingbourne in Kent. Mr. Day acted as honorary architect for "St. Hilda's" Settlement in Old Nichol-street, a home for sixteen ladies, established and maintained by a guild of past members of Cheltenham Ladies' College, and opened on April 26, 1898, on the site of the "Old Jago" in Old Nichol-street, Shoreditch, a once notorious quarter, but since greatly improved. The Settlement was first founded at Mayfield House, Bethnal Green, in 1893, in association with some ladies from Oxford. In conjunction with Messrs. William and C. A. Bassett-Smith, Mr. Day prepared the plans and designs for the church of St. Gabriel in Cluichele-road, Willesden Green, of which the first portion of the nave and aisles, after the Early Decorated style, were built at a cost of about 7,000l. by Mr. J. Bentley, and consecrated in October, 1897. The complete design, including chancel, Lady Chapel, and chantry, provide for a total of 1,000 sittings. Mr. Day succeeded his former principal, Mr. Gordon Hills, as Surveyor for the London Diocese, and was a leading authority in the matter of "fixtures," and the assessment for dilapidations of parsonage houses.

MR. BOTTERILL.—We regret to hear of the death, on and inst. at an advanced age, of Mr. William Botterill, of Brookside, Newland Park, Hull, senior partner of the firm of Messrs. Botterill, Son, & Bilson, of No. 23, Parliament-street, Hull, architects and surveyors. Mr. Botterill had practised during a very long period in Hull, and was architect to the School Board. Mr. Botterill was the architect (1870) of the York City and County Baking Co.'s offices, in Lowgate, Hull, treated after the Venetian Renaissance manner, and (1865) of the Merchants' Exchange at the corner of Lowgate and Bowalley-lane, erected on the site of the old Suffolk Palace, the residence of the De La Poles; the Exchange Buildings comprise offices for the Hull Chamber of Commerce, and the modern principal hall measures 70 ft. by 40 ft., and is 32 ft. high—both structures are illustrated in the *Builder* of April 2, 1898, mentioned below. For the Hull School Board he and his firm planned and designed the head offices in Albion-street; the schools in Dalby-road (with an enlargement) and in Holland-street (estimated cost of about 17,000l.), having a central hall and eight classrooms for 450 children; the Higher Grade School in the Boulevard; and the Central Higher Grade School in Brunswick-avenue. They were architects of the Globe warehouse in the High-street, a successful rendering of what is, in itself, a commonplace theme; Hay's Flour Mills in Grosvenor-street; and the vicarage of St. Philip's in Charlotte-street, Hull; also of the Grammar School, Basingby-road, Basingby, built in 1898-9, at a cost of more than 8,500l., and since enlarged under Mr. Bilson's superintendence, with five additional dormitories, masters' rooms, studies, &c., and completion of the group of classrooms on the three sides of the central hall; the boardroom and offices at the Beverley Union Workhouse; extensions to the parochial schools at Hessle, Yorkshire; and the new buildings on the west side of Queensgate for Beverley Grammar School—the plans providing for a central hall and more classrooms at the south end when extensions are required hereafter. Of other the more important works carried out by Mr. Botterill and his firm we have illustrated—Hymer's College, built at a cost of nearly 15,000l. for the fabric, in 1890-1, on the site of the old botanical garden, Hull, after the Jacobean style treated in a free and modern manner, for which they gained the first premium upon the award of Mr. E. C. Robins, the assessor—June 28, 1890, and January 16, 1892, as slightly modified in execution; the Bard Schools for 800 children at the corner of Stepney-lane and Beverley-road, Hull (W. Botterill)—January 14, 1888; Hull and Sulcoates Dispensary, Baker-street, Hull, for which their designs, adapting the Flemish Renaissance to modern requirements, were chosen in a competition limited to four nominated architects—September 15, 1888; restoration of the old double roof-screen in St. Mary's Church in Beverley, executed after the fall of the central tower in 1550, and since mutilated to fit into a narrower space beneath the east arch of the crossing—March 24, 1894. In our article of April 2, 1898, upon "Hull," we also illustrated of their designs the following—Hymer's College (two views, the south-west angle and the porch); the Girls' Industrial Schools in Park-avenue; the Beverley-road Board Schools; the Higher Grade Board School in Craven-street; and the Hull and Sulcoates Dispensary, cited above. The buildings of Hymer's College and the Craven-street School present, as we pointed out at the time, quite the most satisfactory examples of school architecture in the town. We should add that in August, 1897, the firm obtained the second premium in respect of their competitive designs for the Victoria Hospital for Sick Children, in Hull; and that two years ago their plans were approved for an enlargement to accommodate twenty-two more nurses, at a cost of

some 4,000l., of the Nurses' Home at the Royal Infirmary, Hull, after, we understand, a limited competition.

#### GENERAL BUILDING NEWS.

CHURCH, BURNOPFIELD.—An addition has been made to the United Methodist Free Church at Burnopfield at a cost of 1,400l. An addition, 30 ft. by 12 ft., has been made to the north end of the church, giving extra accommodation for 110 persons. The school has also been enlarged 27 ft. by 14 ft. Four classrooms have been built on the east side of the school, and on the north end are a club-room and church parlour. Near the church a house of five rooms has been built for the caretaker. The buildings will be lighted throughout by electric light. The architect was Mr. Arnold Kyle, and the builder Mr. Alfred Davis.

PRESBYTERIAN CHURCH, BALYLEASTON, BELFAST.—Re-opening services in connexion with this church were held recently. The church has been entirely remodelled, and is practically a new one, except the walls and roof, which have been merely repaired. The seating accommodation on ground floor and gallery is for about 600 people. A vestibule 10 ft. wide and the full width of the church, with a tower 60 ft. high to the top of the vane, has been added to the west end, and a new vestry and heating-chamber have been built in the north side. The church has been replastered inside and out, a new varnished pitch-pine ceiling has been put up to replace the old plaster one, and the floors, gallery, pulpit, pews, and other woodwork are new. The pulpit, choir seats, communion table, &c., are constructed of yellow pine, walnut stained and French polished. The pews, gallery fronts, dados, &c., are of varnished pitch-pine, with walnut cappings, &c. The floor of the vestibule is of marble tesseraz, laid by Mr. J. F. Gower, of London. The tower has been heated with hot water by Messrs. Mungrave & Co. Ltd., Belfast, and the leaded and stained-glass windows have been executed and fixed by Messrs. Ward & Partner, Belfast. The builder was Mr. W. H. Beggs, and the architect Mr. N. Fitzsimmons, of Belfast.

RESTORATION OF GUNTON CHURCH, LOWESTOFT.—The ancient little church of St. Peter, Gunton, near Lowestoft, was re-opened recently after restoration. The building is of flint with stone dressings, consisting of chancel, nave, south porch, and low round western tower; and has two Norman doorways. The work of restoration has been in hand about twelve months, and has been carried out under the superintendence of Mr. Green, architect, of Norwich, the woodwork having been entrusted to Messrs. Grimson, of Loddon, and the stonework to Mr. Hall, of Norwich.

IMPROVEMENTS, BRIGHOUSE PARISH CHURCH.—Alterations and improvements at the parish church, Brighouse, are to be undertaken, at a cost of about 5,000l. Plans by Mr. C. H. Fowler, of Durham, have been approved, and the chief feature of the improvement is the reconstruction of a chancel and an open-timbered roof.

EXTENSION OF BEDWELLY WORKHOUSE, MONMOUTHSHIRE.—A meeting of the Bedwelly Board of Guardians was held at the Workhouse, Tredegar, recently, when the Building Committee recommended the adoption of the plans of the proposed extensions to the Workhouse, prepared by Mr. D. Morgan (Messrs. James & Morgan, Cardiff). The recommendation of the Committee was adopted.

BUILDING IN ABERDEEN.—The Plans Committee of Aberdeen Town Council have sanctioned the following plans:—Dwelling-house and stabling on the west side of Diamond-street for Mr. Charles Campbell, per Messrs. Brown & Watt, architects. Three dwelling-houses on the north side of Walker-road, for Mr. John Gammie, per Messrs. Cameron & Watt, architects. Workshop on the west side of Causewayend for Messrs. J. & A. Arthur, per Mr. R. C. Garden, architect. Stonecutters' sheds, polishing mill, &c., on the south side of Pittodrie-street for Messrs. Coult & Cosgrove, granite merchants, per Mr. Duncan Hodge, architects. Timber sheds in connexion with sawmills at Martin-avenue for John Fleming & Co., Limited, per Messrs. Sutherland & Pirie, architects. Stovehouse in connexion with sawmills at Martin-avenue for John Fleming & Co., Limited, per Messrs. Sutherland & Pirie, architects. Stone-polishing sheds on the south side of Pittodrie-street for Messrs. Coult & Younie, granite merchants, per Mr. R. G. Wilson, architect. Dwelling-house on the south side of Broomhill-road for Mr. Robert Farquhar, Broomhill-road, per Mr. R. G. Wilson, architect. Dwelling-house and dairy on the west side of Holburn-street for Mr. Henry Robertson, per Messrs. Walker & Duncan, architects. Dwelling-house on the south side of Holburn-street for Mr. E. B. Brown, per Messrs. Cameron & Watt, architects. Two dwelling-houses on the west side of Moray-place for Messrs. Gray & Kellas, per Messrs. Cameron & Watt, architects. Alterations and additions in connexion with Concord House, Fonthill-terrace, for Mr. L. Barrie, per Mr. John Rust, architect. Six dwelling-houses on the east side of Forest-road for Mr. Robert Smith, per Messrs. Brown & Watt, architects. Boat-house at South Esplanade West for the Victoria Rowing Club, per Mr. W. E. Gauld, architect. Shed and latrines in connexion with sawmills at Martin-avenue for John Fleming & Co., Ltd., per

Messrs. Sutherland & Pirie, architects. Dwelling-house at Gordon's Mills-road for the Dundee Paper Mills Co., Ltd., per Mr. A. H. L. Mackinnon, architect. Stone-polishing mill and stone-cutters' sheds on the east side of Canal-road for Messrs. John Third & Son, granite sculptors, per Mr. William Smith, architect.

SCHOOL, LUMPHINNANS, FIFESHIRE.—A new school is being erected at Lumphinnans, Fife. Mr. Wm. Birrell, of Kirkcaldy, is the architect. A central corridor, which runs the full length of the premises, is 233 ft. long and 15 ft. wide. The roof is composed of open timber-work, while the walls are lined with white tiles. In the centre is situated the infant department. When fully completed, the buildings will accommodate 1,000 pupils.

SCHOOLS, TRAFFORD PARK, MANCHESTER.—In Trafford Park, on the 10th inst., foundation stones were laid of a new Primitive Methodist school in Third-avenue. The school will accommodate 300, and the estimated cost, including the land, is 2,200l. The architect is Mr. J. B. Thornley, Darwen.

WORKHOUSE EXTENSION, CHELSEA.—The work in connexion with Chelsea Workhouse extension, of which the foundation stone was laid on the 10th inst. by Mr. Henry, the Chairman of the Chelsea Board of Guardians, consists in the extension of the three blocks of buildings known respectively as "A," "B," and "C" Blocks, and in certain alterations to the block of buildings known as the Arthur-street Block. "A" and "B" Blocks, each five stories in height, will be extended eastwards to the frontage line of the houses in Sydney-street, and contain above the lower ground floor level accommodation for aged women and infirm women respectively. The lower ground floor of the former block will contain matron's stores; in the latter block female officers' messroom, recreation-room, &c. The two blocks will be connected by escape bridges, and will have staircases at either end. "C" Block, the office block, facing King's-road, will be extended along King's-road, with a return to Sydney-street. On the lower ground floor will be a large relief waiting-room and relieving officers' rooms, &c., with separate entrance from Sydney-street. On the ground floor, with entrance from King's-road, will be the committee-rooms and waiting-room, and on the first floor the boardroom, waiting-rooms, &c. The committee-room and boardroom are at present situated in "A" and "B" Blocks respectively, and the space occupied by them will eventually be used by aged women and infirm women. The alterations to the Arthur-street Block will consist in the removal of two old and badly arranged staircases, thereby dividing the Arthur-street Block front, the latter's house block, which is at present connected at right angles; connecting bridges will also be formed between the two blocks thus divided, and a new staircase, lavatories, &c., will be erected in the Arthur-street Block to replace the staircases, &c., removed. The contractor for the work is Mr. Charles Wall, of Upcote-road, S.W., and the contract amount is 25,000l. The quality of the work is supervised by Messrs. Northcott, Son, & Nicholson, of Regent-street, W. The architects are Messrs. M. J. Lansell & E. J. Harrison, of Basinghall-street, E.C.

ROMAN CATHOLIC CHURCH, BLAYDON.—A new Roman Catholic church is shortly to be erected, at an approximate cost of 7,000l., upon a site abutting Shildon-road, Blaydon. The plans have been prepared by Mr. C. Walker, architect, Newcastle, showing a stone structure 136 ft. long, and 31 ft. wide, affording accommodation for about 800 worshippers. A presbytery will likewise be erected. The church will comprise the main chancel, two side chapels, and organ gallery.

VARIETY THEATRE, DUNDEE.—On the 10th inst. Balfie Melville had before him an application from Mr. J. M. Creighton, manager of the Gaiety Theatre Company, Ltd., Dundee, for the necessary magistrates' licence for the new hall in Victoria-road. The architect is Mr. Alexander. The auditorium is horse-shoe in form, and it affords accommodation for about 1,500 persons. The proscenium is 24 ft. in height; its width is 23 ft., and the stage has a depth of 20 ft. The stalls are seated for 200 persons, while the pit is capable of accommodating 400 persons. Above is the family circle. On the highest level are the amphitheatre and gallery, seated for 600. In addition to the parts of the auditorium mentioned, four boxes, two on each side, one on the family circle and one on the gallery, will be provided. Entrances and exits are afforded in Victoria-road and in the lanes abutting on either side of the theatre.

PUBLIC SCHOOL, LOCHWINNOCH, RENFREWSHIRE.

—Preparations are in progress for erecting a new public school for Lochwinnoch. The site is on the rising ground to the north of Calder Glen-road.

The school will accommodate sixty, and the plan is so arranged that additional classrooms can be added when required. The cost of the building, including site, will be about 10,000l. The architect for the Board is Mr. C. Davidson, of Paisley.

SCHOOL OF COOKERY, NEWCASTLE.—A school of cookery has been erected at Newcastle, in the Northumberland-road, for the Technical Education Committee. Mr. Dyson is the architect and Mr. Edwin Thomas George, of Newcastle, is the builder. Whilst excavating the 10 ft. for the basement a bed of running sand was discovered—the site crosses that of an old burn, and further excava-



tions to the depth of 27 ft below the level of the roadway were necessary. The eastern wall of the offices next door was under the School Board, and the foundations of the school were made safe by a liberal use of steel rails interlaced in the heavy concrete, especially heavy concrete buttresses being put in at corners where the weight was heaviest. There is a basement with stores and larders, and a room, reached from the main entrance *via* the area, where students may store cycles and motor-cars. On the first floor front is a large room fitted with ranges—coal and gas—for public cookery demonstrations by the heads of the schools, and entrance is gained by a doorway free from the rest of the apartments. The whole of the apartments of the three floors are connected by corridors running along the eastern extremity of the building, and the corridors are coupled up by a staircase arrangement from floor to floor. There is a special demonstration-room with gallery at the rear of the building on the ground floor. This is for the children from the schools of the city. In the front of the building there are apartments for the principal and assistants, and higher up are bedrooms, principally for those students who are in residence under scholarships. All the main apartments are wainscoted with glazed bricks. The sub-contractors are:—Plumbing, Mr. M. Charlton; plastering, Mr. John Chapman; painting and staining, Mr. James Small; slating, Mr. John Hewitson.

## FOREIGN.

**FRANCE**.—The jury of the Ecole des Beaux-Arts charged with the Prix Chenavard has awarded the prize to M. Hébrard, pupil of M. Seillier de Gisors. The subject was "Projet d'Ecole Spéciale Militaire."—In the gallery of the Bibliothèque Nationale known as the "Cabinet de Mazarin" a fine tapestry has just been placed, executed at the Gobelin's manufactory. It is after a picture by Ermann, and represents the great artists of the Italian Renaissance grouped around the central figure of Lorenzo di Medici.—A committee has been formed at Paris to offer to the United States Government a bronze bust of Washington, to be executed after the plaster model by David d'Angers.—The theatre at Lille, built about 1785 from the designs of Lequeux, has been destroyed by fire.—Important works are to be commenced at Biarritz for the improvement of the old port and of the Côte des Basques, at a cost of 300,000 fr.—The town of Epinal is about to erect a monumental fountain surmounted by a statue of Joan of Arc.—The Municipality of Oran has voted a sum of 1,000,000 fr. for a new municipal theatre.—The death is announced, at the age of thirty-eight, of M. Jean Alfred Mariot, the painter, a pupil of M. Gérôme, M. Bouguereau, and of his brother M. Claudius Mariot. He had obtained a second Prix de Rome, and had devoted himself to decorative painting. His works adorn a great number of private houses in Paris.—The death also is announced, at the age of forty-six, of M. Henri Fouquier, the sculptor, two of whose works were purchased by the city of Paris. His group entitled "Drame au Désert" has been placed in the Square Cambrone. He had obtained medals in the Salons of 1885, 1889, 1893, and 1900.

## MISCELLANEOUS.

**CRYSTAL PALACE ENGINEERING SCHOOL**.—The "Wilson" premium for the best paper read before the Crystal Palace Engineering Society during the present session has been awarded by the Council to W. L. M. Thomas for his paper on "Light Railways." Other papers read during the session were "The Uganda Railway," by J. F. Leyland; "The Improvements at Dover Harbour," by H. O. H. Etheridge; and "Aerial Railways," by A. Colman. An address was also given by Mr. A. T. Walmisley, M.Inst.C.E., Engineer to the Dover Harbour Board, on "The Advantages of the Study of Geometry." The premium was presented to Mr. Thomas by Sir George Barclay Bruce, Past-President of the Institution of Civil Engineers, honorary member of the Society of Engineers, on the occasion of the ninety-first distribution of certificates at the school on April 8.

**THE SANITARY INSTITUTE**.—At an examination in Practical Sanitary Science, held in Birmingham on April 3 and 4, two candidates presented themselves, and one certificate was granted, *viz.* to Mr. Maurice Malins. At an examination for Inspectors of Nuisances, held in Birmingham, on April 3 and 4, seventy-three candidates presented themselves, and thirty-five candidates were certified, as regards their sanitary knowledge, competent to discharge the duties of Inspectors of Nuisances under the Public Health Act, 1875.

**THE CREWE COLLECTION OF BLAKE'S WORKS**.—Messrs. Sotheby sold the eighteen lots of the Earl of Crewe's collection of Blake's original drawings for a total of 9,775s. 5s. a few days ago. Mr. Quaritch secured for 5,600s. the "Illustrations of the Book of Job, invented and engraved by William Blake," 1825, published by the author at No. 3, Fountain-court, Strand, and consisting of twenty-two hand-drawn proof impressions on Indian paper and the twenty-one original designs in colour. Gilchrist records in his "Life" of Blake that the latter sold

the collection to Mr. Butts, from whom it was bought by Monckton Milnes (Lord Houghton). Mr. A. Jackson gave 1950s. for the twelve coloured plates, *viz.* 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

**BOOK SALES**.—The following works upon art, topography, and kindred subjects have recently been sold by auction at Messrs. Hodgson's: The original MS. of J. A. Symonds's "Life of Michelangelo Buonarroti" (1891), with the plates as issued with the book, vol. 15s.; D. G. Rossetti's "Sir Hugh the Heron," 1845, privately printed at G. Polidore's Press, with an autograph letter, 35s. 10s.; "Poems," privately printed, 1860, 26s.; W. Morris's "Story of the Glittering Plain," Kelmscott Press, 1891, 16s.; and "Story of Gunnlang the Worm-tongue and Raven the Skald," 1891, printed at the Chiswick Press, but not published, one of three copies on vellum, 42s.; "Euclid," printed by Radcliff at Venice in 1482, a copy of the first work, with an autograph letter, 100s. 27s. 10s.; "Principal Navigations, Voyages, Traffiques, and Discoveries of the English Nation," 1599-1600, 28s. 10s.; Louis Fagan's "History of Engraving in England," 1893, in three volumes, atlas folio size, with 100 typical examples reproduced from rare prints in the British Museum, one of fifty copies, 12s.; and Mrs. John Frankau's "Eighteenth Century Colour Prints," 1900, 17s. 10s.; and "John Raphael Smith," 1902, 27s. 10s.; Messrs. Puttick & Simpson's: J. Papworth's "Select Views of London and the Environs," 1799, with coloured plates by Rowlandson, 22s.; Ackermann's "Public Schools," 1816, with coloured plates, 19s. 10s.; and "The Roadster's Album," 1845, with coloured plates, 39s. At Messrs. Sotheby's: Ince and Mayhew, "A Universal System of Household Furniture," with ninety-five plates, 19s. 5s.; "The Golden Legend," Kelmscott Press, 1892, 10s. 10s.; Boydell's "History of the River Thames," 1794-6, a grangerised copy, with 90 additional illustrations, bound in green morocco by the Guild of Women Binders, 101s.; William Blake's "Book of Job," twenty-one proof-plates, in the original wrapper, 14s.; Lippincott's "Buckinghamshire," 1847, 18s. 5s.; Malton's "London and Westminster," 1792, 11s. 5s.; Ruskin's "Modern Painters," five volumes, 1848-50, 14s. 15s.; Ackermann's "Microcosm of London," 1811, with coloured plates by Pugin and Rowlandson, 23s.; a very fine copy of the beautifully illustrated book on art work, by J. P. Bergomensis, "De Plurimis Claris Selectisq. (sic) Mulieribus Opus . . .," 1497, Ferrara, 30s. 10s.; W. H. Pyne's "Royal Regalia," 1819, 17s.; and Ackermann's "Oxford and Cambridge," 1845, 20s. 10s.

**ROYAL ORTHOPEDIC HOSPITAL**.—It is stated that the Governors of the hospital have disposed of their site in Oxford-street and Hanover-square, having let it upon a lease for ninety-nine years at an annual rent of 1,400l. with an option of acquiring the freehold for 40,000l. within three years from now, and that Mr. Walter Emden has been appointed architect for new hospital buildings. The Governors have taken from the Duke of Bedford a lease of a site at the corner of Herbrand-street and Crampton-street, North Bloomsbury, at an annual rent of 500l. after the end of next year. It seems, however, that upon the ratification of negotiations for union of the two institutions which they have opened with the National Orthopedic Hospital, the interest in the site in Crampton-street will be disposed of. If the union is effected, it is intended to erect a hospital for a hundred beds in the northern suburbs as a country branch, and to establish a joint central hospital on and adjoining the site of the buildings of the National Orthopedic Hospital in Great Portland-street, Marylebone. The King's Hospital Fund almoners are prepared, we read, to make a liberal subsidy in aid of the contemplated amalgamation.

**THE NEW INFIRMARY FOR MANCHESTER**.—Now that the trustees of the Manchester Infirmary have signified their approval of the sale of the Piccadilly site and the acquisition of Stanley-grove for building purposes, no time will be lost in undertaking the various matters that must precede the building of the new infirmary. The arrangements with the Corporation for the purchase by the city of the land in Piccadilly and with the Council of Owens College for the transfer of the Stanley Grove estate, will, it is expected, shortly be completed. The Board of Management do not propose to have an open competition in plans. Such a proceeding, they hold, would probably deprive them of the assistance of some of the best architects in the country. All architects, however, have the opportunity, in the first instance, of being placed upon the Board's list, and the Board will

select from the applications the names of eight or ten architects or firms of architects, and these will be commissioned to prepare plans for a new infirmary on the Stanley-grove site. All the plans will be paid for, and the Board will be at liberty to select from them those which appear to be most suited to modern requirements. — *Manchester Guardian*.

**STRAND AND HOLBORN IMPROVEMENT**.—In the case of the claim by Messrs. Dent & Hellyer, sanitary engineers, Newcastle-street, against the London County Council for 60,000l. for the compulsory acquisition of their property by the latter for the purposes of the Strand and Holborn improvement scheme—which claim came before Mr. Ralph Clutton as sole arbitrator at the Surveyors' Institution—a consultation took place between counsel, with the result that the Council agreed to pay to the claimants the sum of 37,500l. Messrs. Dent & Hellyer remaining in possession until the last day of September of the present year.

**INTERNATIONAL FIRE EXHIBITION, 1903**.—We have been asked to state that architects who have designed fire stations are requested to communicate with Mr. F. R. Farrow, of 29, New Bridge-street, E.C., not later than Saturday, April 25, with the view of the possible exhibition of perspectives, elevations, photographs, or plans of modern stations in the architectural group of the impending International Fire Exhibition at Earl's Court.

**PROPOSED RESTORATION OF CULROSS ABBEY**.—A meeting of those favourable to the proposal to restore Culross Abbey, which was founded in 1217 by Malcolm, Earl of Fife, but which, after passing through strange vicissitudes, is now represented only by the choir of the original building, was held in the Society of Arts Hall, George-street, Edinburgh, on the 9th inst. A scheme of restoration has been prepared by Sir R. Rowland Anderson, and it is estimated that the restoration will cost 5,000l. Of that sum the heritors have offered to pay 2,000l., and, with a view of raising the remaining portion, committees are being formed in Culross, Edinburgh, and Glasgow. A committee of seven gentlemen, with Mr. Thomas Aitken, Edinburgh, as convener, was afterwards formed.

**MEMORIAL BRONZE, CHURCH OF ST. MARY, UPOTTERY, DEVONSHIRE**.—A large bronze has just been erected upon the north side of the parish church of St. Mary, at Upottery. It has been placed there by the present Viscount Sidmouth in the memory of the Right Honourable Henry Addington, Viscount Sidmouth, born May, 1757, Speaker of the House of Commons 1780-1801, and Prime Minister, 1801-1804. The bronze has been made and erected by Messrs. Harry Hems & Sons, Exeter.

**ARCHAEOLOGICAL DISCOVERIES IN GREECE**.—Professor Furtwaengler, the German archaeologist, in the course of his excavations in Orkhamnos, in the province of Boeotia, has discovered vases, it is stated, bearing inscriptions in a character exactly similar to that of the inscriptions which Sir John Evans discovered in his excavations at Knossos, in Crete.

**WINDOW, TALLAND CHURCH**.—A three-light window has been placed in the east end of Talland Parish Church as an Easter offering. The Crucifixion of the Saviour is the subject of the central light, and on either side are the Blessed Virgin and St. John respectively. The windows are the work of Messrs. Chater & Sons, London.

**RESERVOIR, BURY, LANCASHIRE**.—The ceremony of cutting the first sod in connexion with the construction of a new reservoir for the Bury and District Joint Water Board took place on the 8th inst. The site is between the Calf Hey and the Holden Wood reservoirs already owned by the Board in the valley at Haslingden Grange. Grange village, which is now depopulated, is on the site of the reservoir, which is to contain 280,000,000 gallons. The contracts amount to 104,626l., and seven years is the period allowed for completion. Messrs. W. & J. Foster, of Bingley, are carrying out the contract for construction. Mr. Cartwright is the Board's engineer.

## CAPITAL AND LABOUR.

**PAINTERS' DISPUTE AT SOUTHPORT**.—On Thursday, April 9, about 250 painters in Southport came out on strike. In October the masters gave notice of a reduction of hours in winter, that during November, December, and January work should be 8 to 4, with half an hour for dinner, and Saturdays 8 to 12; during the first fourteen days in February 8 to 5, with half an hour for dinner, and on Saturdays 8 to 12; full time to commence on February 15. The boundaries were to be one mile from the Southport Town Hall for Southport masters, and one mile from the Birkdale Town Hall for Birkdale masters, and it should be optional to pay wages at the jobs on the respective shops. The men offered to accept the change provided the masters reduced the mile boundary from the shops, beyond which boundary men were paid for the time occupied in walking to a job, to half a mile, and that the men should always be paid at the shop. To this the masters said they could not agree. At the masters' meeting on the 9th inst. firms representing 270 operatives were represented, and it was agreed to stand firm to the terms agreed upon. At present 250 men are receiving strike pay, and about 100 are



at work. The strike has come at an inopportune time, as work is now brisk, and most operatives can earn from 35s. to 2l. 5s. per week (with overtime). Strike pay will not amount to more than 15s. per man.

**STONEMASONS' DISPUTE, NEWCASTLE AND DISTRICT.**—A meeting of the stonemasons employed in the building trades of Newcastle, Gateshead, and Gosforth was held on the 14th inst. at the King's Head Hotel, Newcastle, to consider the present aspect of their dispute. The officials declined to give the Press any information, but we learn from an unofficial source that the decision came to was to the effect that the men agreed to return to work this morning, the 15th inst., but in the meantime, if some satisfactory arrangement was not come to during the course of the day, they will at once cease work, and come out on strike. Therefore the request of the employers to postpone and the threatened notice to terminate work for a week was rejected on the ground that they had had several months to consider the subject. There are about 800 men in the society, but we understand that only some 300 men are affected by the Federation.—*Newcastle Chronicle*.

### LEGAL.

#### LIGHT AND VENTILATION.

On Wednesday, last week, at the Lambeth Police Court, the case of the Camberwell Borough Council v. Briant was decided. There were two summonses taken out through Mr. Kerslake, sanitary inspector, and the complaint was that there was an absence of light and ventilation to the staircase, and an order was asked for requiring the defendant, Mr. Robert Briant, F.S.I., of 200, Kensington Park-road, the agent of houses in Harris-street, Camberwell, to put a sky-light in the roof of each house.

Mr H. Courthorne Munroe, barrister, appeared on behalf of the Council, and Mr. J. P. Easton, of William Easton & Sons, Solicitors, for the defendant.

The Council called, amongst other witnesses, five doctors, viz.: Dr. Stevens, their Medical Officer of Health; Dr. Wm. Heaton; Dr. J. C. Jackson, Medical Officer for Fulham; Dr. Wm. Stone; and Dr. E. C. Bousfield, Bacteriologist to the Camberwell Council.

For the defence, Dr. Wm. Lansdale, D.P.H., Dr. Oldfield, and Mr. Robert Briant were called, and after adjourning the matter for consideration and a personal view of the premises, Mr. Hopkins, delivered the following judgment:—

He said the cases of which this was a type were not very uncommon incidents of the constant struggle on the part of the Local Authorities to keep London healthy and sanitary according to advancing modern ideas, but the question raised was very difficult, and he hoped they were in a fair way of getting it settled by the verdict of the High Court. In form the summons was to obtain an order to abate a nuisance, but in substance the contest was whether the owner of a house built long prior to the passing of the Public Health (London) Act could be compelled to make a structural alteration in it to the extent of putting a skylight in the roof for the purpose of lighting and ventilating a staircase and landing alleged to be dark and unventilated. He had been favoured with the views of eminent scientific gentlemen upon the condition of the houses, with particulars of the carbonic acid proportion in samples of air taken within and without, with particulars of air stagnation, and finally he had himself visited the property. The houses under the defendant's control were tiny houses in a mean street. They were in very good order and repair, and were, perhaps, exceptionally well cared for for such property. They consisted of four living rooms, two on the ground and two on the first floor, and in the middle of the house, entered from the ground-floor passage, was a straight staircase, the sides of which ran right up to the ceiling lines of the first floor. On the floor line of the first floor was a tiny landing off which on left and right two doors opened into the two first-floor rooms. Doors and windows being all open there was light and circulation and ventilation, and draught enough and to spare. When the doors and windows were shut the staircase was rather dark, and was apt to become stuffy when the top room doors were continuously shut, and the Council asked for an order to abate the nuisance alleged to arise from that rather dark and stuffy staircase. They said that could be done by putting a skylight in the roof at a cost of 4l. for each house. He thought the work might be so done as to effect an improvement in the premises as regarded light and air, but he had to consider whether that improvement could be made compulsory. He had always thought that there was no magic in the words "structural alteration," and that everything depended upon whether, as a fact, the premises were in such a state as to be a nuisance or injurious or dangerous to health, so, he had always thought that an order to abate the nuisance or the danger must follow, whether that order involved a structural alteration or not; and he had, in his time, made or refused several such orders, according as he had been satisfied or not with the evidence in that particular. In this

case he was of opinion that the premises were not in such a state as to be a nuisance within any meaning of the word "nuisance," as used in the Public Health Act, and that he was aware of. He was also of opinion that these premises were not in such a state as to be injurious or dangerous to health. It seemed to him that the worst that could be said against them was that they gave to tenants who were careless about letting into their rooms such bad air as London afforded an opportunity of living in a more stuffy atmosphere than was good for them according to modern ideas. He was of opinion that the tenants could themselves use these premises in such a way as would entirely negative all the evidence given by the Council as to the danger of injury to the health of the tenants. It followed that he was not prepared to make the order asked for, and that he must dismiss the summons. As scientific evidence was called on both sides, he should allow the defendant 5l. 5s. costs.

### PATENTS OF THE WEEK:

#### APPLICATIONS PUBLISHED.\*

6,763 of 1902.—H. LACHINAL: *Means for Operating Window Blinds, Shutters and the Like.*

Means for operating blinds, shutters, and the like, consisting of a transmission mechanism with universal joints, combined with an actuated device controlling a system or series of abutments for checking movement produced by the weight of the blind or shutter when on cessation of operation said transmission mechanism has been released.

6,779 of 1902.—E. F. WARD: *Chimney or Ventilating Shaft Top.*

This consists in a chimney or ventilating shaft top consisting of an outer tube with an opening or openings in the side communicating with a smaller tube or enclosed passage upwards within the outer tube.

8,845 of 1902.—C. J. MALINGS: *Draught and Dust Excluders for Doors and the Like.*

Draught and dust excluders, consisting in the combination with a casing fitted in a groove, or otherwise attached to a door of a weather strip in said casing, secured in a metal binder or trough; a bar mounted in said casing above the weather strip, a spring arranged at one end of said bar, and means such as toggles, pawls, links, inclined surfaces, or the like, whereby a longitudinal motion of said bar causes the weather strip to emerge from the casing and so close the interstitial space between the casing and the door.

9,763 of 1902.—E. GLOVER: *Metal Casements or Hinged Windows.*

In that class of metal casements or hinged windows turned on vertical pivots in the same vertical plane as the window frame, making the fixed and hinged parts of the top and bottom bars with male and female pivots or horizontal turntables of special construction.

11,432 of 1902.—R. LEGGOTT and W. R. LEGGOTT, LTD.: *Sliding Bolts for Securing Doors and the Like.*

In carrying out this invention, a suitable plate frame is formed for attaching to the door or the like; the said plate is prepared with a long recess on the face side, and in this recess a lever is mounted on a fulcrum pin, beyond which the sliding bolt is mounted between suitable guides forming part of the plate frame. Connected to the sliding bolt are a number of projecting arms, so placed that, on operating the before-mentioned lever in either direction, the sliding bolt is actuated accordingly, and when the lever is in its normal position, laying within the recess, the arms of the lever are parallel with the axis of the sliding bolt, forming props to the bolt in such a manner that the said bolt is locked in the position corresponding to that of the lever. In the before-mentioned recess, in order that the lever may be retained in the recess, and the unlocking of the sliding bolt prevented, one or more stops controlled by springs may be applied so to come in contact with the internal arms of the lever, and thereby retain the lever and sliding bolt in their required position.

9,576 of 1902.—J. SHANKS: *Water Closets.*

A water closet having its side walls near the top of the basin curving inwards so as to form a comparatively large shoulder part on each side, the side walls extending more or less vertically downwards from the shoulder, and arranged so that the breadth of the basin below the shoulder is practically the same as the width of the discharge; the front portion of the basin sloping from the rim to the outlet leading to the trap bend.

25,071 of 1902.—J. C. WEEGER: *Mills for Grinding*  
A pan or roller mill in which the grinding rollers as well as the pan are positively driven, and have their axes mounted non-radially to the pan axis in bearings directly loaded with yielding pressure and fitted to slide in vertical guides.

6,945 of 1902.—W. ROYLE (P. E. Monnerat): *Machines for Levelling and Cultivating Land, and Excavating, Embanking, and Lifting Earth.*

A ground scraper or cultivating apparatus, com-

sisting of a scraper, a frame carrying the scraper having two members at right angles to each other and runners upon each member, and connexions from the extremities of the frame to drawing engines at front and rear, the frame being adapted to travel in either direction, and to be upset on the end of each travel.

11,242 of 1902.—J. H. PLACE & SONS, LTD., and W. H. PLACE: *Waste-pipe Protector Block for Sinks and the Like.*

A protector block or junction, for the waste-pipes of sinks and the like, provided with a trap or gully externally thereof.

28,718 of 1902.—W. C. LYON: *Metallic Matrices or Skeletons for Strengthening Blocks of Artificial Stone and the Like.*

Means of connecting the main rods or wires of a matrix designed for use in building blocks or slabs, with the tie wires, the same consisting in a casting of lead or other soft metal, said casting being provided with a depending lug or projection.

11,73 of 1903.—R. GARDNER: *Abbrading Blocks and Mountings therefor.*

An abrading surface comprising a series of spaced, independently removable abrading sections extending radially, each section having an increased operating face towards its outer end, the vertical faces of each section being at right angles to the operating face.

11,74 of 1903.—R. GARDNER: *Abbrading Blocks and Mountings therefor.*

An abrading tool comprising the combination of a suitable carrier and a plurality of abrading blocks, resembling approximately a triangular-shaped cored body.

1,200 of 1903.—J. F. RIDING: *Heating and Humidifying Apparatus for Greenhouses, Dwelling-houses, Cotton Mills, and Other Places where Heat or Moisture is Required.*

This consists in the combination of endless pipes, a cylinder or cylinders connected therewith, said cylinder or cylinders consisting of a water casing surrounding tubes, which are arranged to cross each other either horizontally or diagonally or placed vertically and united to the water casing, an adjustable heating device supported by balance-weights and water supply and overflow pipes for said water casing.

18,13 of 1903.—C. TAYLOR: *Gullies or Traps for Drains.*

This consists of one or more receivers for waste water placed at the side of the ordinary grid, and an additional grid placed under said ordinary grid in such a position that the waste water will pass through the additional grid to the drain without first passing through the ordinary grid.

11,892 of 1902.—H. W. CHUBB: *Locks for the Doors of Safe-Deposit Lockers or Cupboards and the Like.*

Means for attaching a lock to and detaching it from a door, consisting of guides fixed to or formed in the door between which the lock can be slid into or out of position, and devices for retaining the lock in place between the said guides and for releasing it.

13,411 of 1902.—THE STEEL NUT and J. HAMPTON, LIMITED, and J. HAMPTON, SENIOR: *Carpenters' Bench Stops.*

This consists in making the body or fixed part of the stop which is secured to the bench, in the ordinary way, of a box-like form, and combining therewith a coiled spring for the leg of the adjustable part or stop proper to seat itself on and so connecting the stop proper to the box-like body by means of a screw, that when the screw is turned in one or other direction, the stop proper is raised by the spring or depressed by the head of the screw against the action of the said spring.

24,226 of 1902.—A. GUYOT: *Taps or Cocks.*

A tap or cock for water, steam, or other fluid under pressure, characterised in that the valve thereof is provided with a pivot passing with considerable friction within a socket or bearing formed in the end of the controlling stem, which passes through a shouldered cap secured into the casing or body of the tap.

24,455 of 1902.—WAYGOOD & OTIS, LTD. (Otis Elevator Co., Incorporated): *Controlling Devices for Electric Motors, applicable to the Motors of Elevators and the Like.*

This invention consists primarily of means for changing the speed of a motor in accordance with the load before stopping, and so that the speed of a motor may be automatically reduced before stopping, by an amount proportioned to the load.

1,777 of 1903.—W. STEGER: *Weather Strips.*

The object of the present invention is to improve the construction of that class of weather strips having a slidable strip fitted in a recess of the bottom edge of the door, and capable of upward and downward movement as the door opens and closes, and to enable such parts to be entirely constructed of metal, whereby warping and twisting are prevented. This consists of a metallic hood designed to be arranged within a recess of a door, and provided at the top with interior recesses formed by upsetting the metal, and having inclined faces, springs having their upper end set at an angle and secured to the said inclined faces, whereby

\* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.



the springs are adapted to be flexed or bent transversely, the slidable weather strip being connected with the springs.

2,091 of 1903.—L. JÜRDSSEN: *Door Lock and Fastening with Alarm Device.*

This consists in the combination with the usual bolt, a blade spring fixed to the rear surface of the bolt, the free end of said spring being bent upwards, a contact piece fixed to said blade spring, a second blade spring fixed to the upper wall of the casing and extending downwardly, and a contact piece fixed to said second blade spring.

## MEETINGS.

SATURDAY, APRIL 18.

*Edinburgh Architectural Association.*—Visit to Edinburgh of the Glasgow Architectural Association, where a number of buildings will be inspected.  
*St. Paul's Ecclesiastical Society.*—Visit to the Church of St. Giles, Cripplegate. Meeting in the church at 8.30 p.m.

MONDAY, APRIL 20.

*Royal Institute of British Architects.*—Mr. Edwin T. Hall on "Four Modern Hospitals." The paper will be illustrated by working and detail drawings. 8 p.m.  
*Surveyors' Institution.*—Mr. H. Trustram Eve on "Modern Methods of Valuation of Manorial Residues." 4.30 p.m.  
*Edinburgh Architectural Association.*—Visit to Manderston Estate.

TUESDAY, APRIL 21.

*Institution of Civil Engineers.*—Mr. J. T. Milton and Mr. W. J. Larke on "The Decay of Metals." 8 p.m.  
*Builders' Clerks' Benevolent Institution.*—Twenty-fifth Annual Dinner, King's Hall, Holborn Restaurant. 6.30 p.m.  
*Glasgow Architectural Association.*—Paper by Mr. A. Hessel Tiltman. 8 p.m.

WEDNESDAY, APRIL 22.

*Edinburgh Architectural Association.*—Annual Business Meeting at the Edinburgh Address.  
*Eastern Counties Master Builders' Federation.*—Council meeting at 3 p.m., and annual general meeting at 3.30 p.m., at the Cups Hotel, Colchester.

THURSDAY, APRIL 23.

*Royal Institution.*—Professor Dewar, M.A., on "Hydrogen: Gaseous, Liquid, and Solid." 1 p.m.  
*Institution of Mechanical Engineers.*—Anniversary Dinner.  
*Institution of Electrical Engineers.*—Adjourned discussion on paper by Mr. A. D. Constable and Mr. E. Fawcett on "Distribution Losses in Electric Supply Systems," and Mr. M. B. Fields' paper on "A Study of the Phenomenon of Resonance in Electric Circuits by the Aid of Oscillograms." 2. (If time permit.) Mr. W. Aiken on "Divided Multiple Switchboards: An Efficient Telephone System for the World's Capitals." (The announcement of the Council Nominations for the Council of 1903-4 will be made at this meeting.) 8 p.m.  
*Society for the Encouragement of the Fine Arts.*—Mr. H. Beaumont on "Ruskin's Bible of Amiens" (with lantern illustrations). 8 p.m.

FRIDAY, APRIL 24.

*Institution of Civil Engineers (Students' Meeting).*—Mr. H. S. Watson on "Bacterial Sewage-Disposal Works at Ash, Dover." 8 p.m.  
*Royal Institution.*—Hon. R. J. Strutt, M.A., on "Some Recent Investigations on Electrical Conduction." 9 p.m.  
*Institution of Mechanical Engineers.*—President's Address. 2. Professor W. E. Dalby on "The Education of Engineers in America, Germany, and Switzerland." 8 p.m.  
*Union Institution of Engineers (Westminster Palace Hotel).*—Mr. R. W. Newman on "The Effect of Design on Methods of Construction, from a Contractor's Point of View." 8 p.m.

SATURDAY, APRIL 25.

*Royal Institution.*—Professor Langdon Douglas, M.A., on "The Early Art of Siena." 1 p.m.

## SOME RECENT SALES OF PROPERTY:

## ESTATE EXCHANGE REPORT.

April 6.—By MIDDLETON & CRACKNELL.  
Hampstead.—20, Prince Arthur-rd., u.t. 51 yrs., g.t. 361, s.t. 1861. £1,600  
By TROTTER, PEARCE, & MITCHELL.  
Uffculme, Devon.—The Uffculme Brewery, with 22 tied houses, f. 20,650  
Mount View and 37 a. f. 3,000  
Ockley, Surrey.—The Red Lion Hotel and 2½ a. the letting on 21 yrs. free lease, at per annum (including goodwill and possession). 150  
By VENTNOR, BULL, & COOPER.  
Houndstitch.—Nos. 18, 59, 60, and 61 a. area 4,000 ft., building lease for 80 yrs., let at per annum. 395  
City of London.—87 and 88, Tower Hill, area 2,100 ft., building lease for 80 yrs., let at per annum. 160  
By WEATHERALL & GREEN.  
Clapton.—4, Clapton Common, f. 2,650  
Hounslow, Middlesex.—Jersey Villas, f.g.t. 361, 481, reversion in 44 yrs. 1,140  
By WINKWORTH & CO.  
Belgravia.—40 and 41, Wilton-cres., profit rentals of 401. for 31 yrs. and 401. for 191 yrs. 2,175  
Wilton-place, u.t. 19 yrs., g.t. 61, f. 181. 2,800  
April 7.—By DEBESHAM, TEWSON, & CO.  
Holloway.—Nos. 92 and 94, Drayton St., u.t. 73 yrs., g.t. 241, y.t. 126. 1,305  
4, Stavordale-rd., u.t. 73 yrs., g.t. 81, y.t. 451. 450

Notting Hill.—37, Ladbrooke-sq., u.t. 35 yrs., g.t. 401, p. 1.  
By DAVID BURNETT & CO.  
Manor Park.—90, 98, and 130, Third-av., f. w.r. 714. 105  
Deringsham-av., plot of land, f. 105  
Ilford.—7 and 8, Grove-cottages, f. w.r. 314. 295  
By HANFORD & SONS.  
Cockayne Hatley, Beds.—The Cockayne Hatley Estate, 1,540 acres, f., including the manor and advowson. 34,100  
By HOLCOMBE, BEETS, & WEST.  
Camden Town.—57, St. Augustine's-rd., u.t. 60 yrs., g.t. 101, y.t. 521. 500  
Marylebone.—84, High-st., u.t. 6 yrs., g.t. 251, y.t. 1901. 600  
18, Faddington-st., u.t. 6 yrs., g.t. 201, y.t. 251. 120  
23, Nottingham-st., u.t. 21½ yrs., g.t. 101, y.t. 801. 800  
By J. P. THORNTON.  
Shepherd's Bush.—394, Goldhawk-rd., u.t. 86½ yrs., g.t. 101, s.t. 651. 800  
By BOYTON, PEGRAM, & BUCKMASTER (at Waltham Green).  
Fulham.—24 to 30 (even), Ancill-st., f. w.r. 1321. 125  
4, Barclay-rd., u.t. 50 yrs., g.t. 71, w.r. 1261. 720  
243, Munster-rd., u.t. 89 yrs., g.t. 61, s.t. 61. 350  
38, Moore Pl.-rd., u.t. 61½ yrs., g.t. 51, 101, y.t. 361. 825  
26 to 32 (even), De Morgan-rd., u.t. 92½ yrs., g.t. 201, w.r. 151, y.t. 181, y.t. 101, y.t. Chelsea.—7 and 8, Gertrude-st., u.t. 48 yrs., g.t. 101, y.t. 81. 790  
April 8.—By HARDS & BRADLEY.  
Millwall.—13 and 15, Newcastl-rd., u.t. 38 yrs., g.t. 71, 121, s.t. 621. 815  
By E. H. HENRY.  
Clapham Common.—3 to 5, South-side (S.), u.t. 11 yrs., g.t. 381, 121, y.t. 3141. 1,010  
6, South-side, u.t. 21 yrs., g.t. 181, y.t. 101. 385  
Brixton.—34, Torrens-rd., u.t. 79 yrs., g.t. 71, y.t. 341.  
By FRANK JOLLY & CO.  
Mile End.—9, 15, and 17, Venou-rd., u.t. 72½ yrs., g.t. 151, w.r. 121, 151. 835  
Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gds. for gardens; yd. for yard; gr. for grove; b.h. for beer-house; p.h. for public-house; o. for offices; s. for shops.  
\* \* \* \* \*  
Our aim in this list is to give, as far as possible, the average prices of materials, not necessarily the lowest quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.  
BRICKS, &c.  
£ s. d.  
Hard Stocks . . . 12 0 0 per 1,000 alongside, in river.  
Rough Stocks and Grizes . . . 2 15 0  
Facing Stocks . . . 2 12 0  
Shippers . . . 2 5 0  
Flettons . . . 1 7 6 at railway depôt  
Red Wire Cuts . . . 1 12 0  
Best Farnham Red . . . 3 12 0  
Best Red Pressed Ruabon Facing . . . 5 0 0  
Best Blue Pressed Staffordshire . . . 4 5 0  
Do. Bullnose . . . 4 12 0  
Best Stourbridge Fire Bricks . . . 4 8 0  
Glazed Bricks . . . 4 8 0  
Best White and Ivory Glazed Stretchers . . . 13 0 0  
Heads . . . 12 0 0  
Quoins, Bullnose, and Flats . . . 17 0 0  
Double Stretchers . . . 19 0 0  
Double Headers . . . 16 0 0  
One Side and two Ends . . . 19 0 0  
Two Sides and one End . . . 20 0 0  
Splays, Chamfered, Squints . . . 20 0 0  
Best Dipped Salt Glazed Stretchers and Headers . . . 12 0 0  
Quoins, Bullnose, and Flats . . . 14 0 0  
Double Stretchers . . . 14 0 0  
Double Headers . . . 14 0 0  
One Side and two Ends . . . 15 0 0  
Two Sides and one End . . . 15 0 0  
Splays, Chamfered, Squints . . . 14 0 0  
Second Quality White and Dipped Salt Glazed . . . 2 0 0 less than best.  
Thames and Pit Sand . . . 6 9 per yard, delivered.  
Thames Ballast . . . 6 0  
Best Portland Cement . . . 3 0 per 100, delivered.  
Best Ground Blue Lias Lime . . . 21 0  
NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.  
Grey Stone Lime . . . 10s. 6d. per yard, delivered.  
Stourbridge Fire-clay in sacks 27s. 6d. per ton at rly. depôt.

## PRICES CURRENT (Continued).

STONE.  
s. d.  
Ancaster in blocks . . . 11 per ft. cube, deld. rly. depôt.  
Bath . . . 1 7  
Farleigh Down Bath . . . 1 8  
Beer in blocks . . . 1 6  
Grinshill . . . 1 10  
Brown Portland in blocks 2 2  
Darley Dale in blocks . . . 2 4  
Red Corshill . . . 2 5  
Closeburn Red Free . . . 2 0  
Red Mansfield . . . 2 4  
York Stone—Robin Hood Quality.  
s. d.  
Scrapped random blocks 3 to per ft. cube, deld. rly. depôt.  
6 in. sawn twosides landings to sizes (under 40 ft. super.) . . . 3 per foot super.  
6 in. Rubbed two sides Ditto . . . 2 6  
3 in. Sawn two sides slabs (random sizes) . . . 0 7½  
1½ in. to 2 in. ditto . . . 0 6  
BEST HARL YONK.  
Scrapped random blocks 3 0 per ft. cube  
6 in. sawn two sides landings to sizes (under 40 ft. super.) . . . 2 8 per ft. super.  
6 in. Rubbed two sides Ditto . . . 2 8  
3 in. sawn two sides slabs (random sizes) 1 2  
2 in. self-faced random flags . . . 0 5  
Hopton Wood (Hard Bed) in blocks 2 3 per ft. cube, deld. rly. depôt.  
6 in. sawn both sides landings 2 7 per ft. super, deld. rly. depôt.  
3 in. do. 1 2½  
in. in. SLATES.  
£ s. d.  
20 x 10 best blue Bangor . . . 2 6 per 1000 of 1200 at rly. depôt.  
20 x 12 " " " 13 17 6  
20 x 10 best seconds " 12 15 0  
20 x 12 " " " 13 10 0  
10 x 8 best " 7 0 0  
20 x 10 best blue Portman . . . 12 5 0  
16 x 8 best blue Portman . . . 6 5 0  
20 x 10 best Eureka un-fading green . . . 15 2 6  
20 x 12 " " " 17 2 6  
18 x 10 " " " 12 10 0  
16 x 8 " " " 10 5 0  
20 x 10 permanent green 11 0 0  
18 x 10 " " " 9 5 0  
16 x 8 " " " 6 10 0  
TILES.  
s. d.  
Best plain red roofing tiles . . . 42 0 per 1,000, at rly. depôt.  
Hip and valley tiles . . . 3 7 per doz.  
Best Broseley tiles . . . 50 0 per 1,000  
Do. Ornamental Tiles . . . 52 6  
Hip and valley tiles . . . 4 0 per doz.  
Best Ruabon Red, brown or brindled Do. (Edwards) 57 6 per 1,000  
Do. ornamental Do. . . 60 0  
Hip tiles . . . 4 0 per doz.  
Valley tiles . . . 3 0  
Best Red or Mottled Staffordshire Do. (Peakes) 51 9 per 1,000  
Do. Ornamental Do. . . 54 6  
Hip tiles . . . 4 1 per doz.  
Valley tiles . . . 3 8  
Best "Rosemary" brand plain tiles . . . 48 0 per 1,000  
Do. Ornamental Do. . . 50 0  
Hip tiles . . . 4 0 per doz.  
Valley tiles . . . 3 8  
WOOD.  
At per standard.  
Deals: best 3 in. by 11 in. and 4 in. £ s. d. £ s. d.  
by 9 in. and 11 in. . . 13 10 0 16 10 0  
Deals: best 3 by 9 in. . . 14 10 0 15 10 0  
Battens: best 2½ in. by 7 in. and 8 in. . . 11 10 0 12 10 0  
and 3 in. by 7 in. and 8 in. . . 10 10 0 less than 7 in. and 8 in.  
Battens: best 2½ by 6 and 3 by 6 . . . 10 10 0 less than best  
Deals: seconds . . . 12 0 0 less than best  
Battens: seconds . . . 10 10 0 " "  
2 in. by 4 in. and 2 in. by 6 in. . . 9 0 0 9 10 0  
2 in. by 4 in. and 2 in. by 5 in. . . 8 10 0 9 10 0  
Foreign Sawn Boards—  
1 in. and 1½ in. by 7 in. . . 10 0 more than battens.  
3 in. . . 12 0 0  
Fir timber: Best middling Darning or Memel (average specification) . . . 4 10 0 5 0 0  
Seconds . . . 4 5 0 4 10 0  
Small timber (3 in. to 10 in.) . . . 3 14 6 3 15 0  
Small timber (6 in. to 8 in.) . . . 3 0 0 3 10 0  
Swedish balks . . . 2 15 0 3 0 0  
Pitch-pine timber (30 ft. average). . . 3 5 0 3 15 0  
JOINERS' WOOD.  
At per standard.  
White Sea: First yellow deals, 3 in. by 11 in. . . 23 0 0 24 0 0  
3 in. by 9 in. . . 21 0 0 22 10 0  
Battens, 2½ in. and 3 in. by 7 in. . . 17 0 0 18 10 0  
Second yellow deals, 3 in. by 11 in. . . 18 10 0 19 0 0  
3 in. by 9 in. . . 17 10 0 18 0 0  
Battens, 2½ in. and 3 in. by 7 in. . . 13 10 0 14 10 0  
T.O. 3 in. by 11 in. . . 15 10 0 16 10 0  
Battens, 2½ in. and 3 in. by 7 in. . . 11 10 0 12 10 0  
Petersburg: first yellow deals, 3 in. by 11 in. . . 21 0 0 22 10 0  
Do. 3 in. by 9 in. . . 18 10 0 19 0 0  
Battens . . . 13 10 0 15 0 0  
Second yellow deals, 3 in. by 11 in. . . 16 0 0 17 0 0  
Do. 3 in. by 9 in. . . 14 10 0 15 0 0  
Battens . . . 11 10 0 12 10 0  
Third yellow deals, 3 in. by 11 in. . . 10 10 0 11 0 0  
Do. 3 in. by 9 in. . . 9 0 0 10 0 0  
Battens . . . 0 0 0 11 0 0

[See also page 423.]



## COMPETITIONS, CONTRACTS AND PUBLIC APPOINTMENTS.

(For some Contracts, &amp;c., still open, but not included in this List, see previous issues.)

## COMPETITION.

Nature of Work.	By whom Required.	Premiums.	Designs to be delivered
*Artisans' Dwellings, High Wincobank Estate .....	Sheffield City Council .....	50 <i>l.</i> , 30 <i>l.</i> , and 25 <i>l.</i> .....	No date.

## CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c., supplied by	Tenders to be delivered
*Painting External Wood and Ironwork, &c., Chapel, School, &c., Merthyr Tydfil .....	Kingston Union .....	Assistant Clerk, Union Offices, Coombe-lane, Kingston-on-Thames..	April 20
Fire and Police Station, Ford Park, Matley .....	Moriais Baptist Church .....	Rev. E. Aubrey, 22, The Avenue, Merthyr .....	April 21
Renovation of Tabernacle Chapel, Haverfordwest .....	Plymouth Corporation .....	J. Eaton, Borough Engineer, Municipal Offices, Plymouth .....	do.
Eight Workmen's Dwellings, Ravensthorpe, Yorks .....	The Trustees .....	A. H. Thomas, Architect, Haverfordwest .....	do.
Sessions House, Larne, Ireland .....	Messrs. Marshall & Co., Ltd. ....	J. W. Burrows, Architect, Bristol .....	do.
C. L. Water, &c., Malin, Workhouse, Gravelly Hill, B'm'g'n .....	Acton Guardians .....	G. Robinson, Surveyor, Barnhill, Larne .....	do.
Reservoir, &c. ....	Lawrence Town Council .....	C. Whitwell & Sons, Architects, 25, Temple-row, Birmingham .....	do.
Workmen's Dwellings, Calder Vale-road, Wakefield .....	Messrs. Brotherton & Co., Ltd. ....	J. Berwick, Architect, Blackburn .....	do.
Additions to Schools, Northumberland-avenue .....	Hull School Board .....	Stimpson & Richardson, Architects, Southgate, Wakefield .....	do.
Hall, Headcorn, Kent .....	Local Board of Kent Oddfellows .....	The Architect, School Board Offices, Albion-street, Hull .....	do.
Road Metal (5,000 tons) .....	Southampton Corporation .....	Jeffery & Lacey, Architects, 13, North-street, Ashford .....	do.
Additions to Wesley Chapel, Ebbw Vale, Wales .....	Acton District Council .....	J. A. Crowther, Surveyor, Market Chambers, Southampton .....	do.
*Making-up Roads .....	Swinton (Lanes) U.D.C. ....	R. L. Roberts, Architect, Abercarn .....	do.
Rebuilding the Swan Hotel, Blackburn .....	Brewery Co., Ltd. ....	Council's Surveyor, 212, High-street, Acton .....	do.
Water Mains, &c., Ore .....	Haslings Guardians .....	W. T. Paschke, Council Offices, Swinton .....	April 22
Shelters and Bandstands .....	Blackpool Corporation .....	J. Berwick, Architect, Blackburn .....	do.
Rebuilding the Punch Bowl Hotel, Parween .....	Rev. J. M. G. G. ....	Jeffery & Sons, Architects, 5, Havelock-road, Hastings .....	do.
Beltry at Church, Craigavon, Co. Derry .....	The Committee .....	J. S. Brodie, Borough Surveyor, Town Hall, Blackpool .....	do.
Public Library, West Calder, N.B. ....	Ramsgate Corporation .....	E. & J. Byrne, Architect, 4, Waring-street, Belfast .....	do.
Works at Workhouse Infirmary .....	Cannock Guardians .....	W. Baillie, Architect, 233, Hope-street, Glasgow .....	do.
House, Baldon, Yorks .....	Hippesholme (Yorks) U.D.C. ....	Thorogh Engineer, Albion House, Ramsgate .....	do.
Eleven Houses, Alergate, Durham .....	Ipwich Guardians .....	Willcot & Haikes, 55, Temple-row, Birmingham .....	do.
Severage Works .....	The Trustees .....	Walker & Collinson, Architects, Swan-arcade, Bradford .....	April 23
House, Britannia-road .....	Saturnshire County Council .....	G. Ord, Architect, 16, The Avenue, Durham .....	do.
Bungalow, Grimsby Woods, Huddersfield .....	Canon Rice .....	Walsh & Nicholas, Surveyors, Halifax .....	do.
Schools, Great Darkgate-street, Aberystwyth .....	Director-General Ordnance Survey .....	J. Kirk & Sons, Architects, Huddersfield .....	do.
Drainage Works, &c., Balfour, N.B. ....	Messrs. J. Dover & Sons .....	J. L. Evans, Architect, 21, Great Darkgate-street, Aberystwyth .....	do.
Parochial Residence, Cookstown, Ireland .....	Northumberland County Council .....	A. Forbes, 146, Buchanan-street, Glasgow .....	do.
*Flimber .....	Penrith-on-Sea U.D.C. ....	E. & J. Byrne, Architect, 4, Waring-street, Belfast .....	do.
Additions to Birks, Seelberg .....	Bristol Corporation .....	Office in Charge of Stores, Ordnance Survey Office, Southampton .....	do.
Alterations to Primitive Methodist Chapel, Shildon .....	Aspiria (Cumberland) Water Bd. ....	S. Shaw, Architect, Highgate, Kent .....	April 24
Four Shops, Warehouse, &c., Horton-street, Halifax .....	Quarrier Co., Ltd. ....	Walsh & Nicholas, Architects, Harrison-road, Halifax .....	do.
Rebuilding Bridges, &c., Eardon Well and other places .....	Saffron Walden Town Council .....	J. A. Bean, County Surveyor, The Moor Hall, Newcastle .....	do.
Making up Station-road .....	Horforth U.D.C. ....	T. W. Golds, Surveyor, High-street, Priton .....	do.
Underground Sub-station .....	Bradford Corporation .....	R. Proctor, City Engineer, Borough Surveyor, Saffron Walden .....	do.
Additions to Hospital .....	Cardiff Guardians .....	J. H. Jones, Surveyor, Council Offices, Horsforth .....	do.
Waterworks .....	Culross (N.B.) Town Council .....	J. H. Cox, City Surveyor, Town Hall, Bradford .....	do.
Pier Works, Llantail, Loch Linnhe .....	Faversham Corporation .....	E. Seward, Architect, Queen's Chambers, Cardiff .....	do.
Road Metal, &c., near Leeds .....	Aberdeen Harbour Commissioners .....	P. Davies, Architect, Port Talbot .....	do.
Road Metal, &c. (2,000 tons) .....	Aberystwyth School Board .....	W. Stewart, Inverurie .....	do.
Additions to Schools, Ely .....	Winchester Corporation .....	Kyle, Dennison, & Laing, Civil Engineers, 13, George-st., Edinburgh .....	April 27
Chapel, Pontrytyfen, Wales .....	Sittingham County Council .....	Hopkinson & Talbot, 25, Victoria-street, S.W. ....	do.
Alterations to Farm Buildings, Brownhill, Abenford .....	County Borough of West Ham .....	R. H. Nichol, Engineer, Aberdeen .....	do.
Drainage Works .....	Peny-bont (Wales) R.D.C. ....	A. L. Roberts, Architects, Abercarn, Mon. ....	do.
Electric Lighting Plant .....	The Admiralty .....	W. V. Anderson, Civil Engineer, Guildhall, Winchester .....	do.
Conduits at Dock .....	Porsmouth Corporation .....	H. Walker & Sons, Architects, King-street, Nottingham .....	do.
School, Aberlilly, Mon. ....	Bromley U.D.C. ....	Borough Engineer, Town Hall, Stratford, E. ....	do.
Sewers, &c. ....	do. ....	W. T. Douglas, Engineer, 15, Victoria-street, Westminster, S.W. ....	April 23
*Cast Iron Tank, &c., at Canning Town .....	do. ....	J. Standen & Sons, 4, Maze-road, Kew .....	April 29
Lighthouse Tower, nr. St. Catherine's Point, Cornwall .....	do. ....	Not stated .....	May 1
Restoration of St. Cuthbert's Church, Kirby-in-Purness .....	do. ....	do. ....	do.
Electrical Plant .....	do. ....	do. ....	do.
Sewerage Works, Ynysawre (two contracts) .....	do. ....	do. ....	do.
*New Coast Guard Station, Sunderland .....	do. ....	do. ....	do.
*Technical Institute and Free Library .....	do. ....	do. ....	do.
*Sewerage Works .....	do. ....	do. ....	do.
*Far Paving Works .....	do. ....	do. ....	do.
*Supply of Road Materials .....	do. ....	do. ....	do.
*External Painting, &c., at Workhouse .....	do. ....	do. ....	do.
Sewerage Works, near Bridgend .....	do. ....	do. ....	do.
Bridge Improvement Works, Blackford .....	do. ....	do. ....	do.
*Heating, Hot Water, &c., Infirmary, Highfield .....	do. ....	do. ....	do.
Freshwater and Tidal Main Sewerage Works .....	do. ....	do. ....	do.
*Municipal Technical Institute and Free Library .....	do. ....	do. ....	do.
Chimney Shaft (126 ft. high) at Electric Station, Slough .....	do. ....	do. ....	do.
Sewerage Works, Rhyll, North Wales .....	do. ....	do. ....	do.
House, Hexham, King's Lynn .....	do. ....	do. ....	do.
Business Premises and two Houses, St. Thomas, Exeter .....	do. ....	do. ....	do.
Lying Water Main .....	do. ....	do. ....	do.
Carshed, Stalybridge .....	do. ....	do. ....	do.
Detached Dwelling House, Tintagel, N. Cornwall .....	do. ....	do. ....	do.

## PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*Architect and Surveyor of School Buildings .....	D. von County Council .....	400 <i>l.</i> , &c. ....	April 29
*Architects .....	Manchester Royal Infirmary Board .....	Not stated .....	May 1

Those marked with an asterisk (\*) are advertised in this Number.

Competitions, iv.

Contracts, iv. vi. viii. &amp; x.

Public Appointments, xviii.



## PRICES CURRENT (Continued).

## WOOD.

	At per standard.	At per standard.	At per standard.
	£ s. d.	£ s. d.	£ s. d.
White Sea and Petersburg:—			
First white deals, 3 in. by 11 in.	14 10 0	15 10 0	
Second white deals, 3 in. by 9 in.	13 10 0	14 10 0	
Battens:—			
Second white deals 3 in. by 11 in.	11 0 0	12 0 0	
Third white deals 3 in. by 9 in.	12 10 0	13 10 0	
Under 2 in. thick extra	9 10 0	10 10 0	
Yellow Pine—First, regular sizes.	10 0 0	11 0 0	
Oddments	22 0 0	24 0 0	
Seconds, regular sizes	24 10 0	26 10 0	
Yellow Pine Oddments	20 0 0	22 0 0	
Kauri Pine—Planks, per ft. cube.	0 3 6	0 4 6	
Darling and Stettin Oak Logs:—			
Large, per ft. cube	0 2 6	0 3 6	
Small	0 2 3	0 2 6	
Wainscot Oak Logs, per ft. cube	0 5 0	0 5 6	
Dry Wainscot Oak, per ft. sup.	0 0 7	0 0 8	
3 in. do. do.	0 0 6	0 0 7	
Dry Mahogany:—			
Flourens, Tabasco, per ft. sup.	0 0 9	0 0 11	
as inch	0 1 6	0 2 0	
Selected, Figury, per ft. sup.	0 1 6	0 2 0	
as inch	0 1 0	0 1 0	
Teak, per load	16 10 0	17 10 0	
American Whitewood Planks:—			
Per ft. cube	0 4 0	0 4 0	
Prepared Flooring:—			
1 in. by 7 in. yellow, planed and shot.	0 13 6	0 17 6	
2 in. by 7 in. yellow, planed and matched.	0 14 0	0 18 0	
2 in. by 7 in. yellow, planed and matched.	0 16 0	0 21 6	
2 in. by 7 in. white, planed and shot.	0 11 6	0 14 0	
2 in. by 7 in. white, planed and matched.	0 12 0	0 14 0	
2 in. by 7 in. white, planed and matched.	0 14 6	0 16 6	
2 in. by 7 in. yellow, planed and beaded or V-jointed boards	0 11 0	0 13 6	
2 in. by 7 in. do. do.	0 14 0	0 18 0	
2 in. by 7 in. white do. do.	0 10 0	0 12 6	
2 in. by 7 in. do. do.	0 11 6	0 13 6	
6 in. at 6d. to 9d. per square less than 7 in.			

## JOISTS, GIRDERS, &amp;c.

In London, or delivered.

	Per ton.	Per ton.	Per ton.
	£ s. d.	£ s. d.	£ s. d.
Rolled Steel Joists, ordinary sections	6 5 0	7 5 0	
Compound Girders	8 2 6	9 5 0	
Angles, Tees and Channels, ordinary sections	7 17 6	8 17 6	
Flat Plates	8 5 0	8 15 0	
Cast Iron Columns and Stanchions, including ordinary patterns	7 2 6	8 5 6	

## METALS.

	Per ton.	Per ton.	Per ton.
	£ s. d.	£ s. d.	£ s. d.
Common Bars	7 15 0	8 5 0	
Staffordshire Crown Bars, good merchant quality	8 5 0	8 15 0	
Staffordshire "Marked Bars"	10 10 0	11 0 0	
Mild Steel Bars	9 0 0	9 10 0	
Hoop Iron, basis price	9 0 0	9 10 0	
Galvanised	10 0 0	11 0 0	
(* And upwards, according to size and gauge.)			
Sheet Iron, Black:—			
Ordinary sizes to 30 g.	10 0 0	11 0 0	
" 30 g. and 24 g.	11 0 0	12 0 0	
" 24 g. and 20 g.	12 0 0	13 0 0	
Sheet Iron, Galvanised, flat, ordinary quality:—			
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 30 g.	13 15 0	14 5 0	
" 24 g. and 20 g.	14 5 0	15 5 0	
Sheet Iron, Galvanised, flat, best quality:—			
Ordinary sizes to 30 g.	16 0 0	17 0 0	
" 24 g. and 20 g.	17 0 0	18 0 0	
Galvanised Corrugated Sheets:—			
Ordinary sizes, 6 ft. to 8 ft. 30 g.	13 15 0	14 5 0	
" 24 g. and 20 g.	14 5 0	15 5 0	
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	13 0 0	14 0 0	
" 20 g. and 18 g.	14 0 0	15 0 0	
" 18 g. and 16 g.	14 5 0	15 5 0	
Cut nails, 3 in. to 6 in.	9 5 0	9 15 0	
(Under 3 in. usual trade extras.)			

## LEAD, &amp;c.

	Per ton.	Per ton.	Per ton.
	£ s. d.	£ s. d.	£ s. d.
LEAD—Sheet, English, 3 lbs. & up.	15 7 6	16 7 6	
Pipe in coils	15 7 6	16 7 6	
Soil pipe	18 7 6	19 7 6	
Compo Pipe	18 7 6	19 7 6	
ZINC—Sheet:—			
Vicille Montagne	28 5 0	29 5 0	
Silesian	28 0 0	29 0 0	
COPPER:—			
Strong Sheet	0 0 10 1/2	0 0 11 1/2	
Thin	0 0 11 1/2	0 0 12 1/2	
Copper nails	0 0 11 1/2	0 0 12 1/2	
BRASS:—			
Strong Sheet	0 0 10 1/2	0 0 11 1/2	
Thin	0 0 11 1/2	0 0 12 1/2	
Tin—English Ingots	0 1 5	0 1 5	
Solder—Plumbers'	0 0 6 1/2	0 0 7 1/2	
Tinmen's	0 0 8 1/2	0 0 9 1/2	
Blowpipe	0 0 8 1/2	0 0 9 1/2	

## PRICES CURRENT (Continued).

## ENGLISH SHEET GLASS IN CRATES.

	24 in. per ft. delivered.	24 in. per ft. delivered.	24 in. per ft. delivered.
	£ s. d.	£ s. d.	£ s. d.
15 oz. thirds	24 1/2	25 1/2	
" fourths	24 1/2	25 1/2	
21 oz. thirds	24 1/2	25 1/2	
" fourths	24 1/2	25 1/2	
26 oz. thirds	24 1/2	25 1/2	
" fourths	24 1/2	25 1/2	
32 oz. thirds	24 1/2	25 1/2	
" fourths	24 1/2	25 1/2	
Fluted sheet, 15 oz.	24 1/2	25 1/2	
" 21 oz.	24 1/2	25 1/2	
Harley's Rolled Plate	24 1/2	25 1/2	
" 21 oz.	24 1/2	25 1/2	
" 26 oz.	24 1/2	25 1/2	

## OILS, &amp;c.

	£ s. d.	£ s. d.	£ s. d.
	per gallon	per gallon	per gallon
Raw Linseed Oil in pipes or barrels	0 2 3	0 2 3	
" in drums	0 2 7	0 2 7	
Boiled " in pipes or barrels	0 2 5	0 2 5	
" in drums	0 2 9	0 2 9	
Turpentine, in barrels	0 3 8	0 3 8	
" in drums	0 3 10	0 3 10	
Genuine Ground English White Lead	per ton 21 0 0	21 0 0	
Red Lead, Dry	20 0 0	20 0 0	
Best Linseed Oil Putty	per cwt. 0 8 0	0 8 0	
Stockholm Tar	per barrel 1 12 0	1 12 0	

## VARNISHES, &amp;c.

	£ s. d.	£ s. d.	£ s. d.
	per gallon	per gallon	per gallon
Fine Pale Oak Varnish	0 8 0	0 8 0	
Fine Copal Oak	0 10 6	0 10 6	
Superfine Pale Elastic Oil	0 10 6	0 10 6	
Superfine Hard-drying Oil, for Seats of Churches	0 14 0	0 14 0	
Fine Elastic Carriage	0 12 6	0 12 6	
Superfine Pale Elastic Carriage	0 16 0	0 16 0	
Fine Pale Maple	0 16 0	0 16 0	
Finest Pale Durable Copal	0 18 0	0 18 0	
Extra Pale French Oil	0 18 0	0 18 0	
Yellowish Flattening Varnish	0 18 0	0 18 0	
White Copal Enamel	0 18 0	0 18 0	
Extra Pale Paper	0 18 0	0 18 0	
Best Japan Gold Size	0 10 6	0 10 6	
Best Black Japan	0 10 6	0 10 6	
Oak and Mahogany Stain	0 9 0	0 9 0	
Brunswick Black	0 8 6	0 8 6	
Berlin Black	0 16 0	0 16 0	
Knott's	0 16 0	0 16 0	
French and Black Polish	0 10 0	0 10 0	

## TO CORRESPONDENTS.

J. W. B. (Amount should have been stated).

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications. Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

## TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us not later than 10 a.m. on Thursday. N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under roof, unless in some exceptional cases and for special reasons.]

\* Denotes accepted. † Denotes provisionally accepted.

GUILDFORD.—For the erection of buildings, &c., at the waterworks, Millmead, for the Town Council. Mr. C. G. Mason, C.E., Tuns Gate, Guildford:—  
Stevens & Sons ..... £507  
Trite & Robinson ..... 475GUILDFORD.—For the erection of offices, &c., at Cattle Market, Woodbridge-road, for the Town Council. Mr. C. G. Mason, C.E., Tuns Gate, Guildford:—  
Wm. Young ..... £387 10  
Stanley Ellis ..... 359 0  
Mitchell Bros. .... 333 0  
Guildford ..... 315 0HEBBURN.—For the execution of street works, for the Urban District Council. Mr. Curry, Surveyor, Hebburn:—  
Wardlaw ..... £3,720 13 2  
Thornthorn ..... 3,399 15 5  
Scott, Borough Surveyor ..... 3,315 15 5  
Fisher ..... 3,017 2  
Robson ..... £2,936 13 6  
Brown ..... 2,901 7 6  
G. Simpson ..... 2,866 13 6  
Newcastle ..... 2,866 13 6HOVE.—For new street works in Poynter-road. Mr. H. H. Scott, Borough Surveyor:—  
Parsons & Sons, Hove ..... £196HOVE.—For erecting dwarf wall, gate piers, cast-iron railing and gate at new pleasure ground. Mr. H. H. Scott, Borough Surveyor:—  
Parsons & Sons, Hove ..... £1,495LANGUM.—For new chapel, Langum, Pembroke-shire. Messrs. G. Morgan & Son, architects, King-street, Carmarthen:—  
Davies & Morgan, Pembroke ..... £1,335LEEDS.—For the erect' on of a Wesleyan chapel and school, Green Hammerton, for the Trustees. Messrs. D. Gray & Simpson, architects, 10, Park-row, Leeds. Quantities by Messrs. Priestley & Sons, Leeds:—  
Brick and Stone, Simpson & Son, York ..... £300 0 0  
Joinery—Kitching & Son, Knarborough ..... 199 18 6  
Slating—Atkinson & Son, Leeds ..... 37 0 6  
Plumbing—J. H. Shouksmith, York ..... 47 0 0  
Painting—Howdell & Sons, Leeds ..... 16 0 0  
Painting—Morley & Son, Knarborough ..... 27 10 0LITTLEHAMPTON.—For the execution of paving works, Terminus and Western roads, for the Town Council. Mr. H. Howard, Surveyor, Town Offices, Littlehampton:—  
E. H. King ..... £172 0 0  
E. G. Holland ..... 153 0 0  
W. Wallis, Littlehampton ..... £139 12 6LONDON.—For house in Hendon-avenue, Finchley Church End, for Mr. H. Browning. Messrs. Whitaker & Bradburn, architects, 19, King Edward-street, Macclesfield. Quantities by Messrs. Bennett & Richardson, Church End, Finchley:—  
Edward Tribe ..... £1,786 0 0  
H. Parkinson ..... 1,729 18 7  
Sonsell Bros. .... 1,643 0 0  
H. M. Dove ..... 1,635 0 0  
C. R. Price ..... 1,377 0 0  
Kerry & Son ..... 1,377 0 0  
Jesse Phonicus ..... 1,370 0 0  
Gough & Co. .... 1,474 0 0LONDON.—For building new stores and stables at Kieselguhr Wharf, Homerton, N.E., for Messrs. A. Haacke & Co. (Conrad Lauer). Mr. C. Collas Robin, architect, 20, Strand, W.C.:—  
Joindry & Young ..... £998 0 0  
Auley & Son ..... £890 0 0  
Lassells & Co. .... 995 0 0  
W. Nash, New Bull & Eskdale ..... 905 0 0  
Shurmer & Sons, Ltd. .... 899 10 0LUTON.—For the erection of a new police-station at North Woolwich. Mr. J. Dixon Butler, Surveyor to the Metropolitan Police. Quantities by Messrs. Thurgood, Son, & Chadley, Charing Cross-chambers, Duke-street, Adelphi:—  
Wells & Sons ..... £9,475  
Lassells & Co. .... 5,974  
Lawrence & Sons ..... 8,948  
Williams ..... 8,942  
Hood ..... 8,919  
F. & H. F. Higgs ..... 8,866  
Holloway Bros. .... 8,779  
Perry & Co. .... £8,700  
Grover & Sons ..... 8,647  
Lathey Bros. .... 8,545  
Chessum & Sons ..... 8,499  
Lorden & Son ..... 8,388  
Richardson ..... 8,304

LUTON.—Accepted for the supply of road material (one year) for the Town Council. Mr. A. J. L. Evans, Borough Surveyor, Town Hall, Luton:—

	Size.	Per ton.
	in. tons. s. d.	in. tons. s. d.
Ellis & Everard, Barton Hill	1 1/2	300 12 0
Enderby and Stoney Stanton Granite Co., Narborough	1 1/2	700 11 0
Cliffe Hill Granite Co., Markfield	1 1/2	300 10 11
Forest Rock Granite Co., Whitwick	1 1/2	150 3 0
Mountsorrell Granite Co., Loughborough	2	800 11 3
Whitwick Granite Co., Whitwick	1 1/2	300 10 9
Broken Slag.		
Lassells & Co.	2	100 6 0
Kettering Iron Co., Kettering	1	750 6 0
Screenings	1	50 5 4
Dust	80	5 4

NELSON (Lanes).—Accepted for the erection of a school chapel, Bradshaw-road and Entwistle-street. Mr. Harry Whitaker, architect, 21, Market-square, Nelson:—  
Nelson—A. Robinson, Victoria-avenue, Brierfield ..... £660 1 6  
Joiners—Co-operative Society, Ltd., Bowling-row, Nelson ..... 330 19 8  
Plumbers—Co-operative Society, Ltd., Scotland-road, Nelson ..... 99 7 0  
Slater—Wm. Schofield, Colne-road, Burnley ..... 89 12 3  
Plasterer—E. Butler, Gisburn-road, Harrogate ..... 36 5 0  
Electric Lighting—Jackson & Co., Standish-street, Burnley ..... 22 10 0  
Painting—Robt. Clark, York-street, Barnoldswick ..... 20 0 0  
Total ..... £1,258 15 5NEW TREDEGAR (Mon).—For the conversion of the Recabites' Hall into Council Offices, &c., for the Bedwelly Urban District Council. Mr. J. H. Lewis, Surveyor, Blackwood, Mon. Quantities by Surveyor, Blackwood, Mon.:—  
Williams & Sons ..... £152 12 1  
D. Williams, School-street, New Tredegar ..... £116 15 10PEMBROKE DOCK.—For the erection of a masonic hall. Messrs. G. Morgan & Son, architects, King-street, Carmarthen:—  
Charles Young, Gwyther-street, Pembroke Dock ..... £963

[See also next page.]



**PENMAENMAWR.**—For twelve workmen's dwellings at Penmaenmawr, North Wales, for Messrs. Brundrit & Co., quarry proprietors. Mr. Richard Davies, architect, Bangor.—  
 Jones & Pritchard ..... £2,921 0 0  
 Roberts Bros. .... 2,916 0 0  
 Roberts & Owen ..... 2,581 2 8  
 Rob. G. Williams, Llandafrethant ..... 2,053 0 0  
 William G. Williams ..... 1,829 12 8  
 \* Amended and accepted at £1,950: four of the houses made smaller in size.

**PONTRANE.**—For new vicarage, Pontrane, Pembrokeshire. Messrs. G. Morgan & Son, architects, King-street, Carmarthen.—  
 Young Bros., Mynachlogddu, Clynderwen, R.S.O. .... £1,100

**SCARBOROUGH.**—For the erection of Wesleyan church and school, Cayton, for the Trustees. Messrs. Danby & Simpson, architects, 10, Park-row, Leeds. Quantities by Messrs. Priestley & Sons, Leeds:—  
 Brick and Stone, & C. Coultas, Scarborough\* ..... £506 0  
 Joinery.—F. O. Farrall, Leeds\* ..... 245 0  
 Slating.—Atkinson & Son, Leeds\* ..... 72 13  
 Plumbing and Glazing.—H. L. Gledhill, Cayton ..... 72 0  
 Plastering.—H. Proctor, Scarborough\* ..... 49 0  
 Painting.—J. W. Grassam, Scarborough\* ..... 27 13

**SCARBOROUGH.**—For repairing and alterations to Queen-street Wesleyan Chapel, for the Trustees. Messrs. Danby & Simpson, architects, 10, Park-row, Leeds:—  
 Joinery.—Jas. Taylor, Ltd., Guiseley\* ..... £1,228 18  
 Brick and Stone.—W. T. Peitch, Scarborough\* ..... 289 0  
 Plumbing.—Stephenson Bros., Scarborough\* ..... 273 18  
 Heating Engineers.—Appleby & Brogden, Scarborough\* ..... 199 0  
 Electric Lighting.—C. L. Sanderson, Scarborough\* ..... 253 8  
 Decorating.—Richard Kelly, Scarborough\* ..... 158 0

**SHEFFIELD.**—For five dwelling-houses and conveniences in Loxley New-road, Malin Bridge, Sheffield, for Messrs. the Directors of Thomas Rawson & Co., Limited. Messrs. Hall & Fenton, architects, &c., 14, St. James's-row, Sheffield. Quantities by the architects:—  
 J. Bertram ..... £1,610 15 0  
 J. Robertson ..... 1,494 0 0  
 R. S. Saville ..... 1,225 2 6  
 R. Charlesworth ..... 1,213 17 0  
 W. Ainsley ..... 1,213 18 0

**SHEFFIELD.**—For stabling, &c., to The Falkirk Inn, Wicker and Willey-street, for Messrs. the Directors of Thomas Rawson & Co., Limited. Messrs. Hall & Fenton, architects, &c., 14, St. James's-row, Sheffield. Quantities by the architects:—  
 C. H. Gillman ..... £943 0 0  
 Mustin & Son ..... 925 0  
 G. Allen ..... 915 0  
 A. Bradbury ..... 901 13

**WYKE REGIS (Dorset).**—For the execution of sewerage works for the Weymouth Rural District Council. Messrs. Lemon & Blizard, C.E., Castle-lane, Southampton. Quantities by Mr. John H. Blizard, A.M.Inst.C.E.:—  
 R. H. B. Neal ..... £7,057 0 0  
 J. A. Bartlett ..... 6,804 0 0  
 Bugbird & Co. ..... 6,203 0 0  
 F. W. Trimm ..... 5,481 0 0  
 Streeters & Todhunter ..... 5,288 0 0

**B. NOWELL & CO.**  
 STONE MERCHANTS & CONTRACTORS.  
 Chief Office.—Warwick Road, KENSINGTON.  
 Norway, Guernsey, and Leicestershire  
 Granite, Kerb, Pitching, and  
 Yorkshire Stone.

QUANTITIES GIVEN FOR EVERY DESCRIPTION OF ROAD MAKING.

#### TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom, at the rate of 1s. per annum (2s. numbers) PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., 2s. per annum. Remittances payable to J. MORGAN, should be addressed to the publisher of "THE BUILDER," Catherine-street, W.C.

**SUBSCRIBERS IN LONDON AND THE SUBURBS,** by prepaying at the Publishing Office 1s. per annum (5s. numbers) or 4s. 9d. per quarter (13 numbers) can ensure receiving "The Builder" by *Friday Morning's Post*.

#### PUBLISHER'S NOTICES.

**THE INDEX** (with TITLE-PAGE) for VOLUME LXXXIII (July to December, 1902) was given as a supplement with the number for January 1903.

**CLOTH CASES** for Binding the Numbers are now ready, price 2s. 6d. each: also

**READING CASES** (Cloth), with Strings, price 9d. each. **THE EIGHTY-THIRD VOLUME** of "The Builder" (bound) price Twelve Shillings and Sixpence, is NOW READY. **SUBSCRIBERS' VOLUMES**, on being sent to the Office, will be bound at a cost of 7s. 6d. each.

#### CHARGES FOR ADVERTISEMENTS.

**COMPETITIONS, CONTRACTS, ALL NOTICES ISSUED BY CORPORATE BODIES, COUNTY AND OTHER COUNCILS, PROSPECTUSES OF PUBLIC COMPANIES, SALES BY TENDER, LEGAL ANNOUNCEMENTS, &c.**

Six lines, or under ..... 5s. 6d.  
 Each additional line ..... 1s. 6d.  
**SITUATIONS VACANT, PARTNERSHIPS, APPOINTMENTS, &c.**  
 Six lines (about fifty words) or under ..... 4s. 6d.  
 Each additional line (about ten words) ..... 1s. 6d.

**TRADE AND GENERAL ADVERTISEMENTS.**  
 Six lines (about fifty words) or under ..... 4s. 6d.  
 Each additional line (about ten words) ..... 1s. 6d.

**Terms for service of Trade advertisements, and for front page, and other special positions, on application to the Publisher.**

**SITUATIONS WANTED** (Single-number)—Letter only. **FOUR lines** (about thirty words) or under ..... 3s. 6d.  
 Each additional line (about ten words) ..... 1s. 6d.

**PREPAYMENT IS ABSOLUTELY NECESSARY.**  
 \* Stamps must not be sent, but all sums should be remitted by Postal Order, payable to J. MORGAN, and addressed to the Publisher of "THE BUILDER," Catherine-street, W.C.

Advertisements for the current week's issue are received up to THREE o'clock p.m. on THURSDAY, but "Classification" is impossible in the case of any which may reach the Office after HALF-PAST ONE p.m. on that day. Those bounded for the Outside Wrapper should be in by TWELVE noon on WEDNESDAY.

**ALTERATIONS IN STANDING ADVERTISEMENTS, or ORDERS TO DISCONTINUE** same must reach the Office before TEN o'clock on WEDNESDAY MORNING.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, &c. left at the Office in reply to advertisements, and strongly recommends that the latter COPIES ONLY should be sent.

**PERSONS Advertising in "The Builder"** may have *replies addressed to the Office, Catherine-street, Covent Garden, W.C., free of charge.* Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage. Unused stamps are returned to advertisers the week after publication.

**AN EDITION Printed on THIN PAPER, for FOREIGN and COLONIAL CIRCULATION,** is issued every week.

**READING CASES.** NINEPENCE EACH. (By Post carefully packed) 1s.

**W. H. Lascelles & Co.,**

121, BUNHILL ROW, LONDON, E.C.

Telephone No. 1365, London Wall.

**HIGH-CLASS JOINERY,  
 LASCELLES' CONCRETE.**

Architects' Designs are carried out with the greatest care.

**CONSERVATORIES,  
 GREENHOUSES,**

**WOODEN BUILDINGS,  
 Bank, Office, & Shop Fittings.**

**CHURCH BENCHES & PULPITS.**

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#### THE BATH STONE FIRMS, Ltd.

**BATH.**  
 FOR ALL THE PROVED KINDS OF  
**BATH STONE.**  
 FLUATE, for Hardening, Waterproofing,  
 and Preserving Building Materials.

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The Ham Hill and Doulting Stone Co.  
 (Incorporating the Ham Hill Stone Co. and C. Trask & Son, The Doulting Stone Co.).  
 Chief Office:—Norton, Stoke-under-Ham, Somerset.  
 London Agent:—Mr. E. A. Williams,  
 16, Craven-street, Strand.

**Asphalte.**—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 42, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co.

#### SPRAGUE & CO., Ltd., LITHOGRAPHERS,

Employ a large and efficient Staff especially for  
 Bills of Quantities, &c.  
 4 & 5, East Harding-st., Fetter-lane, E.C.

#### QUANTITIES, &c., LITHOGRAPHED accurately and with despatch.

Telephone No. 484 Westminster.  
**METCHIM & SON** 8, PRINCES STREET, S.W. and  
 22, CLEMENTS LANE, E.C.  
 "QUANTITY SURVEYORS' DIARY AND TABLES,"  
 For 1903, price 6d. post 7d. In leather 1/- Post 1/1.

#### BEST BATH STONE.

Original Hartham Park Box Ground & Corsham.  
**EVERY BLOCK BRANDED WITH  
 OUR REGISTERED TRADE MARK.**

#### MARSH, SON, & GIBBS, Ltd.

Chief Offices: Great Western Chambers, Bath.  
 London Offices: 18, Great Western Road, Paddington.  
**WORKED STONE A SPECIALITY.**

#### PILKINGTON & CO

(ESTABLISHED 1888.)  
 MONUMENT CHAMBERS,  
 KING WILLIAM STREET, LONDON, E.C.  
 Telephone No., 6319 Avenue

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# The Builder.

VOL. LXXXIV.—No. 3149.

APRIL 25, 1903.

## ILLUSTRATIONS.

Detail of the Central Door of the Cathedral of Siena.....	From Photograph.
S. Giovanni and Palazzo Micheletti, from Cathedral, Lucca.....	Drawn by Mr. Frank T. Verity, F.R.I.B.A.
Palazzo Contarini, Venice.....	"
Hull School of Art.....	Messrs. Lanchester, Stewart, & Rickards, Architects.
House near Skibbereen, Co. Cork.....	Mr. R. S. Balfour, A.R.I.B.A., Architect.
Selected Design for Free Library, Kettering.....	Messrs. Goddard & Co., Architects.

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### Railway Traffic.



WITHIN the last year or two we have heard a great deal about the management of British railways, largely from irresponsible and unqualified writers in the daily Press. People of this class are usually gifted with wonderful facility for writing fluently upon subjects which they do not in the least understand; they also suffer from the peculiarity that everything which originates in the United States seems to them to be better than anything originated or practised in this country. We have been told that American railway methods must be imitated, or the country will necessarily go to the dogs, and the same sermon is still preached. The fact is that Americans have always been, and still are, perfectly willing to learn from us. Much of their knowledge was originally derived from this country, but modifications in points of detail were introduced in order that practice might be assimilated to local requirements, and in course of time new developments have been made, some of which are worthy of adoption in Great Britain, and others are not. On our own side, we should preserve open minds, permitting us to select and to adopt any really useful idea that may emanate from America or elsewhere. So far as railway management is concerned, we feel sure that such an attitude is actually that of the most intelligent and enterprising railway officials in the country. Representatives of northern and southern railways have recently visited the United States, with the result that various improvements are now in course of introduction upon our own lines, but it should be clearly understood that nothing approaching the Americanisation of British railways will be attempted, simply because the traffic conditions of the two countries are essentially different.

To those who desire trustworthy information upon the subject, which is of the utmost importance to the nation at large, we com-

mend a perusal of the recent "Report on a Visit to America," by Col. Yorke, R.E., Chief Inspecting Officer of Railways.\* The Report, which has already occasioned much comment in the daily papers, is directed chiefly to the construction and equipment of (1) steam railroads; (2) surface lines, or tramways, subways, and elevated railways; and (3) high-speed electric inter-urban railways.

Taking these main divisions in order, we may first point out that an essential difference exists between the modes of construction followed in England and America. Americans claim "that their permanent way is easier and quicker to lay, cheaper to maintain, smoother to run over, and as durable as the English type." As American railway engineers invariably employ the T-rail, simply secured to the sleepers or ties by spikes, it may be admitted that the laying of the lines ought to be particularly cheap, even after allowing for the closer spacing of the sleepers. American sleepers are invariably of hardwood, and such material is essential for the form of construction in question. Probably hardwood may not cost more in the United States than soft wood does in Great Britain, but the adoption of the former material in this country would clearly involve additional expenditure, and the opinion expressed in the Report is that "there would probably be no economy in England in adopting American practice, for the extra cost of the ties would more than balance any saving due to the omission of chairs." It must be added that at all places where there are curves or switches, it becomes necessary, on the American system, to use "rail braces," or small steel brackets, to support the rails, and, owing to the great weight of modern engines, it is becoming usual to employ bearing plates, or tie plates, between the rails and the ties to increase the bearing of the rail on the tie and to afford mutual support to the spikes. These details constitute a considerable approach to a chair road and are further sources of expense. Moreover, the effect of the tie plates is to

shear off the heads of the spikes—a very undesirable result. The fact that such additions are necessary shows, as Colonel Yorke remarks, that the American mode of construction is lacking in certain elements of stability which are inherent in the English type of permanent way.

With regard to the claims made on the score of maintenance and durability, there seems no reason to infer that American methods can give the slightest advantage; indeed, cheapness of construction is generally incompatible with durability and true economy. Colonel Yorke admits that railway travelling in America is smooth and quiet, a feature which he attributes partly to the road, and partly to the invariable use of long and heavy bogie carriages. On the occasion of a seventy-mile trip from New York, he was particularly struck with the smoothness of the track and the absence of noise and vibration, and similar evidence is forthcoming from other engineers who have inspected American railways. In the spacing of rail joints so as to "break joint," American practice presents a feature worthy of consideration by engineers in our own country, who make the rail joints on each side of the track opposite each other. On the other hand, American engineers would do well to follow our example to some extent by the adoption of screw fastenings for the rails in place of the primitive spikes at present used.

Turning now to signalling, which we are sometimes told is very inadequately understood in Great Britain—or, at any rate, is in an extremely backward state—we find that Colonel Yorke was not particularly impressed by what he found in the United States. He says:—

"Signalling in America is in an inchoate condition, there being no uniformity of practice throughout the country. Some portions of the principal railroads are fully signalled, but on many others hardly any signals are used, and even where signals are used, their shapes, colours, and meanings vary upon different lines. Similarly with block working, only about 25,000 miles out of a total mileage (measured as a single track) of 200,000 are at present worked in America on the block system, but its use is being gradually extended. Block working, however, is not so strictly interpreted as it is in England; two or more trains are constantly permitted to be in the same section at the same time

\* "Report on a Visit to America." By Lieut.-Colonel H. A. Yorke, R.E. London: Eyre & Spottiswoode, 1903.



and trains are allowed under certain conditions to travel in either direction on either track, even where the lines are doubled or quadrupled. On two occasions it occurred to the train in which I was travelling to be switched from the proper track to the wrong track without any halt, and without any formalities other than the handing to the driver or conductor of a train order, giving him instructions to travel on the wrong track, regardless of opposing trains. On both occasions we travelled in this way for several miles at a high rate of speed, there being, of course, no signals for the guidance or control of the train. Such a mode of working must be dangerous, as the least misunderstanding between the men who give and receive the train order, or any negligence on their part, must lead to an accident."

The conditions here described clearly show that American railway management is not such as would find favour in this country, where safety is always a first consideration. Similar observations were made by Mr. Wilson Worsdell, locomotive superintendent of the North-Eastern Railway, when on a visit to the United States. That official afterwards remarked at a lecture in Gateshead that American railways were not controlled by a Board of Trade, and were able to do such things as fly-shunting express trains—letting them run loose into a station, and bringing them up by means of the Westinghouse brake. Without such a free hand, he was convinced that traffic could not be worked in places like New York. Thus we see that, although American practice may be more elastic than our own, a very great deal is left to good luck. What is known as the "train-order" system, comprising no less than thirteen varieties, is used for regulating traffic on the single lines which form the bulk of American railroads. A similar system was tried years ago in Great Britain, but was abandoned as troublesome and dangerous. It may possibly be thought less disadvantageous on the other side of the Atlantic, but we are inclined to believe that its continued use is due to ignorance of the infinitely preferable "staff system" adopted on single lines in England. Colonel Yorke is clear in his own mind that the American train service could be conducted with greater punctuality, economy, and safety if the electric staff, or tablet, were introduced. On double lines in the United States, other classes of signals are employed, such as automatic signals, interlocking signals, telegraph signals, and block signals, a method of classification which sounds strange to our ears. Automatic signalling seems to exercise peculiar fascination over writers in the daily Press, and we have been told that its adoption would inevitably and immediately result in greater safety, increased economy and simplicity of operation, a reduction of expenses, and improved dividends. It is very inadvisable to place confidence in predictions of the kind. The fact is that automatic signalling is merely a labour-saving device, which does not necessarily introduce either greater safety or economy. As the Report justly says, "no doubt it eliminates the risks due to the mistakes of signalmen, but it introduces other risks peculiar to itself, due either to inefficient maintenance, to failures of the mechanism, to weather, and to accidents of various sorts." Further, it may be pointed out that the fundamental difference between automatic and "manual" signals is that the former merely acquaint the engine-driver with the fact that the line is clear for a short distance ahead, while the latter, having

human intelligence behind them, convey direct orders to the driver telling him what he is to do. Moreover, the chief justification for a system of automatic signals is to enable more trains to be passed over a given length of line in a given time, and more trains necessarily involve increased risk of accident.

In America the block "sections" vary in length from about 700 yards to 1,300 yards, as it is found that the "track circuits" do not work efficiently on sections of greater length. At the commencement of each section, a "home" and a "distant" signal are erected for each line of rails. Consequently signals become exceedingly numerous, and Colonel Yorke says on this point that whereas the signals on American railroads have hitherto been too few, there is now a risk of their becoming too many. Considering the great length of modern passenger and goods trains, it must be clear that limitation of the length of sections necessarily means that the interval between the trains must be perilously diminished if full advantage is taken of the possibilities offered by the new system. With trains running at sixty miles an hour on block sections 1,000 yards long, the time interval between succeeding trains may be reduced to the minimum of thirty-four seconds, which would be dangerous and impracticable, and even at a speed of ten miles an hour the interval would not exceed 3 min. 24 sec. As trains would only run at so low a speed and would only be required to follow each other at very close intervals at terminal stations or other starting points, it is difficult to see the advantage of excessively short sections along the whole length of a railway where trains of varying speed are travelling along the same lines. In addition it should be borne in mind that the main lines in England are by no means overcrowded, that condition being practically limited to the Metropolitan district and similar districts in the vicinity of great centres of population and industry. On the score of expense, it may be thought that automatic signalling, if improved so that the sections could be made of suitable length, would conduce to ultimate saving. But the cost of installing a system of automatic apparatus is considerable, involving the erection of power plant for operating the signals, the laying of conduits for the entire length of the line, the provision of means for controlling the power, and the erection of signals. Hence a very large saving in wages and a largely increased capacity for traffic must be reasonably ensured to make the outlay justifiable. The considerations here mentioned tend to discountenance the hasty conclusion that automatic signalling must be a splendid system simply because it is American. Still, such signals may be found valuable, and it is satisfactory to find that one or two of our leading railway companies are at the present time investigating the whole subject. The London and South-Western Company have already equipped a section of line near Andover with automatic signals, and experiments are in progress on the North-Eastern Railway. These two examples show that our railway managers are quite alive to the necessity for adopting the most modern appliances, and the results of the trials will be of value in throwing light upon the applicability of such signalling to British railways.

Much has been written about the long freight cars used in America, and British railway authorities have been freely blamed for not adopting similar vehicles. As a matter of fact, there are reasons why waggons of great length cannot be generally used in this country. Sidings, goods sheds, weigh-bridges, turntables, coal tips, and other auxiliaries are usually unsuitable for waggons of the length employed in America. It may be suggested that the owners should immediately proceed to "scrap" all existing works and appliances, and to re-equip their systems on the American plan. To say nothing of the different conditions of trade, the cost of such a reorganisation would be stupendous, and in the opinion of Colonel Yorke it is uncertain whether, after all this vast expenditure had been incurred and the whole trade of the country had been disorganised during the transition period, the saving in handling traffic would pay the interest on the outlay. He thinks the four-wheeled waggon will probably remain the standard type of the country, and that economy is to be looked for by improving the design of such waggons and in increasing their carrying capacity in relation to tare. In this respect again, we find some leading lines are already moving ahead. Both the London and North-Western and the Great Western companies have lately built four-wheeled waggons having a capacity of 20 tons and a tare of about 8 tons, thus giving the same proportion of paying load to dead load which is afforded by the much advocated American truck of 50 tons capacity. The North-Eastern Railway Company are also introducing much larger trucks than have been previously employed. One type adopted is that of the Sheffield and Tinsley model, built of steel, with a capacity of 32 tons and a tare of 13 tons. Another type, built of wood, and intended for the conveyance of coal, has a capacity of 15 tons and a tare of 7 tons. Both of these are "hopper" waggons, the former having two hoppers worked by a winch, and the latter having four hoppers. Such a departure from previous practice considerably affects ironmasters in the Cleveland district, as it will necessitate alterations to hoists and lifts at the blast furnaces. Some of the ironmasters take the position that the larger trucks are principally for the benefit of the railway company, who should therefore bear part of the expense involved in structural alterations at ironworks. Here is another difficulty in the way of any sweeping alteration in the goods system of the country.

Finally, we have the complication of private ownership, and it is difficult to see how private owners of waggons could be compelled to do away with existing trucks at immense cost, unless the taxpayer would consent to take the burden upon his already overladen shoulders. The "scrapping" theory may be glibly advocated in lectures and newspaper articles, but in matters of the kind reform must come by gradual development rather than by rude volcanic upheaval.

On the score of couplings and brakes, it does not appear that we should be wise in copying American practice, for Colonel Yorke regards the coupling methods he saw as anything but perfect; while on the Pennsylvania railroad, where hand brakes are used on numerous coal and goods trains, he found the brakemen were obliged to run



about on the roofs of the cars while the trains were running down the Horse Shoe decline, a practice we are not surprised to find described as "highly dangerous and a fruitful cause of accident to the men." A reason assigned for the non-use of air-brakes on such inclines in America is that the re-charging of the air reservoirs may release all the brakes on the train. Some attempt has been made to overcome the difficulty by the use of retaining valves, but, unfortunately, the handles for operating the valves are always fixed on the roofs of the cars, so that the trainmen are still obliged to climb upon the roofs. As bridges over railways are growing in number, the dangers of railwaymen are proportionately increasing, and "warning ropes" are now hung across the line at each side of a bridge, the idea being that when a man has been struck by a dangling rope-end he will climb down to a place of safety. The ridiculous position of the valve-handles and the childish crudity of the so-called "safeguard" do not seem worthy of the reputation which our American friends have justly acquired for ingenuity. The law does not compel the use of air-brakes on all the cars of a goods-train, and the partial employment of the brake is found in practice to be a cause of accidents. With regard to economy of operation, Colonel Yorke says that "when it is remembered that some of the large American engines require three men on the footplate, and that the train crew consists of a conductor and two, three, or four brakemen, it may be questioned whether the economies claimed for the American methods are as great as is sometimes hastily assumed."

Enormous sums of money are now being spent in the States, and very wisely, too, in the abolition of level crossings. In this respect British practice is being followed, as it will no doubt be in others, as conditions generally in the United States approach more closely to those prevailing here.

Before leaving the subject of steam railways we may refer to one or two notes in the diary of Colonel Yorke with regard to American railway stations. He says the accommodation is generally very complete and far superior to anything to be found in England. In addition to large waiting halls, well warmed and fitted with an ample number of seats, there are comfortable rooms for women containing all sorts of toilet requisites and conveniences, even cots for babies being provided. There are also smoking-rooms for men, and barbers' shops, besides baths and lavatories of a superior description. The restaurants are excellent, and the kitchen arrangements of the most modern type, and are supplied with every labour-saving appliance for cooking and washing up. These remarks appear to be inspired, at least in part, by a visit to the new station at Pittsburgh. Another station mentioned, belonging to a company representing five railways, is the Boston South Station. This is described as a remarkable structure, of which the most attractive features are the waiting halls, toilet-rooms, and restaurant. The main "car shed" covers an area of 506,430 sq. ft., and the whole of the building is built on piles, over which a concrete foundation has been laid. The roof appears to be singularly inappropriate and inartistic in design, being of a flat arched shape, with a covering of tarred felt. As may naturally be anticipated, the interior is dark, except when

artificially lighted. Very complete arrangements are made for heating, and steam pipes are laid along all the valleys and gutters of the roof to thaw snow and to prevent any accumulation. In spite of the attractive features mentioned, we sincerely hope that British railway stations will never be modelled upon this remarkable example of American ingenuity. At St. Louis the station is also the property of an independent company representing several lines. We are not told whether daylight is excluded so religiously as at Boston, but the account before us mentions that the station is very large, the train shed containing thirty-two tracks, all available for the arrival and departure of trains. The various rooms for the use of passengers are said to be exceedingly comfortable, while the warming and lighting are most carefully attended to, so that it is quite a pleasure to wait for a train instead of a misery, as is so often the case elsewhere. But we are rather inclined to doubt whether the British public particularly want all the conveniences of a modern hotel in the terminus of a railway. We already have fairly satisfactory restaurants, and adequate lavatory accommodation. Waiting-rooms are comparatively little used, as people seldom arrive at a starting point until very near the departure of a train. Babies' cots, barbers' shops, and bathrooms are clearly superfluous in this country, whatever they may be in the United States. Of course, the case is somewhat different at provincial junctions, where long waits have sometimes to be made, and in such places there ought to be much greater provision for the comfort of unoffending passengers than exists at present.

The second part of Colonel Yorke's Report, dealing with surface lines, subways, and elevated railways, is of particular interest to Londoners. In the opening paragraph we find the statement that grooved girder-rails—as invariably used in England—are now being universally adopted for lines in the public streets, in place of the "step" rails formerly employed. Here is another instance showing that Americans are quite ready on occasion to follow our good example. The change is being made because the old-fashioned rails proved to be a serious hindrance to vehicular traffic, but so far as we are aware it was unaccompanied by any cries of "Wake up, America!" from excitable journalists. The fact is that American newspapers are free from that self-abasing spirit so prevalent here, and if any excitement is manifested, it takes the form of "booming" something American, and not of running it down. As a rule street railways are electrically equipped on the overhead trolley system, but in New York and Washington the conduit system with centre slot is used, there being objections to the overhead system in the streets of those cities. It seems to us that there are similar objections in all streets. The conduit system may have its disadvantages, but these ought to be surmounted by some of our electrical experts, so that the tramway of the future need not necessarily carry with it the disfigurement of public thoroughfares, and danger to the lives and limbs of those who are entitled to make use of them. From this point of view, the working of the County Council electric lines in the South of London will be watched with consider-

able interest. Similar interest will attach to the forthcoming Report, by the Tramway Committee of the Wolverhampton Town Council, upon the surface contact system, which has been in operation in the borough since February, 1902.


Perhaps the most interesting and instructive study presented in Colonel Yorke's Report is that relating to electric inter-urban railways, which are exceedingly numerous in the United States. Every city has a network of such lines, radiating in every direction, in addition to mere extensions of street tramways. Many inter-urban railways were originally built for steam locomotives, and some of them were formerly branches of the ordinary steam railroads which have recently been equipped for electric traction. Colonel Yorke instances five branch lines, built for steam trains, the first of which was electrically equipped in 1895. According to the most recent returns, the following figures represent the passengers carried by the two systems of traction:—Steam, 1,038,223; electricity, 2,290,971. This large increase is attributed to the greater frequency of the service, the reduction in fares, and the increase in speed. Several notes in the Report refer to the excellent services afforded by inter-urban lines of the kind. Some of our own railway companies are fully aware of the advantages of the system in operating branch lines, and three companies are already arranging for the conversion of certain parts of their systems. In this particular department of railway work we shall, no doubt, see very great developments during the next few years, not only in the electric equipment of existing branch lines, but also in the construction of new railways between town and town in all parts of the country. It is found in the United States that electric high-speed inter-urban lines invariably render population more numerous in their vicinity, land values are enhanced, industrial enterprise is stimulated, and the convenience of the public is secured by a frequent and economical service of cars. It appears from the Report that competition is keen where steam roads exist side by side with electric lines, but although the steam roads must lose a certain amount of traffic, the increased prosperity of the districts served ultimately brings in more business as a compensation. As a general rule, it is probably true that the electric railways will act as feeders for the through and long-distance traffic of the steam roads.

In some minor respects the Report made by Colonel Yorke is a little disappointing, but on the whole it is a document of much interest and great practical value. We may learn from it that American railway practice is not suitable for indiscriminate adoption in this country, and yet that many hints may usefully be taken from it. Above all things, British railway arrangements must be exactly fitted to the needs of passenger and, what is equally important, of goods traffic. Steam railroads are just about to enter upon a period in which severe competition will be felt from electric tramways and railways. There will necessarily have to be some modification of policy; the older organizations must in future look to long-distance traffic to a considerable extent, leaving short journeys and urban traffic to their competitors. The suburban traffic of London, and in a smaller degree of other great cities, will be taken in a measure from the steam



railways, and it may be hoped that when relieved from the almost intolerable burden of such service, they will find adequate remuneration in what remains to be worked and developed to a state of perfection that is under present circumstances unattainable.

#### CHRISTIAN ARCHÆOLOGY IN ROME.

HE Italian Government has taken the lead in the marvellous discoveries made during the last few years, and Signor Boni, the Government Director of Excavations, is now publishing the results. The Pontifical Commission of Archæology has also attempted explorations in the vast zone of cemeteries surrounding Rome. De Rossi was the first to organise methodically these discoveries in the course of the last century. It was thus that the catacombs of Priscilla on the Salarian Way have furnished documents of the first century of Christianity with their records of the early Popes.

Lately, not far from the Appian Way and the catacomb of St. Calixtus, has been found the family crypt of Pope St. Damasus (366-384 A.D.), whose history is so intimately connected with the catacombs. This Pope occupied himself especially in composing a series of metrical inscriptions which were engraved by a certain Dionysius Philocalus in a special character. These inscriptions were placed on the tombs of Martyrs and Pontiffs. Traditionally Damasus was known to have prepared for himself and his family a tomb in proximity to the catacomb of St. Calixtus, but its actual position was unknown. It has now been found near the Via Appia, in a cemetery called "Balbina." This crypt is ornamented with frescoes. It is supposed that here St. Damasus was buried with his mother, to judge from the fragments of inscriptions found on the spot. This Pope saw the definite triumph of Christianity; for during his reign Theodosius published the famous decree abolishing all Pagan cults in Rome.

The excavations are being continued with vigour in this burial region, and it seems probable that many fresh discoveries will be made before long.

The Christian antiquities of the Roman Forum which have been brought to light during the last few years constitute a remarkable collection, illustrating the earliest history of Christianity. It is noticeable that all these remains appear to belong to what may be called the catacomb period of Roman history. The two important churches of S. Andrea and S. Maria Antiqua, built out of remains of older buildings, must have been of great importance in early Christian days. S. Andrea (the ancient *curia* of Classic times), although much altered at a later period, possessed an imposing atrium at the west end, with a large heptagonal font or holy-water stoup in its centre, about 10 ft. in diameter. Almost all traces of this atrium have disappeared, with the exception of the plan of the font; the remainder of the area is a confused mass of foundations of different epochs. The west front of this ancient church presents the peculiar feature, which seems to have been common in buildings of that period, of *loculi* cut into its brick walls. All these evidences of a remote antiquity remain much as they were discovered about two years ago, and in one of the *loculi* even the bones of the defunct have

been left *in situ*. Within the last few weeks a singular crypt-like tomb has been discovered, constructed within the space beneath the principal entrance of the ancient *curia*. Within it still stands a plain marble sarcophagus of Christian times.

The church of S. Maria Antiqua or S. Silvestro del Lago, on the opposite side of the Forum, close to the House of the Vestals, was laid bare about two years ago by the removal of the seventeenth-century church of S. Maria Liberatrice, which was built over it, and which seems to have completely obscured its existence until quite recently. The history of this venerable building is unknown, and unfortunately the well-meant efforts to "restore" it to a condition which would be generally intelligible have resulted in rendering it less interesting to the archæological student. We have recently referred to it at some length in a review of the publication of the British School at Rome;\* but may add a few particulars from personal inspection. The entrance, as shown on Mr. Rushforth's plan reproduced on page 352 *ante*, was through an immense atrium at the east end—an atrium appropriated from more ancient constructions. To the east of the atrium is a curious small building, supposed to have served as a smaller basilica or consistory of the Bishop. This smaller building has traces of a singular arrangement of *cancelli* at its entrance, but its apse, to judge by the wall-paintings and some traces in the floor, has also at some time served the use of a baptistry. In the main church there are evidences of early reconstruction. The idea suggests itself that in course of time the more ancient position of the altar at the west end was abandoned for the later chancel constructed towards the east.

S. Maria Antiqua must have been originally one of those early churches constituted within the precincts of a Roman palace, and as such there is a legend that it formed part of the Palace of Caligula and the adjacent Temple of Augustus. The remains as we now see them are chiefly interesting on account of the well-preserved series of wall paintings (probably of the seventh century) which cover the walls, and although of the rudest description, are imposing by their quantity. The smaller building, referred to as the Consistory or "Episcopium," is also completely surrounded with the same style of decoration. It is a pity that this very singular and complete example of early painting cannot be better protected than at present. A number of reed mats are hung in front of the fresco to ward off rain, but every gust of wind tends to injure them by causing the mats to scratch and rub the surfaces.

The alterations to the main church of a later period, already referred to, have also been covered with the same kind of painting. It is, consequently, probable that these alterations date from about the seventh century.

Everywhere in S. Maria Antiqua, as in S. Andrea, there are instances of the wall-sepulchres, evidently made in imitation of the *loculi* of the catacombs. At the east side of the atrium are several examples in perfect preservation, with the bodies still within them. A large sepulchral chapel, or mausoleum, on this side of the church is lined with them, and, in addition, there are several terra-cotta coffins ranged round the

sides, which seem still to be filled with undisturbed remains. The lids of these coffins were formed by the paving of the chapel.

In all that has been done of recent years much praise is due to the energetic officials who have succeeded in unearthing so much of public interest. In such a matter it is very difficult to please every one. To the archæological student things appear uninteresting when they are treated as a profitable show for tourists (even tourists of an intelligent kind), and when for this purpose so much "restored ruin" meets the eye. But such a condition of affairs is inevitable, and we have much to be thankful for that the "Christian Antiquities of the Roman Forum" were not discovered fifty years ago, when they would certainly have shared the fate of the "Christian Antiquities" of the Acropolis of Athens or many another venerable site. The "restoration" of these ruins, as ruins, affords an interesting evidence of the singular change which has come over the archæological world, and of the popular interest now taken in such Christian Antiquities, in spite of their occupying the space of, and being constructed out of, the remains of classic monuments.

#### NOTES.

"Owners" under the Public Health Act. THE case of Driscoll v. Battersea Borough Council recently heard by a Divisional Court decided a difficult point under Section 250 of the Public Health Act, 1855. Driscoll, the appellant, having been summoned by the Borough Council for contribution towards the expenses of paving a new street, alleged he was not the "owner" of the premises within the meaning of the above Section, which defines the owner of premises as the person for the time being receiving the rack rent, or who would receive it either as owner, trustee, or agent, if the premises were let at a rack rent. The appellant held the land from the owner of the freehold under a building agreement which gave him the right to erect thirty-two houses upon it, and also upon the completion of each house to call for a lease of it for ninety-nine years, and it was provided that until leases had been granted in respect of all the flats he was to pay the freeholder a sum of 200*l.* per annum. The agreement was expressly stated not to be a demise, and the freeholder had power to distrain for any part of the annual payment of 200*l.*, which might be in arrear. On these facts the Court held that the freeholder by the terms of the agreement retained the ownership in the land and was in law the person contemplated by the section, *i.e.*, the person entitled to receive the rack rent, any rights Driscoll, the appellant, might have being solely the creation of contract.

The Right to Light—Another Decision. THE case of Easton v. Isted, current number of the Law Reports, is a decision of Mr. Justice Joyce and of the Court of Appeal. It is interesting, not for the statement of any new principle on the subject, but as a useful example of the application of the existing law. In 1873 Mr. Easton erected a conservatory with a glazed roof sloping down to the vertical side of the conservatory. This side was glazed, and had sashes so that it could be opened. When this building was erected the



plaintiff signed an agreement to pay a shilling a year "as an acknowledgment for allowing the windows in my conservatory to open on to and overlook the defendant's property which was immediately adjoining that of the plaintiff." So far the plaintiff had clearly enough only an enjoyment of light by consent or agreement within the meaning of the Prescription Act, and so was gaining no prescriptive right over the defendant's ancient tenement. In 1888 the conservatory was converted into a passage, the glazed side was bricked up, and the glazed roof became a skylight. In 1901, the defendant disputed the right to the light of the skylight and consequently the plaintiff claimed to be entitled to an injunction on the ground that the glass roof was not a window within the meaning of the agreement, and, therefore, that as regarded the roof he had a prescriptive right to the light—for, argued counsel, a window is an opening in a wall for the admission of light and air, and a glazed roof could not be said to be a window. But, said Mr. Justice Joyce, a window is not less a window because it is not capable of being opened, nor because it is not fixed in a vertical placing. The Court of Appeal were of the same opinion. But the true rule by which such cases must be decided appears to us to be the consideration of the intention of the parties, not a mere technical construction of a single word, for it would have been obviously absurd for the defendant to have guarded himself against the growth of a right to light from the side of his neighbour's building, and to have allowed him to obtain it in respect of the top.

#### Drain or Sewer?

The vexed question of what constitutes a sewer as distinguished from a drain was again before the Court of Appeal in the case of *Silles v. Fulham Borough Council*. Two houses built in one block had a gutter running under the eaves which drained into a pipe down which the rain-water from both houses and the bath water and slops from one house were conducted into the main sewer. The plaintiff, the owner of the houses, contended that this constituted the pipe a sewer repairable by the Borough Council, and the Court of Appeal upheld this view. When a block of buildings is drained by a combined operation the conduit pipe may come within the definition of a "drain," but when two drains serve two houses and run together they become a "sewer," even although one of the pipes does not conduct sewage matter but only rain water. We have on former occasions pointed out that the question as to whether the building is "one building" within the meaning of Section 250 of the Metropolis Management Act, 1855, or not, is one of fact to be determined by the Court of first instance.

#### Railway Hospitals.

ALONG the western and south-western trunk lines of the United States, where public hospital accommodation is only to be found at widely separated intervals, the railway companies have established a regular system of permanent hospitals. Other railways possess hospital and relief services, and in many of the buildings belonging to the Railway Young Men's Christian Association rooms have been equipped for the treatment of injured railway servants. In the eastern

States, permanent railway hospitals are not so much a necessity as in more outlying regions, but hospital cars are now being used by the leading companies. Cars of this kind are divided into three compartments: an operating room, a small ward for the slightly injured, and a larger ward for those seriously injured. The operating room contains a well-appointed operating-table, sterilising apparatus, and an oxygen cylinder. As more than 3,000 persons are killed annually, and over 40,000 persons are injured every year on American railways, there can be no doubt that facilities of the kind mentioned are absolutely necessary. The numbers of killed and wounded on British railways are much smaller, partly because the total mileage is less, and partly because of the greater care exercised. Nevertheless, the average annual sacrifice is about 630 lives, and the number of persons injured averages nearly 6,000 per annum. It is therefore clear that ample need exists on all the chief railway lines for suitably equipped hospital cars, which could be dispatched at short notice to the scene of an accident, and which would be generally available for dealing promptly with the numerous cases of injury constantly occurring during shunting operations.

#### Fire Escapes.

No other class of life-saving appliance has been more improved of late years than ladders intended for the rescue of persons imprisoned within burning buildings. It must be admitted, however, that the most approved forms of such apparatus are not readily adopted by the authorities who have the control of fire brigades in this country. Our contemporary, the *Scientific American*, describes a new telescopic ladder operated by compressed air, and which deserves serious consideration. When used for rescuing a person on the roof, or on one of the upper floors of a blazing building, the ladder is instantly shot out, so that the upper extremity is close to the imperilled person, who can step upon the top round. The ladder then suddenly collapses, the tubes telescoping in rapid succession, and brings the rescued occupant safely to the ground. As a general rule, the telescopic ladder is worked under an air pressure of 300 lbs. per square inch, the air reservoir being situated in the centre of the carriage bearing the ladder. An auxiliary air reservoir is frequently provided, containing air at the lower pressure of 100 lbs. per square inch, for the supply of power for swinging the ladder from one side of the street to the other, so that buildings on both sides of a thoroughfare may be served without delay. The carriage weighs about 2 tons, its construction being heavy and massive to prevent the possibility of overbalancing. Ladders of this type may be extended to the height of 85 ft. in the brief space of twenty-five seconds, and as the apparatus is strong enough to support a dozen men, rescuing operations can be conducted with great rapidity. Everyone in the Metropolis would be pleased if the London County Council could spare a few thousands, from the sums annually wasted in promoting impossible Bills in Parliament, for the purchase of the most improved types of fire-fighting apparatus, among which the ladder described occupies a prominent position.

#### Surface Contact Railways.

THE Report on the first year's working of the Wolverhampton surface-contact electric tramway, already referred to briefly in our first article, is deserving of study by every one interested in tramways. The Lorain system is used, and the cars pick up the current by means of a collecting skate from studs placed between the rails, at distances of 10 ft. apart, which are made "alive" when the car is over them by means of the powerful magnets it carries. Now opponents of surface-contact systems maintain that it is impossible to arrange the stud so that it can never be left "alive" after the car has passed over it. From Mr. Shawfield's Report we find that on no less than 109 cases during the year a stud had been left "alive," although on only five of these occasions had shocks been received. It is interesting to note in this connexion that the wear of the paving round the contact boxes was much less than was anticipated, owing largely "to the fact that the tracks are avoided to some extent by the general traffic in the streets." Mr. Shawfield concludes that although in his opinion it is impossible to make the system absolutely safe, and that there is a greater liability to shock than with the overhead trolley, yet "there is distinctly less risk of serious injury to users of the streets." The consumption of current has been about 30 per cent. greater than it would have been with overhead wires. The wear of the collecting plates, which cover the studs and from which the current is picked up by the skate, has been unsatisfactory. The average life works out to only two years, and hence the cost for renewals will be much heavier than for renewing trolley wheels. Another point that impressed us unfavourably was that there were 1,090 soldered and insulated cable joints per mile of track, and although the cables are laid in the solid system in bitumen we expect that there will be trouble with the insulation resistance after some years' working. The Wolverhampton tramways prove, however, that it is possible to have a practical surface contact system at an expense not very much greater than the objectionable overhead system.

#### The Microscopic Structure of Metals.

THE microscopic examination of metals is of considerable utility in various directions. Chemical analysis will not always reveal the causes of defects in metallic structures, and in such cases the microscope is an invaluable aid. Failures of plates, shafts, and tubes can often be explained by information thereby obtained, and explosions of steam-pipes have been shown to result from the disintegration of brazing through the oxidation of zinc therein contained. But it must not be supposed that the usefulness of this method of research will be limited to the explanation of mischief accomplished, for it will enable engineers and metallurgists to find means of remedying those mysterious faults at present occurring in steel, copper, and other metals, and in different alloys. Much information as to the crystalline structure of metals has been obtained already, and it is now known that glass really has such a structure, although it is commonly supposed to be non-crystalline. Microscopic examination shows that different forms of brass and bronze



sometimes consists of at least two qualities of alloy, one richer in zinc than the other. Under such conditions, corrosive influences may attack one of the constituents leaving the other, or others, unaffected, the mixture appearing to form a series of minute galvanic batteries, the action of which would be to accelerate corrosive effect. There is every reason to believe that the microscopic researches now being carried out will be fully repaid by the additional security and reliability of work in which metals are employed.

A "TRANSBORDEUR" bridge "The Mersey" "Transbordeur" Bridge. now in course of construction at Runcorn is intended to provide means of communication across the Mersey and the Manchester Ship Canal. The general features of construction are similar to those of the proposed structure at Newport, Mon., and need not again be described. In the present case the towers rise to a height of 190 ft. above high-water level, and rest on caissons. The stiffening girders suspended from the main cables are to be at an elevation of 82 ft. above high-water level, and the bottom of the travelling cage, or car, will be about 12 ft. above the same level. About 300 passengers, and four two-horse waggons, can be accommodated in the car at one time, and the trip across the river will be performed in 2½ minutes, which, allowing for loading and unloading, will permit about nine or ten trips an hour to be made. One of the main towers is on land, and the other is in the waterway at a short distance from the river bank, being reached by means of an approach viaduct. When completed, this bridge will possess a longer span than any bridge for road traffic in the United Kingdom, the clear span being 1,000 ft. A number of similar structures have been erected on the Continent, where they appear to give general satisfaction. The idea is certainly an excellent one for adoption in places where the banks of a river or estuary are little higher than the level of the water.

In the course of next month will be offered for sale, at the Mart, the St. Mary's Priory Estate, near Southend-on-Sea, covering forty acres, which include a well-timbered park and a fine avenue of elms. The mansion-house embodies some remains of the Priory, founded temp. Henry II. by Sir Robert de Essex, son of Sweyn, for Cluniac monks who were subordinated to the great convent at Lewes; the revenues at the Suppression are computed by Speed as being nearly 195*l.* yearly. In 1537 the Priory and the Manor of Priors were granted to Sir Thomas Audley, who conveyed them to Lord Riche and his son. The property vested in the Earls of Warwick, of that house, until about 1675, when it passed to Daniel, second Earl of Nottingham and sixth Earl of Winchelsea, who married, as his first wife, Lady Essex Riche, daughter and co-heiress of Robert, Earl of Warwick. The Earl of Winchelsea and Nottingham sold the property to Daniel Scratton, to whose descendants it has since belonged. Close by stands the ancient church of St. Mary the Virgin, one of the most interesting in the county, having a fine, stately, pinnacled, Perpendicular tower, which forms a conspicuous landmark. The fabric presents

vestiges of late eleventh-century work. During the restoration carried out by Ewan Christian in 1872 it was found that the three western arches dividing the nave from the aisles, of the twelfth century period, had been cut through a much older wall that contained traces of Early Norman windows. A blocked-up arch in the north wall of the chancel was composed, in part, of Roman bricks. Some glass, from a church in Rouen, in the memorial window to the late Sir Arthur Neave, Bart. (1877) is attributed to Albert Dürer.

The Society of Water-Colourists.

THE hundred and thirty-second exhibition of the Society of Painters in Water-colours thoroughly maintains the traditional character of these exhibitions, as being on the whole the most satisfying in London—those in which the proportion of good work is the largest. We may mention at the outset two landscapes which are really grand in style—Mr. Little's "From Criffel to Allonby" (13), with a colour that reminds one of Titian, and Mr. Eyre Walker's "The Passing of the Stormclouds" (78) over a forest country. Sir E. Waterlow's "A Summer Morning" (2) and "The Ravine of the Dart" (108), less grand in style, are delightful for their freedom of touch in a pure water-colour manner. Among others of the more important landscapes are Mr. Cuthbert Rigby's "Among the Lonely Hills" (24), Mr. Thorne Waite's powerful though perhaps a little too emphatic sunset effect "Warkworth Castle" (79); Mr. Colin B. Philip's "Low Tide—a Bay of Loch Maddy" (173), a different subject from his usual built-up hill scenes—the levels of an estuary, with the hills only seen in silhouettes in the extreme distance; Mr. R. W. Allan's "End of a Summer Storm" (177) on the coast, with a fine and unusual treatment of sea; and Mr. Thorne Waite's "The Miller and his Horses" (195), noteworthy for its admirable composition—a picture that is in unity with itself. Mr. Albert Goodwin exhibits several drawings with very different aims; a study of desolation in "The Overthrown Cities" (141); studies—most interesting these—of morning and evening effects in Venice; an architectural study of "Canterbury Cathedral" (214), faithful in form but (as usual) too much refined away in tone and colour—Canterbury Cathedral as a vignette, one may say; and a little gem of delicate work under the title "New Sarum, from the Old" (221). Mr. Arthur Hopkins, a figure painter rather devoid of sentiment, has nevertheless made a great success with his nude study of a mermaid—"A Fantasy of the Deep" (177)—not a fish-tailed mermaid, but one of human form and comeliness, and an admirable piece of drawing. Mr. Walter West, one of the latest additions to the Society's ranks, has perhaps not quite repeated his great success of last year; but his "Firelight" (218) is a remarkable little picture, and the two others (116, 140) are well worth study, as the work of an artist of individual aims and with a handling of his own. Mrs. Allingham is again prosecuting Venetian subjects as a change from the delightful English scenes which we have known and loved for so long, and in "A Fruit Stall, Venice," (110) she has found a subject out of which more can be made than in her two Venice pictures of last year.

Architectural subjects are numerous and interesting; the best being those of Mr. Reginald Barratt, whose "Horses of St. Mark's" (122) is an admirable and most careful study of those historic animals in their present weather-worn condition. "The Shadow of the Campanile" (103) is another good example; in the interior of "Kaloos Mosque" (128) the perspective of the capital is awkward; the point of view is too close, it could only appear right with the eye at a special point near the lower part of the picture, and (as usual in such cases) it is hung so low that it is impossible to see it from that point. His "Green Ship, Venice" (14) is an interesting colour study. Several of Mr. Rooke's architectural subjects are to be seen, all well handled; and Mr. Paterson, though his manner is far too woolly, has made an effect with "The Tower, La Laguna" (157). There are many other drawings we should like to mention did space permit. We hope, however, that the Society will keep clear of introducing the element of modern eccentricity into its exhibitions. There has not been much of it so far, but there are some things in the present exhibition which would be much better out of it, and are not in keeping with its generally high level.

The Rowland Club.

THIS is the title taken by a small group of artists who have opened a very interesting exhibition (entrance free) at Clifford's Inn. The most prominent exhibitors are Mr. Selwyn Image, Mr. Holroyd, Mr. Brangwyn, and (in furniture) Mr. Mackmurdo. One object of the Society is to offer small works which may be within the means of those who wish to purchase original works of art, but who cannot afford the price of finished works in painting and sculpture. This therefore, except as regards the furniture, is essentially an exhibition of sketches and studies. The landscape sketches by Mr. Selwyn Image, of slight execution and a style recalling the eighteenth century, are of great charm of composition and feeling; and in a very different way Mr. Brangwyn's white and brown etchings, "Assisi" especially, are very powerful and original. Mr. Frank Short exhibits a number of slight water-colour sketches which are very interesting, as they look so like the elements of some of his landscape etchings translated into water-colour—the same kind of composition and the same prevalence of large untouched spaces and concentrated darks. Some sculpture sketches, and one or two heads which are more than sketches, by Mr. Stirling Lee, are among the exhibits. Mr. Mackmurdo's furniture, of which there is a good deal, is not what we should call very interesting in design, and yet it is highly commendable in the sense that it is, and is evidently intended to be, a practical protest against the spirit of eccentricity in furniture design which is too prevalent at the Arts and Crafts; it is all soberly-designed work on classic lines, and in perfectly good taste; our only complaint is that, with all its good quality, it just falls short of being interesting. But we would rather have this than a studied eccentricity.

Clifford's Inn.

THE *Burlington Magazine* for this month contains an interesting historical article on Clifford's Inn, written by Mr. Philip Norman, F.S.A., and illustrated with sketches by Mr.



F. L. Griggs. The ultimate object of the article is to draw public attention to the value and interest of Clifford's Inn, which it is now proposed to sell and demolish for the purpose of erecting new buildings on its site. The ostensible excuse is that the proceeds are to go towards "legal education," an excuse the futility of which was pointed out in a sensible letter by Mr. St. John Hankin in the *Times* of the 21st inst. As it is apparently useless to appeal to the architectural and archaeological perceptions of those concerned, Mr. Norman in his article urges that tall new buildings erected there would be a danger and a deprivation of light to the Record Office; a consideration which may very well be taken into account. But the prominent and urgent reason for opposing the scheme is that this is a most interesting and picturesque corner of Old London, and the Hall itself a charming old room, frequently in use for the meetings of the Art Workers' Guild and for other meetings, exhibitions, &c. It cannot therefore be said to be useless, and this continual and persistent destruction of picturesque remnants of Old London, in pursuit of mere money, is step by step depriving us of what constitutes an important part of the value and interest of London, which money can neither purchase nor replace.

#### THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE usual fortnightly meeting of the Royal Institute of British Architects was held on Monday evening at No. 9, Conduit-street, W., the President, Mr. Astor Webb, A.R.A., in the chair.

##### Deceased Members.

The decease of the following members was announced:—Mr. E. Birchall, elected an Associate in 1863 and a Fellow in 1871; Mr. Francis Edwards, elected an Associate in 1857 and a Fellow in 1861; Mr. Young Bolton, elected an Associate in 1882; Mr. Richard Phillip Day, elected an Associate in 1882; and Colonel John Davis, elected a hon. associate in 1887.

##### New Members.

It was announced by the Secretary that under the proviso of By-law 9, Mr. John Woodfall, President of the Liverpool Society, and Mr. Jos. Swarbrick, of Manchester, had been elected members.

##### Four Modern Hospitals.

A paper was then read by Mr. E. T. Hall on "Four Modern Hospitals," of which the following is an abstract:—

Mr. Hall said that he purposed to deal not with hospitals in general, but with concrete examples on which he had personally laboured. These were representative of four types—viz.: (1) Hospitals for scarlet fever, diphtheria, and enteric diseases, which are generally grouped under one staff; (2) those for smallpox; (3) sanatoria for tuberculosis or consumption; (4) general hospitals. The examples the lecturer brought forward illustrated one of each kind—viz.: (1) the City of Leeds Fever Hospital, at Seacroft; (2) the City of Leeds Smallpox Hospital, at Killingbeck; (3) the Sanatorium at Frimley, in Surrey, for the Brompton Consumption Hospital; (4) the Camberwell Infirmary.

Before dealing with his examples, the lecturer made some general observations on each type of hospital, discussing questions of site, plan, location, medical treatment, numbers to be accommodated, &c. Consumptive sanatoria the lecturer considered justified, if only as schools of domestic and personal hygiene. Patients may or may not be healed entirely of their disease, but they are taught the value of cleanliness, of exercise, of fresh air, of regular habits, of order and self-respecting discipline, and they go back as missionaries to their families and friends. As regards site, all kinds of infectious hospitals should be away from a densely built neighbourhood. For a general hospital in town, the site

should be as open as possible, and preferably surrounded by roads which form wind channels to change the air. Low-lying land with a shallow gravel subsoil should be avoided. Public smallpox hospitals are required to have a quarter-mile zone around them—that is to say, the land forming the hospital estate must be 130 to 160 acres in extent, and in the heart of this, shut in by a ring fence, must be the portion reserved for patients. For mixed fever hospitals a zone is required to protect not only the public, but also those suffering from different diseases. But where the site is large enough the isolation of the pavilions or ward units should be considerable for the comfort and pleasure of the sick. Prospect, sunlight, trees, and gardens are all aids to recovery. No hospital on a rural site should be more than two stories in height. In all the best modern examples of hospitals, the main wards are placed with their axes north and south, when this is practicable, with windows on both sides and at the ends. Thus every bed and every wall gets all the sunlight there is during some part of the day. Double wards—that is, wards with a central wall and rows of beds on each side of it—should always be avoided. For consumptive sanatoria, as distinct from hospitals, large wards are not adopted; the ideal is a single room for each patient, with a southerly aspect, in a building not more than two stories in height. On a city site, where relatively high buildings are a necessity, three or more stories are suitable; and lifts and thoroughly aerated staircases for access and for fire escape must be provided.

Referring to the ordinary layman's idea that a hospital is but a single building, the lecturer said that a fever hospital is almost a village, with thirty to fifty separate buildings, and with a staff of three hundred or more persons. In one of his hospitals there were within the curtilage six miles of drains, twenty-nine miles of water and steam pipes, and forty-two miles of electric wire. At Seacroft there were eight to nine miles of drains.

The City of Leeds Fever Hospital, at Seacroft, is about three miles from the centre of the city. The site was formerly a beautiful park, and the trees have been kept wherever possible. The area is 41 acres, and from one end of the building to the other is about a quarter of a mile. The hospital consists of forty-two separate buildings. It is presided over by a medical superintendent with three medical assistants, a lady superintendent or matron with her assistants, and a staff of 102 nurses and seventy-two female servants. The male officers and servants number about thirty-eight. Accommodation is normally provided for 452 patients, but in cases of emergency a much larger number can be received. Attached to the hospital is a quarantine station of many cottages, to which infected families are removed until danger is past. The administrative buildings consist of: (1) The offices, with residence for the matron, for the assistant medical officers, and for resident porters and others; (2) the nurses' home, containing 121 rooms; (3) the female servants' home, with eighty-four rooms; (4) dining-rooms for nurses and servants between the homes and the kitchen; (5) the hospital kitchen, steward's stores, dispensary, staff consultation room, sewing room, &c. A complete laboratory, with students' rooms, forms another building. To the east and west of this group, on the main covered way, are patients' admission rooms to the different parts of the hospital. Every part of the hospital is connected by glass-covered open ways, with subways beneath for steam, hot and cold water, and gas pipes, electric mains, &c. The hospital pavilions are grouped in pairs, with fuel store and nurses' lavatories common to both on the cross corridor. Beneath these staff offices is the heating chamber. Each pavilion is axially north and south, with windows on both sides and at the ends. It has an entrance hall with the duty room opening from it. To right and left are large wards, each containing fourteen beds, and opening from these are single-bed wards, all overlooked from the duty-room or ward kitchen. Each large ward has a wide balcony at the extreme end, flanked and sheltered by the towers, containing bathrooms, lavatories, and water-closets, and near these is an external flight of steps leading to the grounds. Beneath every pavilion is a paved open basement, about 5 ft. or 6 ft. high, forming an aerial disconnection of the wards from the earth. In this all pipes and cables are placed, so that repairs can be done without coming inside the building.

The smoke flues are also swept from beneath. The ward floors are of polished teak laid direct on the concrete. The walls are of cement, painted and varnished to match the faience chimney-pieces. The heating is by passing fresh air over hot-water radiators at a calculated low velocity, so as always to be changing the atmosphere of the room, and this is done completely three times an hour. The extraction is by fire and aspirating flues. Heating, the lecturer considered, should never be done by pipes laid in channels with gratings over. These become receptacles for dust and filth of all kinds. The ventilation of the hospital was secured by natural, as opposed to artificial, means, such as that usually called the Plenum system. In the lecturer's judgment, the latter was a mistake in any hospital. The windows, consisting of a pair of sashes and a fanlight with glass spandrel cheeks, extend to the ceiling. Describing the sanitary fittings, the lecturer showed a drawing of a bed-pan sink designed by himself for hospital use. Its advantages are that it uses about half the water of any other; no water stands in any pipe when out of use; one flush not only feeds the rim, but spreads a palm-like wave which, entering the bed-pan handle, thoroughly cleans everything. The isolation pavilions, of which there are four, consist of wards of one, two, and four beds each, with nurses' rooms and special sanitary accessories for treating different diseases. In each of the diphtheria pavilions there is an operating room with side and top light. The block for severe operations contains an anaesthetic lobby, a theatre, and a sterilising room. The staff quarters have everything necessary for comfort. There is a large recreation-room, a writing-room, a library, a third sitting-room for probationers, a suite for the home sister, ample offices, and a separate bedroom for each nurse. The whole hospital is of fire-resisting construction. The hospital kitchen is a room 50 ft. long, with a large scullery attached. Close by is a large bakery, and there is a group of larders facing north and arranged with through currents of air. The steward's store is 60 ft. 6 in. by 25 ft. 7 in., with a gallery round. From this centre enclosed trolleys convey food and stores to all parts of the hospital. There are separate laundries for patients and staff. Near the entrance to both is the disinfecting house and the destructor. All unconsumed food and pieces are burnt. The engine-house will contain three large direct coupled dynamos to light both this hospital and the Killingbeck Hospital. The heating of both will be done from this centre. The exhaust steam from the various engines is collected and used for heating. In like manner is collected all the condensed water, all the cooling water from electric engines, &c., and this is filtered and pumped at 80 deg. into the economiser. In this way, when the engines are running, all the heating and hot-water supplies will be done for nothing, thus saving some hundreds of pounds a year. Describing the drainage and treatment of sewage, the lecturer drew attention to the sewage irrigation outfall, from which it is necessary to exclude typhoid germs, and showed drawings of an apparatus devised by himself for dealing with these germs. It consists of receiving tanks and boilers for alternate use. The typhoid sewage is received and boiled by steam, after which it passes to cooling beds, and thence to the outfall sewer.

Killingbeck Smallpox Hospital is situated on the top of a hill, with undulating country all around. The grounds proper are 12 acres in extent, but the total attached area is 140 acres. The hospital buildings proper are grouped together on the summit of the site, the offices and medical quarters being in the centre, the laundry and mortuary to the west, the discharge block to the east, all outside the hospital road. Entering in the centre, the nurses' and female servants' homes, respectively, are to the west; the kitchen and stores, dispensary, and serving-room to the south; the male servants' home to the east. Beyond, to the north, lie three large pavilions and two isolation blocks, while the admission block to these is at the junction of the covered way. The mortuary here has no visiting-room for friends to view their dead, but it has, under a peristyle, a plate-glass sarcophagus, into which the body, suitably dressed, is placed from the mortuary on a rolling bed. The visitor, standing in the open air, can thus see the dead, but cannot come into actual contact with the body. To enable the heating to be done from Seacroft,



as above mentioned, the highway had to be tunneled, and a covered trench carried right up the hill. The hillside down which the drain had to come was very steep, so reasonable gradients were got by a series of weirs in the pipes.

The *Frimley Sanatorium for the Brompton Consumption Hospital* was next described. Here the author said he had tried to get away from the hospital, to suggest breeziness and health and the pleasant atmosphere of a large home. The institution consists of sixteen buildings. The patients' block is cross-shaped, with accommodation for eighty-eight patients in four two-storied radial pavilions, and for twelve in the centre where special cases may be under closer surveillance. Every patients' room faces S., S.S.E., or S.S.W. His first design was for putting the eighty-eight patients in single rooms; but this was overruled. For the King's Sanatorium, however, his original plan was shown to his Majesty and to Sir Ernest Cassell, and the Committee came to the same conclusion as that he originally contemplated. As regards concentration, which in Germany was carried to an extreme, the lecturer said he had tried to find a mean. At Frimley they had two patients all within a radius of 195 ft. from the doctor's consulting room and matron's sitting-room, and yet every room has an open outlook; all are away from noise and bustle, all have the greatest amount of sun, and all are sheltered. Another advantage of the plan was that ample classification could be got. They could have units of twenty-five males or females, with their separate group of closets, bathrooms, and lavatories, or they could arrange convalescents by themselves or make other divisions of patients in units of eleven. There was but one dayroom on each floor. The great aim is to get the patients out into the open air for their recreation, not to encourage them to remain within. Provision is made by which beds can be wheeled out on to the terrace, and at each extremity of the pavilions there is a sunroom formed in the turret for patients in the end ward, in addition to a balcony. As regards roofs to terraces and balconies, the lecturer's idea of rolling canvas shop blinds had been adopted. These could be lowered or rolled up at will.

*Camberwell Infirmary, Brunswick-square*, although technically a parish infirmary, is, owing to its position, really a general hospital, dealing with accident and acute cases of all kinds. The original building in Havil-street the lecturer was altering and modernising to form part of the larger institution. It consists of twenty-one buildings, standing on a site of 4½ acres, practically surrounded by roads, and all buildings are connected by glass-covered ways and subways. It accommodates 800 patients; has a resident staff of five doctors, while the other officials, nurses, and servants, number about 160. The block plan is as follows:—In the centre of the west front is the administration block, with a pavilion north and south of it. To the east of the administration is a quadrangle, having on the north and south the female staff house, and north and south two other pavilions; to the north-east lies the old pavilion, now divided into three parts. To the east is a circular pavilion, its conical roof, surmounted by a turret, forming a feature of interest in the general composition. To the south-east are the kitchen buildings, the stores, and men-servants' quarters. Further south the laundry engine and boiler houses, the mortuary and ambulance station. All buildings may be reached by the private road on the outside and by covered ways on the inside. The principal buildings are of red brick and Portland stone, the main front forming a flat crescent. The new pavilions are axially north and south. The pavilion to the north—which may be taken as typical of all, although they differ in detail—consists of three main stories and a fourth one over part of the area. It has at the home end a wide staircase, with walls of glazed brick from bottom to top. At the other end it has a secondary or escape staircase, extending from the flat roof to the road, in what is practically a separate tower. There are three exits from the building. On each floor there is a ward of twenty-four beds, with windows on three sides, and other wards of six, four, and two beds respectively, affording opportunity for great classification. There is a ward kitchen. This and the corridors have also all their walls of glazed brick.

The twenty-four, two, and four-bed wards are open to supervision from the ward-kitchen

and from each other. All are well lighted and every window opens. There is only one fireplace in each ward, for cheerfulness, the heating proper being by hot water. The large ward on the top floor has been specially designed for consumptive patients, and is a unique provision for a general hospital. Practically the whole of the enclosures on three sides consist of opening windows, for open-air treatment, and above is a flat roof, on which patients may spend all the day with something of interest to see in the panorama stretching across London. Three of the pavilions are so designed. One of the greatest modern improvements in hospitals is the superior accommodation now given to the staff. The female staff home at Camberwell Infirmary is situated in the central quadrangle, with a pleasant garden attached. It has several large rooms for dining, recreation, writing, &c., for nurses and servants. Each of the staff has a separate bedroom, warmed by hot water, with an inlet and outlet ventilator. There are 140 rooms in the building. The lecturer went on to give details of the children's pavilion, the kitchen block, the engine and heating rooms, smithy, shops, boiler-house, and laundries—the most costly block of the whole; also of the heating and ventilation. The laundries are arranged so that linen received soiled at one end passes through and out clean at the other. Electric fans remove all steam and polluted air. The drying is by hot blast.

In concluding, the lecturer said he trusted he had been able to show that in hospital work there is much to interest the architect. In addition to the general design and detailing of not one but dozens of buildings of diverse purpose, to their grouping and co-ordination so that each may take its proper place among the whole, one has to give special consideration to the medical requirements and hygienic conditions; to aeration and ventilation; to the design and organisation of the services for heating and artificial lighting; for telephonic and other means of intercommunication; for fire extinguishing; for transport and commissariat. Unremitting attention is necessary to deal with so much of detail, often not alluring in itself; but with enthusiasm the dryest bones may be made to live, and to the strenuous man difficulties and new problems are but a spur to greater effort, an added zest to all enterprise.

Mr. H. Stannus, in proposing a vote of thanks to Mr. Hall, said it was clear to him that this age was essentially the age of hospitals, and any men who would condense or try to focus all the information that could be gathered on such a subject deserved well not only of posterity, but of all of them who had the benefit of that study. The manner in which Mr. Hall had classified the hospitals had enabled him to deal with them in a very masterly manner. During the time he (the speaker) had been a member of the Institute he had heard many able papers on various branches of what might be called the specialised work which architects had to carry out. There had been papers on breweries, school buildings, private school buildings, libraries, and now they had a paper on hospitals. He thought that those papers, along with the reports of their Godwin bursaries, were forming what must be an exceedingly valuable collection of information for those who would have to practise in the future in these departments.

Mr. Chisholm asked what was the cost per bed of the Leeds Hospital?

Mr. T. Blashill said that his qualifications to speak were perhaps questionable, although it was true that a good many years ago, when the pavilion system first became acknowledged to be the proper system for carrying out a hospital, he was honoured by an invitation to compete with a limited number; and he might say, for the credit of the profession and of the people concerned, they each had what was considered to be a fair premium. He could not quite tell them why, or enter into any reasons, but he did not get the erection of the hospital entrusted to him. It did, however, lead him to see every hospital of the kind which had been built up to that date, and to take a very great interest in the subject, and he believed he stored in his mind a great deal of useful information. People who went in for competitions might get useful information if they got nothing else. He considered that it was a tribute to the authors of the original idea of the pavilion system that it

should have undergone so very few modifications since the time he spoke of, which was more than thirty years ago. There was really little in the general arrangement now which was new. The progress which had been made had been by an intense study of details, and, to his mind, what one saw in the modern hospital now, and what they had heard that night, showed what could be done by an intense study of the details of a hospital. He seconded the vote of thanks to Mr. Hall.

Mr. W. G. Wilson said he noticed from the plan of the Frimley Sanatorium that the system of radiating blocks from the centre had been adopted. He had often wondered in seeing the plans of radiating hospitals what the advantage was in having the blocks in *ichelon*. It seemed to him that if one particular aspect was best something was sacrificed by setting the blocks all at different angles, although he quite saw that they got closer to the administrative blocks by having the arms radiating. The point, to his mind, was whether they did not lose more than they gained.

Mr. R. J. Angel remarked that he had had something to do with an infectious hospital, and he recollected that when the plans were first sent to the Local Government Board that authority objected to covered corridors between the wards. The plans showed simply roofs upon columns—it was simply a covered way open on both sides, but they objected to it. He understood Mr. Hall to say that his wards were connected by corridors, and would like to know whether they were approved by the Local Government Board.

Mr. Hopkins asked if Mr. Hall had got a balcony in the north and south—one facing due north and one facing due south—and whether he found the one facing north was much good. He would also like to know as to the covering of the floors, for in a visit he paid to a hospital a year ago he found there were waxed teak floors, and complaints were made that children were constantly falling about on them and hurting themselves, and the medical superintendent said he thought plain deal boards were better than teak.

Mr. W. Hilton Nash, in supporting the vote of thanks, said that when they saw such a beautiful building as the Frimley Sanatorium it almost made one wish one had the chance of spending a few months in it. He would like to ask one question as to site. What did Mr. Hall think was the best soil on which a hospital should be built? In the early part of the paper Mr. Hall thought gravel was not a good soil. He believed that clay, if well drained, was perhaps the best soil for an infectious diseases hospital to be built upon, because it did not absorb the germs. It seemed to him that Mr. Hall had adopted in some of his designs the scheme which was used in the Lariboisiere Hospital in Paris. He believed it was first used in London in St. Thomas's Hospital. It was a curious thing that when St. Thomas's Hospital was moved from its old site to that by the river, the old Surrey Gardens building was used as a temporary hospital, and it was found that wounds healed more quickly than in the permanent building. It seemed to him that they might build a hospital too well, and that the walls might be built too thick, and there would be no ventilation through the walls. They all knew that a certain portion of air did pass through the walls, and the question might well be considered as to whether these walls might not be used for hospitals. Perhaps that might be impracticable, but at all events it might be considered.

Mr. J. Osborne Smith said that from one point of view this was one of the most interesting papers he had ever heard in that room. What they had heard that night about fresh air, sunlight, and aspect, and other points of view which concerned health should be very much welcomed in connexion with other buildings besides hospitals. Mr. Hall was very emphatic on these points, and was evidently thoroughly impressed with the necessity for what he called currents of air passing across the building, about the building, and under the building. He remembered once looking into the ward of a hospital which had fixed windows; there was some air coming into the ward, but the only way by which he could find where it was coming in was by observing that some of the window-blinds were quite black. It was being pumped in, and that seemed to him a most unnatural way of ventilating a hospital, and it had been delightful to him to hear of the way Mr. Hall ventilated



his hospitals. Mr. Hall treated patients like human beings, who wanted fresh air instead of being cooped up and having to breathe air passed along dark passages and dusty flues. It was a mistake to treat hospitals like that, and he was particularly glad that Mr. Hall had emphasised that point.

The Chairman said they were all agreed that they owed a great debt of gratitude to Mr. Hall for the trouble he had taken in preparing the paper, and for bringing his actual working drawings down to them. He did not profess himself to be especially an expert in hospitals, but, like most of them, he supposed it had fallen to his lot from time to time to erect one. The question of the location of a hospital was one that was, of course, constantly occurring in London, and had been much under discussion in the case of one of the most famous of their hospitals. How far it was wise to remove them out of the town and take them far away from the cases which they would have to serve he thought was perhaps open to question. With regard to aeration of the wards which Mr. Osborne Smith had referred to, they would all agree that the more complete the aeration of every ward and the circulation around every ward was, the better, but he ventured to think that that sometimes had been carried somewhat to an extreme, and that, like an accordion, the hospital had been gradually spread further and further out, and wider and wider away, until in one or two well-known cases it took the matron a couple of hours to get from one end of the hospital to the other, and she complained that she really could not go backwards and forwards so far. That was brought out in the well-known case at Belfast, where Mr. Hennens was closing the whole thing up, and trying in the most ingenious way to get over the difficulty, and they must wish him all success in that effort. But, after all, the only thing which really settled these matters as to whether they were good or bad was actual experience when the building came to be used. At the same time it was necessary that some experiments should be made from time to time in these buildings, and everybody was under an obligation to those who were bold enough and brave enough to make these experiments. With regard to the space under the wards to secure this aeration, not only around but over and under, he would like to know if Mr. Hall was quite convinced that that was quite the best thing to do. Like everything else, it had its advantages and its disadvantages. Certainly a disadvantage was that the space under the ward was apt to become a repository for all sorts of things. He built a hospital like that, and he found they had put old beds and mattresses underneath when he visited it a year or two afterwards. He did not suppose that Mr. Hall was able to visit these buildings to see what was put under them, and that was one of the dangers of it. The thickness of the walls had been mentioned by Mr. Nash, and he also would like to hear an answer to that, and whether Mr. Hall used hollow walls or solid piers. Of course, the window space of the sides of the wards was so large that the wall really became only piers, and he imagined, therefore, that he would be obliged to build them solid. He would also like to know the area of glass in proportion to floor area Mr. Hall thought best for the wards. The question of glass area was a very important one, and what might be considered necessary and advisable from the theoretical point of view, was often found to be rather excessive from the patients' point of view, for the light was almost more than they could bear. He was very much interested in the closet blocks which Mr. Hall showed. He meant the closet blocks at the roots of the wards as to serve the smaller wards as well as the large ones. That seemed a most excellent thing, as it saved the carrying of matter from the smaller wards through the larger ones; but the little difficulty he had always seen was the disconnection of these sanitary blocks from the wards. So far as he gathered from the plans, the passage which led from the ward to the closet block was blocked on one side, and they could get an incomplete aeration through it owing to the projection of the other blocks. Another point was the enclosed escape staircase, which seemed to him to be a matter of compromise. Mr. Hall thought it should be enclosed so that the patients could be taken down more comfortably,

but the disadvantage was that they got a great projecting building standing at right angles which caused a shade and consequently a cold corner in the ward, and it also prevented the aeration of the ward. He could not think himself that if a patient thought he was going to be burned alive he would have much hesitation in going down an iron staircase.

Mr. Hall: Persons of seventy years of age?

The Chairman said he thought they would get down it. It seemed to him that these walls and the projecting staircase and the projecting closet block would be rather inclined to stop the circulation around the block and to keep out the sun. He did not quite understand the hot-water circulation. He had had to do with heating large separate blocks, and he must say that he had adopted the scheme, which Mr. Hall seemed to think the old-fashioned one, of having for each block a calorifier. He should have thought it better to take the steam to the block than to take the water circulation. It seemed to him, from Mr. Hall's statement, that the whole of the building would have to depend upon one calorifier, and he did not quite understand, if the calorifier went wrong, what would happen.

Mr. Hall: There is a duplicate.

The Chairman said he did not make these remarks at all in the way of criticism of the paper, for he did not profess to be able to do so, but having got Mr. Hall, who had made it a speciality of his own, it was only the duty of the chairman to extract every ounce of information he possibly could.

The motion having been heartily carried,

Mr. Hall, in reply, said that one gentleman asked him a terrible question as to what hospitals cost, and he was rather disposed to think that he had better not answer it. Hospitals were the most expensive buildings in the whole world if attention was given to every little detail. He knew an infectious hospital built not long ago at 250l. a bed. He could only say that he was perfectly certain they were not able with all the modern details they put in to build for that. His experience was that they could build a big infectious hospital—he was distinguishing them from others—for something like 450l. to 650l. a bed. That was the very lowest, and in some places they had cost a great deal more than that. They must remember that an infectious hospital had always twice or two and a half times, and sometimes three times, the cubic space per bed that a general hospital had, and that must be remembered when they talked about the cost of hospitals. He was asked as to the radiation of plans and of aspect. Aspect, again, was relative to the particular disease. Where they had infection they wanted through currents of air to get foulness away, and they wanted the maximum of sunlight because people were confined to their beds. When they came to a sanatorium for consumption not one person in thirty was confined to his bed. All the German experts were pretty well agreed that the best aspect for consumptive treatment was south, south-east, or south-west—in other words, to get the hottest and best sun of the day. He was asked about the radial plan of Frimley, but if they looked at it they would see that every room in it faced south or south-south-east or south-south-west. Each building was parallel with the opposite wing. All the north sides were occupied by corridors simply, and there were through currents of air, of course. With regard to covered ways, he was surprised to hear that the Local Government Board ever objected to a plan with a covered way. He knew of no modern hospital built under the Local Government Board which had not a covered way. He had had to pass through the Local Government Board with many of his plans, and had never had the smallest objection raised to the covered ways. If they had objected to them he would have fought it tooth and nail, because it would mean the staff walking a quarter of a mile with no covering. In Germany they got over it by going under a subway in bad weather, but that was ridiculous. A gentleman asked whether a north balcony in a fever hospital was not objectionable. He thought it was not, because sometimes in the great heat of the summer it was useful to put patients on the north balcony to keep them sheltered from the scorching sun. Camberwell was a general hospital, and not an infectious hospital, and they had different cases to deal with. A hospital essentially built to deal with infectious cases was built on different lines, but in all hospitals they wanted plentiful aeration.

That brought him to another point which the Chairman had raised as to the open basement beneath the pavilions. He did not think that was necessary except in infectious hospitals, but in infectious cases it had a most eminently practical advantage, for all the pipes, &c., were in the open air, and when repairs were necessary the workmen did not have to go into the midst of infection. He had never had the misfortune to find his basement filled in with old beds and packing cases. With reference to teak floors, he was surprised to hear that a medical man had said that deal floors were as good as teak. Everyone knew that deal was very soft, and germs could get into it, and the reason teak was used was because it was the hardest wood in the world. Somebody said that teak floors would open, but he was afraid that all wooden floors opened occasionally. He could say with confidence that if you asked twenty doctors what floor they preferred nineteen would say a polished teak floor. Perhaps the twentieth would say he would like a terrazzo floor. But the mode of heating the wards was by flues under the terrazzo floor, and, unfortunately, the nurses were walking on hot bricks all day. Mr. Nash asked for his views as to the best soil for a hospital. In his paper he said that low-lying gravel was bad. If they were on the top of a hill with gravel they were perfectly right and safe. He thought himself that green sand formation was the best they could get, but, of course, they had to build the hospital on the soil of the district where it was wanted. So long as clay was well drained it was all right, but the objection to clay was that it was cold and water would not go down through it, and if they got a great deal of water they got a damp and cold soil. As to thin walls, Mr. Nash mentioned that air came through thin walls, and, therefore, it was beneficial. So it was if it was pure, but they must also remember that they did not generally build so that the air should come through the walls. They generally made other provision, although they could get air through the walls, especially when certain soft stone was used. But if they could provide for the air to come in in the way they designed, and cold clean air came in, it must be better than letting it come through the wall. Again, as the Chairman pointed out, where they had large window areas they must have solid walls to carry the weight, so that in effect they had solid walls. Personally, he never built a hollow wall if he could help it. He fancied he was misunderstood in what he said about hospitals being moved into the country. He said that infectious hospitals should go into the country because of the great source of danger to the neighbourhood, but general hospitals must be where the poor were. With reference to the area of the windows, there, again, it differed in various hospitals. The area for an infectious hospital was about one-fourth of the floor area generally, but for a consumptive sanatorium he would make the whole of one side of the room all glass if he could. With regard to the disconnection of sanitary towers, they should be disconnected with cross ventilated corridors, and if they looked at the Frimley plans, they would find they were absolutely disconnected. In Camberwell he had not absolutely disconnected them, but it was not an infectious hospital. As to the Chairman's criticism of the enclosed escape staircase, he had seen cases where the people were too nervous to go down high open stairs. But he had another reason for enclosing it, because by that means he would be able to keep off flanking winds from the balcony, which was a great point. At Frimley, in the pavilion he projected the end for the same reason, so that patients were sheltered from flank winds. As to the pumping of water for heating, might he suggest to the Chairman that the system of having a calorifier in each building meant having live steam for it? That meant that they had to pay for live steam. In his system they used exhaust steam, and pumped it, and it cost nothing. He did not hesitate to say that the difference in the cost of maintenance per annum would be about 400l. at Camberwell, and they saved that absolutely. They had duplicate calorifiers. Everyone knew that in every institution where steam was used they had two boilers, for one might break down. There were hundreds and thousands of mills and factories fitted like that, but they never heard of them being stopped. It was practically impossible for it to go wrong; but if it did go wrong, it merely meant shutting



the valves of one and opening the valves of the next one. In his scheme they had two reserve mains, but in the ordinary system of heating if the steam pipe leaked the system broke down.

The Chairman: Yours is a duplicate main. Mr. Hall said if they had that they were saved a lot of trouble, but if one of the calorifiers went wrong the whole of the building was out of heat; and with his system that could not be. They had reverse mains everywhere, and if one broke down it did not affect the others.

#### Next Meeting.

The Chairman announced that the annual general meeting will be held on May 4, when the annual report of the Council will be presented and other business transacted. He also hoped to have the pleasure of meeting them at another smoking "At Home" on Monday, May 11.

#### BUILDERS' CLERKS' BENEVOLENT INSTITUTION.

The twenty-fifth annual dinner of the Builders' Clerks' Benevolent Institution was held on Tuesday evening in the King's Hall, Holborn Restaurant, Mr. John Greenwood, C.C., President, in the chair. Amongst the large company present were Messrs. J. Howard Colls, F. L. Dove, J. B. Lee, M. H. Hadland, E. Brooks, F. S. Oldham, R. Gleed, L. Jones, H. W. Parker, and J. Austin (secretary).

The loyal toasts having been honoured, Mr. A. Stansfield proposed "The Imperial Forces," Major Stanley Clarke suitably responding.

The Chairman then proposed the toast of the evening, "The Builder's Clerks' Benevolent Institution." Having referred to the number of excellent institutions, including trade societies, which exist for the relief of distress, he said that the Builder's Clerks' Benevolent Institution was founded in 1866 for the purpose of granting pensions of 30*l.* per annum to necessitous clerks and of 24*l.* per annum to their widows, and for the maintenance and education of their orphans and for making grants of temporary relief. The orphans were well looked after, not only by the committee of the school to which they were sent but also by the committee of the Institution. The school committee as a rule found situations for those who had been in the schools and even watched over the orphans after they were twenty-one years of age. The income of the Institution last year was 750*l.*, and since they had been established they had given away in pensions and in the maintenance of the orphans upwards of 10,000*l.* Subscriptions in aid of this deserving Institution were always thankfully received and properly applied.

The toast having been honoured, Mr. J. Howard Colls proposed "The Architects and Surveyors." He said it needed no very observant eye to see the great advance which architecture had made throughout this country in recent years. People used to talk about the decline of architecture and refer to the fourteenth, fifteenth, and sixteenth century buildings being so much finer than those of the present day. That was true not many years ago, but he thought that we could claim that the twentieth century will show future centuries what good work was being done at the present time. The connexion between architects, surveyors, and builders was a close one, and was of a fairly satisfactory kind. The building trade was just now undergoing a rather curious development; it was rapidly being altered, though he did not think the change he referred to would last long. Drapers, restaurant-keepers, and others were becoming builders in large numbers, and they seemed to think that they could build better than the man who had been trained and brought up to the work, and they were undertaking some large contracts. Sooner or later, he believed, the general public would see that the good old system was better and more to be relied on for carrying out the contracts of the country. It was very desirable that the profession of architecture should, as a rule, be kept distinct from that of quantity surveying, for the architect who dabbled in quantities generally "made a mess of it" and the quantity surveyor who attempted to design a building did not often produce an artistic result. It was the same with builders. It was impossible for the architect to carry out his

own work as work was done now—in the rush, &c., with which it had to be done, and it was impossible for a builder to think of designing buildings. The present division of labour between architects, surveyors, and builders was, on the whole, a good one. With the toast he coupled the name of Mr. Hadland.

Mr. Hadland, in response, said it had always struck him as a singular fact that on these festive occasions, although the toasts of architects, surveyors, builders, builder's merchants, &c., were honoured, yet a toast to the building owner was never given. It seemed to him singular that that should be so, for it was the building owner who called forth the art of the architect, created the building trade and called into existence the builder's merchant. Perhaps the reason for this omission was that it was thought that the building owner was a man to be envied rather than conciliated, for he could have no difficulty in finding an architect to design for him, a builder to build rapidly for him, and merchants to supply every kind of material he required.

Mr. R. Gleed, in proposing "The Builders," said that the various attempts to do away with builders had been unsuccessful in the past, and he thought such attempts would fail in the future. The professions connected with building were greatly helped by responsible master builders, for they were spared many irksome duties and monetary anxieties and worries by builders. Architects who tried to be their own builders did not, as a rule, take the risk themselves; they had to persuade clients to take it for them and they seldom persuaded them twice. The builders, on the other hand, were always ready to come forward and take financial risks and keep things going.

The toast was coupled with the name of Mr. F. L. Dove, who, in reply, said the builders' trade was a harassing one, but master builders were conscious of the valuable services rendered to them by their clerks.

Mr. Oldham, in proposing the toast of "The Donors and Subscribers," said he was glad to say that they had received about forty new subscribers from builders' clerks themselves.

Mr. Lewis Jones having briefly replied, Mr. Edwin Brooks, the Treasurer, proposed "The President," and in the course of his remarks he said it was a welcome fact that more clerks had come forward to help the Institution. If builders' clerks took a little more interest in the Institution, it would provide the best old age pension of any society in London. The President suitably replied, and then proposed "The Executive." The affairs of the Institution were admirably looked after, he was glad to say. There was no doubt that the Institution did much good, for there were many clerks who, through no fault of their own, required assistance from time to time.

With the toast he coupled the name of Mr. H. W. Parker, who replied.

In the course of the evening the Secretary read a list of subscriptions received or promised, amounting to over 240*l.*, including 25*l.* from the President.

#### COMPETITIONS.

SCHOOLS, WHITLEY.—The last ordinary monthly meeting of Whitley and Monkseaton School Board was held in the Council Buildings, Whitley. The board formally announced their award in connexion with the competitive designs submitted by architects for the building of the new permanent schools. According to the numbers on the plans, the result is as follows:—Mr. W. H. Knowles, Grainger-street, Newcastle-on-Tyne, first, who will be employed as architect to carry out the work; Messrs. Cackett & Burns-Dick, Newcastle-on-Tyne, second, awarded 40*l.*; Mr. Stephen Wilkinson, Newcastle-on-Tyne, third, awarded 20*l.*; and Messrs. Armstrong & Wright, Newcastle, fourth, special award of 10*l.*

THE QUEEN VICTORIA MEMORIAL AT ROCHDALE.—The Rochdale Queen Victoria Memorial Committee have accepted the plans sent in by Messrs. Woodhouse & Willoughby, of Manchester, for the erection of a new nurses' home on the site of the Grammar School, Sparrow Hill. The Committee offered premiums for the best set of plans and designs. Nine sets were sent in. In deciding upon them the Committee have had the assistance of Mr. H. Litterer, of Preston, the county architect, as assessor. Messrs. Woodhouse & Willoughby were awarded the first place, and their plans

have been adopted. A premium of 20 guineas for the second best set was awarded to Mr. Jesse Horsfall, of Todmorden, and that of 10 guineas for the third to Messrs. Butterworth & Duncan, of Rochdale.

TECHNICAL SCHOOLS, BLACKPOOL.—Some time ago the Technical Instruction Committee of the Blackpool Town Council invited designs for a new technical school, to be erected on a portion of the Raikes Hall Gardens site. On account of certain conditions imposed, the whole of the local architects at first declined to compete, but, on the stipulations being somewhat modified, they decided to send in plans. The 14th inst. was the last day for receiving plans, but on that day the local architects asked for an extension of time. The Committee, after a lengthy discussion, declined this, on the ground that it would not be fair to those architects who had already submitted plans, and there the matter stands, much to the disgust of the local architects.—*Liverpool Post.*

#### ARCHÆOLOGICAL SOCIETIES.

BRITISH ARCHÆOLOGICAL ASSOCIATION.—At the evening meeting on April 15, Dr. Winstone in the chair, Mr. P. Scott exhibited an illustration of a handsome specimen of an original rain-water pipe head, still to be seen on the front of an old house in High-street, Birmingham, where it joins New-street. It is dated 1687, and bears the initials I A, placed over a human face with wings on each side. The date of its erection is the same as that of the old meeting-house, which was the first dissenting place of worship in that city. The pipe head is believed to be of lead, but is covered thickly with paint.—A paper was read by the Rev. W. S. Lach-Szyrma on "The Mining Tribes of Ancient Britain." One of the most difficult problems in our early British history is to reconcile the seeming discrepancy between the archæological remains in England of a remote epoch and the records of Britain as given by the old Greek and Roman classical authors. The Britain of Caesar and of the old Roman writers does not seem the same as the Britain of the monuments. There is one mode of explaining these differences, *i.e.*, by supposing that the records of Caesar and others relate to the beginning of the Christian era, either a little before or after, and that these monuments belong to a remote antiquity, to the Palæolithic or the Early Bronze period. This may be partially true, but it is weighted with the theory that a lower stage of culture superseded a higher, for certainly the "old men" of Cornwall were in some points more cultured than the rude Britons who fought with Caesar: they were dwellers in stone houses; they had apparently a complete system of religious worship, and that not exactly Druidical, for the stones rather than forest recesses were their temples. Again, most of these monuments may be very ancient, but some evidently must have been after the Roman conquest, for they are inscribed, and even after the conversion of Cornwall to Christianity; indeed, there is reason to think that the Cornish Celtic cross was a last Christianised survival of the old Celtic *men-hir*. The author suggested that just as we can attempt to illustrate some of the earliest problems of Neolithic man in Europe by the existing records and habits and customs of primitive men in Australasia, so, in this second stage of civilisation, we can have some light thrown on our British problem by the American tribes found by the followers of Columbus, and even as they exist at this day in America were unchanged by European influence. Speaking roughly, we find in America to-day two classes of Indians—the hunter tribes now in Canadian reserves, and those of the Western States, hunters and fishers by choice, living in the forests; and, on the other hand, the mining Indians of Central and South America. Probably when Julius Caesar came to Kent, or Claudius Caesar stayed at Colchester, Britain was peopled by two classes of British tribes, the one being the hunters and fishers, the wild warriors who strip to fight and put on their war paint, like the Iroquois or Mohawks of old Colonial history; the other the more peaceful mining tribes of the far West, not merely of Cornwall, but of Devon, who lived in stone houses, who worshipped the "big stones" with rites founded on Sun-worship, and, perchance, sometimes used flowers in their summer festivals, who were buried under stones, cromlechs, and



cairns, and reared rude obelisks to commemorate national events. Such were the Cornu-Britons of old time, and such, in a higher grade of culture, were the Peruvians of America, and in a lower stage to this day the minor tribes of the Indians in the Andes. The problem of the seeming contradiction of the archaeological remains to the written records of old Latin writers, the author considered, might be solved by supposing the one refers to the mining and hill tribes of the West, the other to the hunting and pastoral warriors of the East and Midlands. The Chairman, Mr. Rayson, and Mr. Patrick took part in the discussion upon this interesting paper.

**DURHAM AND NORTHUMBERLAND ARCHEOLOGICAL SOCIETY.**—The annual meeting of the Durham and Northumberland Archaeological and Architectural Society was held on the 21st inst. in the University Lecture Rooms at Durham. Canon Greenwell, the President of the Society, occupied the chair. The Report of Mr. J. G. Graddon, the treasurer, stated that the total income, including a balance of 158l. brought forward, was 248l. After meeting all the expenditure, there was a balance of 199l. to carry forward. The Report was adopted. The election of officers resulted in the reappointment of Canon Greenwell as President, with Mr. R. O. Heslop and Mr. R. M. Knowles Hon. Secretaries, and Mr. J. G. Graddon as Secretary and Treasurer. It was decided to visit the following places during the present year:—1, Haltwhistle, Williamswick and Bellingham; 2, Warkworth, Guisance, and Felton; 3, Seaham, Dalton-le-Dale, Dawdon, and Easington; 4, Tanfield and Kirklington; and 5, a two days' excursion to Hull, Heddon, Patrington, Welwick, Barton-on-Humber, and Thornton Abbey. The President afterwards delivered an address, in the course of which he gave a résumé of the places visited during last year. Speaking with regard to the disposition of the balance of nearly 200l. in the hands of the Society, he suggested that this sum, or some of it, should be devoted to the purpose of printing the transactions of the Society. They had some most interesting things in the shape of pre-Conquest stones, crosses, and grave covers scattered throughout the two counties of Durham and Northumberland. He proposed that they should, in addition to an account of the meetings of their Society, include an account of the whole of the sculptured Pre-Conquest stone in the two counties, commencing at Hartlepool and going northwards, until they had completed the whole. They would have to have the stones represented by some photographic or other process. Proceeding, the President mentioned that in connexion with the Cathedral the road going through from the cloisters into the cemetery and the monk's ante-chamber to the Chapter House had been cleared out, and a good deal of old work had as a consequence been made visible. In regard to the castle, the Rev. Dr. Gee, the new master of University College, had determined to draw up an account of the castle which the President hoped would be produced in a separate book. Plans were being prepared by Mr. Hodges for the work, which he hoped the members of the Society would assist in obtaining subscribers for. Dr. Gee had also undertaken to have some excavations made, which he trusted would throw some further light upon what was the character of the original castle built by William the Conqueror. Since then the castle had passed through a number of alterations, but, notwithstanding, it still possessed the main characteristics of an important castle of the first magnitude.—At the conclusion of the meeting those present were conducted to the cloisters, where the excavations in connexion with the monks' lavatories, &c., were pointed out and explained by the Rev. W. Brown and Mr. Freeman, chief verger at the Cathedral.

#### APPLICATIONS UNDER THE 1894 BUILDING ACT.

At the meeting of the Building Act Committee of the London County Council, held on the 6th inst., the proceedings were governed by the clause in the order of reference which empowers the Committee at certain seasons to act on behalf of the Council in relation to matters included in the Committee's order of reference.

The London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894.

The names of applicants are given between parentheses:—

#### Lines of Frontage and Projections.

**Whitechapel.**—An extension of the shop front of No. 245, Whitechapel-road, Whitechapel (Mr. R. A. Hinds, for Mr. Owen and Messrs. McKay and Ryland).—Consent.

**Chelsea.**—A porch at the entrance to a building on the site of Nos. 244, 246, and 248, King's-road, Chelsea (Messrs. Lansdell & Harrison, for the Chelsea Board of Guardians).—Consent.

**Finsbury, East.**—Buildings on the site of Nos. 152, 154, 156, 158, and 160, City-road, Finsbury (Messrs. Cluttons, for the Ecclesiastical Commissioners).—Consent.

**Hackney, South.**—A warehouse building at No. 17, Sutton-place, Hackney, to abut upon Urswick-road (Mr. J. Hamilton, for Mr. T. C. Wootton).—Consent.

**Kensington, South.**—Buildings on the southern side of Old Brompton-road, Kensington, between Sutton-place and Gaslow-crescent (Mr. W. Weaver for the Royal Borough of Kensington).—Consent.

**Kensington, South.**—The retention of an iron and glass shelter in front of No. 11, and the erection of iron and glass shelters in front of Nos. 14, 50, 70, 82, and 83, Holland Park, Kensington (Mr. W. J. Kemp for the executors of the late Mr. F. Radford).—Consent.

**Lewisham.**—A porch in front of No. 73, Burnt Ash Hill, Lee (Messrs. G. Bush & Son for Mr. F. Zurborg).—Consent.

**St. Pancras, South.**—Retention of a projecting arc lamp at No. 8, Charlotte-street, Fitzroy-square, St. Pancras (Mr. G. Vernon for Mr. M. Siari).—Consent.

**Wandsworth.**—Buildings on the site of Nos. 326 and 328, Balham High-road, Wandsworth (Messrs. Benison & Bargman for Mrs. M. Messent).—Consent.

**Westminster.**—One-story shops and an entrance porch in front of Nos. 153, 155, 157, 159, and 161, Victoria-street, Westminster (Messrs. Z. King & Son for Mrs. M. Hiscov, Mr. J. T. Hiscov, and Mr. R. T. Raikes).—Consent.

**Woolwich.**—Additions to Redcroft, Court-road, Eltham (Mr. J. O. Cook for Mr. J. T. North).—Consent.

**Kensington, South.**—The retention of a show-case in front at No. 18, Beauchamp-place, Brompton-road, Kensington (Mr. B. E. Walker for the Goodwill Work Society).—Consent.

**Wandsworth.**—The retention of a wooden cycle shed in the garden of Lingmill, Putney Heath, Wandsworth (Mr. J. Henry).—Consent.

**Clapham.**—Retention of wooden porches and balcony fronts at Nos. 132-130 (inclusive) Roden-hart-road, Clapham (Mr. W. N. Dunn for Mr. R. Maers).—Consent.

**Hammersmith.**—Buildings, with one-story shops in front, at Nos. 91 and 93, Goldhawk-road, Hammersmith, to abut upon The Grove (Mr. W. G. Hunt for Dr. F. H. Alderson).—Consent.

**Islington, West.**—That the Council do not accede to the request of Mr. A. Dixon on behalf of Messrs. Whitbread & Co., Limited, for permission to retain a projecting sign at the Lincoln Arms beer-house, No. 52, York-road, King's Cross.—Agreed.

**Kensington, South.**—The retention of a projecting doorway in front of a block of residential flats, known as Cecil Court, on the south-west side of Hollywood-road, Kensington (Mr. C. J. C. Pawley).—Refused.

**Wandsworth.**—A building on the eastern side of Mitcham-road to abut upon Undine-street (Mr. H. Bigbold for Canon St. John).—Refused.

#### Width of Way.

**Camberwell, North.**—A car-shed at the Camberwell tramways depot on the south side of Medlar-street, Camberwell (Mr. E. J. Edwards for the Highways Committee of the Council).—Consent.

**Kensington.**—An addition and boundary fence at Albert-buildings, Randall-row and Randall-road, Kensington (Mr. H. H. Bartlett).—Consent.

**Poplar.**—Buildings on the south side of Leicester-street, west side of Gaselee-street, and south side of Norfolk-street, Preston-road, Poplar, with the boundary fences between the external walls of such buildings and the roadways of Leicester-street, Gaselee-street, and Norfolk-street (Mr. R. Robertson for the Housing of the Working Classes Committee of the Council).—Consent.

**St. George-in-the-East.**—A building upon the site of Nos. 7 and 8, Wellclose-square, St. George-in-the-East, to an increased height and at less than the prescribed distance from the centre of the roadway of Shorter-street (Mr. T. J. Fox for Mr. G. E. Weston).—Consent.

**Kensington, South.**—A projecting porch to a building on the west side of B's-buildings, Kensington High-street (Mr. P. E. Piditch for Messrs. J. Barker & Co., Ltd.).—Refused.

#### Width of Way and Lines of Frontage.

**Haggerston.**—Public baths on a site abutting upon the north side of Mansfield-street and south side of Laburnum-street, Shoreditch (Mr. A. W. S. Cross for the Council of the Metropolitan Borough of Shoreditch).—Consent.

**Strand.**—An iron and glass shelter over a proposed entrance in Northumberland-street to the grill room at the Grand Hotel, Charing Cross, Strand (Mr. W. Woodward for the Gordon Hotels, Limited).—Consent.

**Peckham.**—Six houses on the site of No. 26, Elm-grove, Peckham (Mr. E. Crosse for Messrs. J. & A. Oldman).—Refused.

#### Space at Rear.

**Battersea.**—A modification of the provisions of Section 41 with regard to open spaces about buildings, so far as relates to the proposed retention of a house on the east side of Battersea Bridge-road northward of Nos. 61 to 80, Cambridge-mansions, with an irregular open space at the rear (Mr. G. S. Wain for Mr. H. W. Reeves).—Consent.

**Chelsea.**—Deviation from the plans approved in November, 1901, in respect of the erection of a block of residential flats on plots Nos. 1 to 4, Cheyne-walk, Chelsea, at the corner of Beaufort-street, with an irregular open space at the rear, so far as relates to an alteration in the line of the rear wall of the said block and an increase in the height of such wall at its northern end (Messrs. Dunn & Watson for the Town and Gown Association, Limited).—Consent.

**Norwood.**—A modification of the provisions of Section 41 with regard to open spaces about buildings, so far as relates to the proposed erection of a house on a site on the north side of Lambert-road, Norwood, abutting upon Stratheven-road (Mr. C. M. Quilter for Mr. W. Pitman).—Consent.

**Hammersmith.**—A modification of the provisions of Section 41 with regard to open spaces about buildings, so far as relates to the proposed erection of a house on the north side of Hammersmith-terrace, Hammersmith (Mr. G. Saunders).—Refused.

#### Deviation from Certified Plans.

**Whitechapel.**—Deviations from the plan certified by the District Surveyor, under Section 43 of the Act, so far as relates to the proposed erection of two houses on the site of Nos. 32, 34, and 36, Pelham-street, Spitalfields (Mr. J. R. Moore-Smith for Mr. J. Donn).—Refused.

#### Formation of Streets.

**Lewisham.**—That an order be issued to Messrs. Llewellyn & Pawley, sanctioning the formation or laying out of new streets for carriage traffic, on the Bromley Park estate, Bromley-road, Lewisham (for Mr. S. Cawston).—Consent.

**Clapham.**—That an order be issued to Mr. C. G. St. John sanctioning the formation or laying out of a new street for carriage traffic in continuation north-eastward of Elmhurst-street into Manor-street, Clapham. —Consent.

**Lewisham.**—That an order be issued to Mr. J. Stanford sanctioning the formation or laying out of a new street for carriage traffic to lead from Mount Pleasant-road to Fordyce-road, Lewisham. —Consent.

**Wandsworth.**—That an order be issued to Messrs. Holloway Brothers, sanctioning the formation or laying out of a new street for carriage traffic to lead from Burntwood-lane to Magdalen-road and two new streets out of the east side of Trammere-road on the Magdalen College estate, Garratt-lane, Wandsworth. —Consent.

#### Artisans' Dwellings.

**Hackney, North.**—Deviation from the plans sanctioned in June, 1901, for the erection of three blocks of working-class dwellings on a site on the west side of High-street, Stoke Newington, at the corner of Victoria-road, so far as relates to the erection of two shelters, a workshop, and a store, and a range of perambulator sheds (Messrs. N. S. Joseph, Son, & Smithers for the Four per Cent. Industrial Dwellings Co., Ltd.).—Consent.

#### Means of Escape at Top of High Buildings.

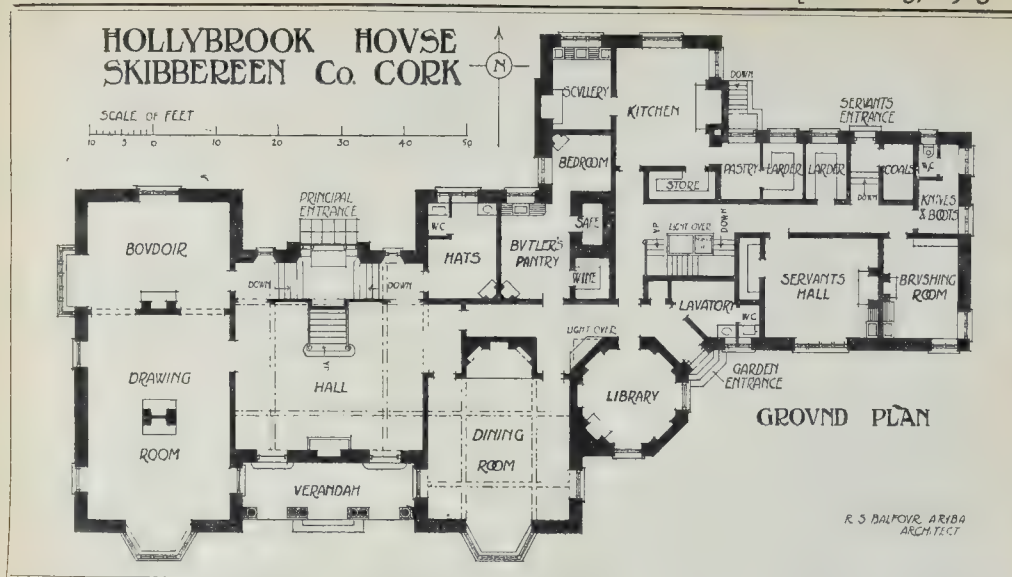
**City.**—A deviation from the plans approved in March, 1903, in respect of the means of escape proposed to be provided in pursuance of Section 63 of the Act, on the fourth story of the Wesleyan Centenary Hall, Bishopsgate-street, City (Messrs. Gordon & Guntton for the Trustees of the Wesleyan Missionary Society).—Consent.

**Paddington, South.**—That Mr. F. T. Verity be informed that the Council has considered the drawings submitted by him on behalf of the executors of the late Mr. A. Bush, showing the means of escape in case of fire proposed to be provided in pursuance of Section 63 of the Act, on the fifth story of Nos. 12-17, Hyde Park-place, Ebury-road, Paddington, and that upon completion to the satisfaction of the Council of the said means of escape the Council will issue a certificate under the said section.—Agreed.

#### Buildings for the Supply of Electricity.

**St. George, Hanover-square.**—A deviation from the plans approved in April, 1897, for the erection of an addition on the north side of the generating station and works on the site of Nos. 87, 89, and 91, Davies-street, Oxford-street, so far as relates to the setting back of the front wall of such addition (Mr. C. S. Peach for the Westminster Electric Supply Corporation, Ltd.).—Consent.





### Illustrations.

#### DETAIL OF CENTRAL DOORWAY, SIENA CATHEDRAL.

**T**HIS illustration shows to some degree the extraordinary minuteness of the detail in the façade of Siena Cathedral. It is said to have been sculptured by Giacomo di Buonfedi about the year 1377. The general design of the façade is attributed to Giovanni Pisano, who was chief architect to the Duomo in 1290. It is certain that Giovanni made a design, and that after his death in 1299 certain changes were made. In 1310 a commission of ten master builders was formed to superintend the work.

Giovanni was the son of Niccolò Pisano, celebrated for the pulpit at Pisa and the less beautiful pulpit at Siena. Both father and son were veering towards Gothic, retaining the classic instinct for horizontal lines in the design, the semi-circular arch in the nave with pointed clearstory windows over, round arches to the doorways and windows with the super-imposed gables as richly pinnacled, niched, and sculptured as any Gothic cathedral.

The abortive attempt to enlarge the Duomo by adding a huge nave and turning the present church into the transepts took place about 1320. The unfinished walls and foundations commenced for this purpose are as interesting as any part of the finished church.

#### S. GIOVANNI AND PALAZZO MICHELETTI, FROM CATHEDRAL, LUCCA.

S. GIOVANNI, a twelfth-century basilica, is of little interest but for the picturesque grouping the campanile makes with the roof of the adjoining baptistry.

One of the main piers of the façade of the cathedral is shown in the sketch, and is a typical example of the application of party-coloured marbles.

F. T. V.

#### PALAZZO CONTARINI, VENICE.

This is one of the many palaces in Venice of the same name. It is in the Pointed style of the fifteenth century, showing the ogee form of arch and curious dentil moulding which is peculiar to Venice.

F. T. V.

#### ART SCHOOL, HULL.

This building is now being erected at a cost of 12,000l. The elevations consist of red brick and Ancaster stone dressings; the pediment is intended for a glass mosaic design.

The view illustrated is not the original drawing submitted in competition, but the design has not been departed from in any important details.

The builders are Messrs. Hockney & Liggins, of Hull; and the architects Messrs. Lanchester, Stewart, & Rickards, of London.

#### HOLLYBROOK HOUSE, SKIBBEREEN, CO. CORK

THIS house is being erected in a somewhat remote district in the south-west of Ireland, not far from the site of the old mansion on the demesne which was demolished a few years ago.

Pleasant woods surround the new house on the north and east sides, and the principal rooms command a fine and characteristic prospect to the south and west.

The external walls are being built of the rough stone furnished by the quarries on the estate, but they will subsequently be rough cast to keep out the weather.

There are fifteen bed and dressing-rooms in all, and a storage tank for water occupies the upper portion of the octagonal tower seen in the view.

#### FREE LIBRARY, KETTERING.

We give the principal drawings of the selected design for the new Free Library at Kettering, by Messrs. Goddard & Co., of Leicester.

The plan is arranged by the architects with a view to economy of working. Supervision is obtained from the delivery counter over all parts, and all readers entering or leaving must pass under the eye of the assistants. No room is used as a passage-room.

The vestibule has been made sufficiently large to give wall space for the advertising columns of the local papers, which the public can thus consult before the library proper is open, or afterwards without disturbing the readers in the newsroom.

The hall is divided from the rooms by cased stanchions, in order to reduce the piers and prevent obstruction of light. The rooms are all easily accessible from the hall. The stack room is lighted from the north, on the usual weaving-shed plan, and provides accommodation for 34,700 volumes. The reference room has space for seventy-six readers, and shelf accommodation for 6,460 volumes.

The librarian's room adjoins the stack room and reference room, having also separate access to the entrance hall. Out of this room opens the space for rare books in the form of a strong-room, with steel wire gates and a ventilating flue.

For the exterior a red sand-brick with Ketton stone dressings is to be used. The screens and panelling to the entrance-hall and the woodwork generally, are to be in red deal painted. Floors to be of pitch pine wood blocks throughout, except entrance-hall and vestibule.

Heating to be by low-pressure hot water

with ventilating radiators. Extracting trunks will be provided in the void spaces of the roofs. Lighting to be by electricity.

The architects estimate the cost at 6,460l.

#### ARCHITECTURAL SOCIETIES.

**ARCHITECTURAL ASSOCIATION OF IRELAND.**—The closing general meeting of the session of the Architectural Association of Ireland was held on the 21st inst. at 20, Lincoln-place, the outgoing President, Mr. Fred G. Hicks, in the chair. The result of the ballot for officers and committee for the ensuing year was declared as follows:—President, Charles H. Ashworth; Vice-Presidents, H. Allberry and T. H. Webb; Hon. Treasurer, E. Bradbury; Hon. Librarian, T. Callimore; Hon. Secretaries, A. E. C. Millar and F. Hayes; Hon. Auditors, P. F. O'Sullivan and G. R. Carringham; Committee: Messrs. Hicks, Sheridan, O'Callaghan, McCarthy, Beckett, Holloway, Mitchell, Geoghegan, and Coleman. The Chairman, in the course of a valedictory address, said that in his opening address he laid some stress on the subject of examinations by the Royal Institute of the Architects of Ireland, which he was gratified to know was very favourably received by the members generally, and a deputation was appointed to wait on the Institute in connexion with this very important move. This deputation was received by the Council of the Institute. Since then committees representing both bodies had been appointed and met jointly, and made very good progress towards achieving this very desirable end. Architecture, like everything else in this country, was going to advance, and the rising generation must be in a measure responsible for this advancement. It was gratifying to know the Government contemplated spending some millions on technical education in that country. He hoped architecture and the allied arts would not be lost sight of. Why should not there be sentiment about a farmhouse as much as about the land surrounding it?—and there would be if a proper system of technical education were put forward and taken full advantage of, and the 12,000,000l. they were threatened with were properly expended. He was very fond of their little society, which, but for the continued generosity of Sir Thomas Drew, was practically homeless. The London Association had premises given to them, and he thought they might make it known that they should not be too proud to accept a similar gift.

**BUSINESS PREMISES, EDINBURGH.**—An extension is to be made to the premises of Messrs. Jenner & Co., in St. David-street and Rose-street, Edinburgh. The new buildings carry the old premises right up to Rose-street, the St. David-street frontage then being 220 ft., and there will be a frontage in Rose-street of 100 ft. The architect is Mr. A. R. Scott, of Edinburgh.





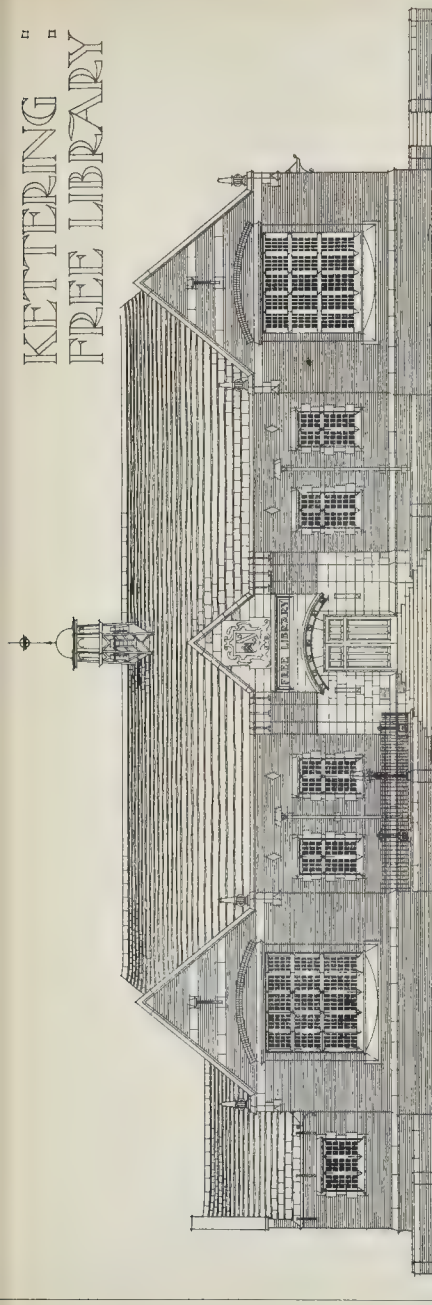
DETAIL OF THE CENTRAL DOOR OF THE CATHEDRAL OF SIENA



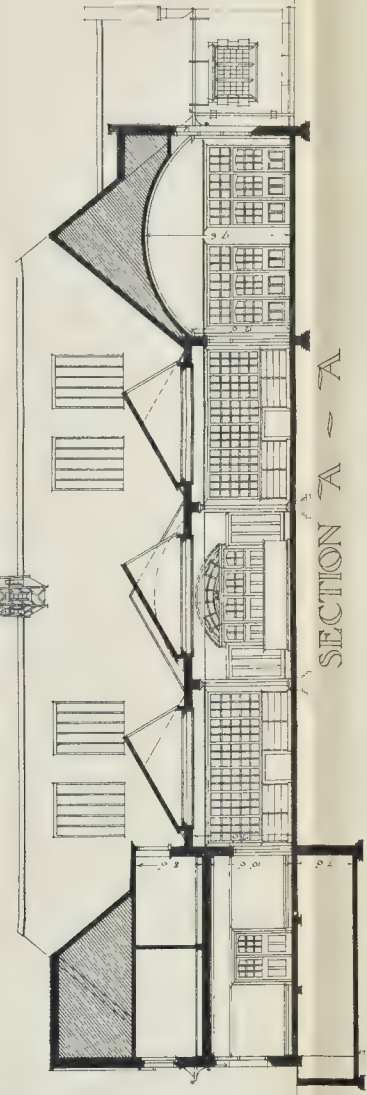




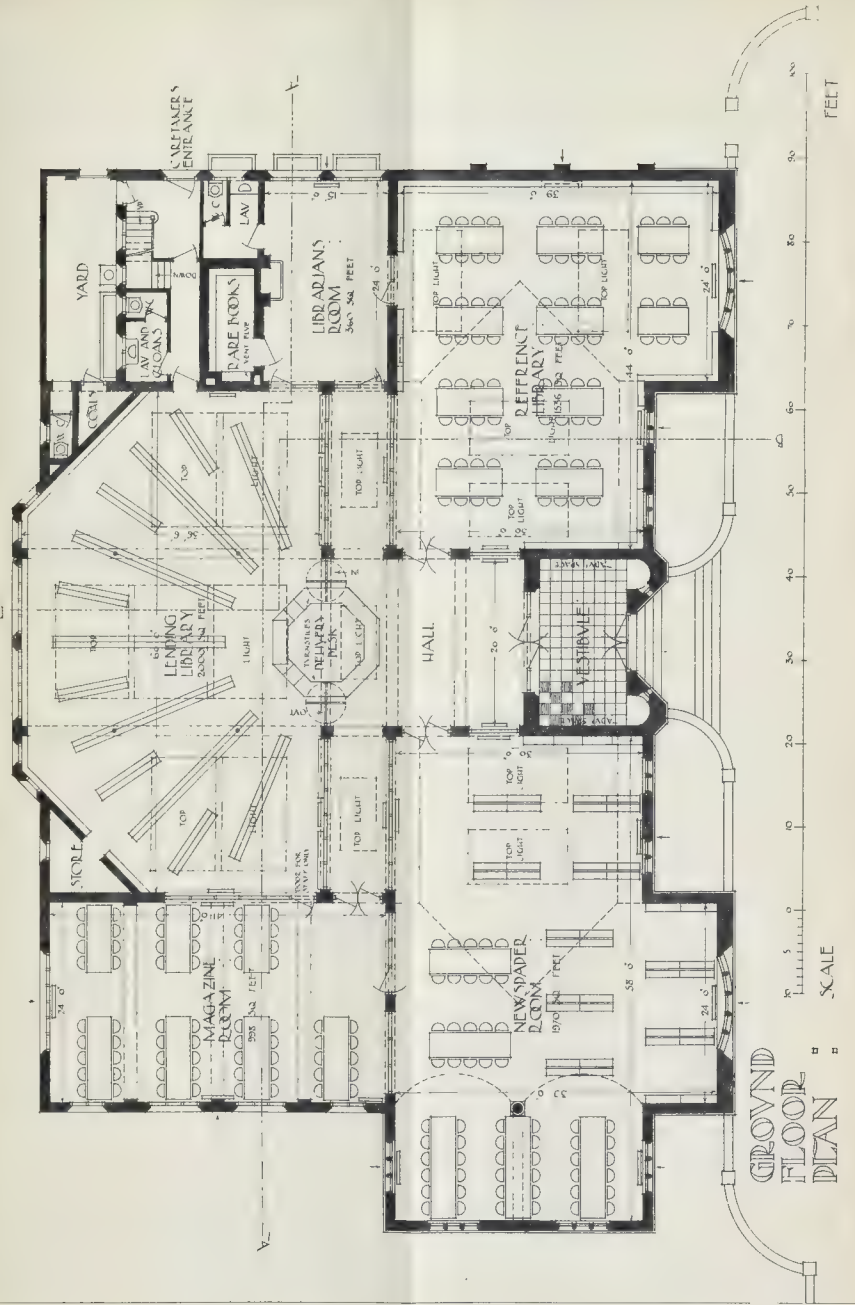
# KETTERING FREE LIBRARY



WEST  
ELEVATION



SECTION A-A

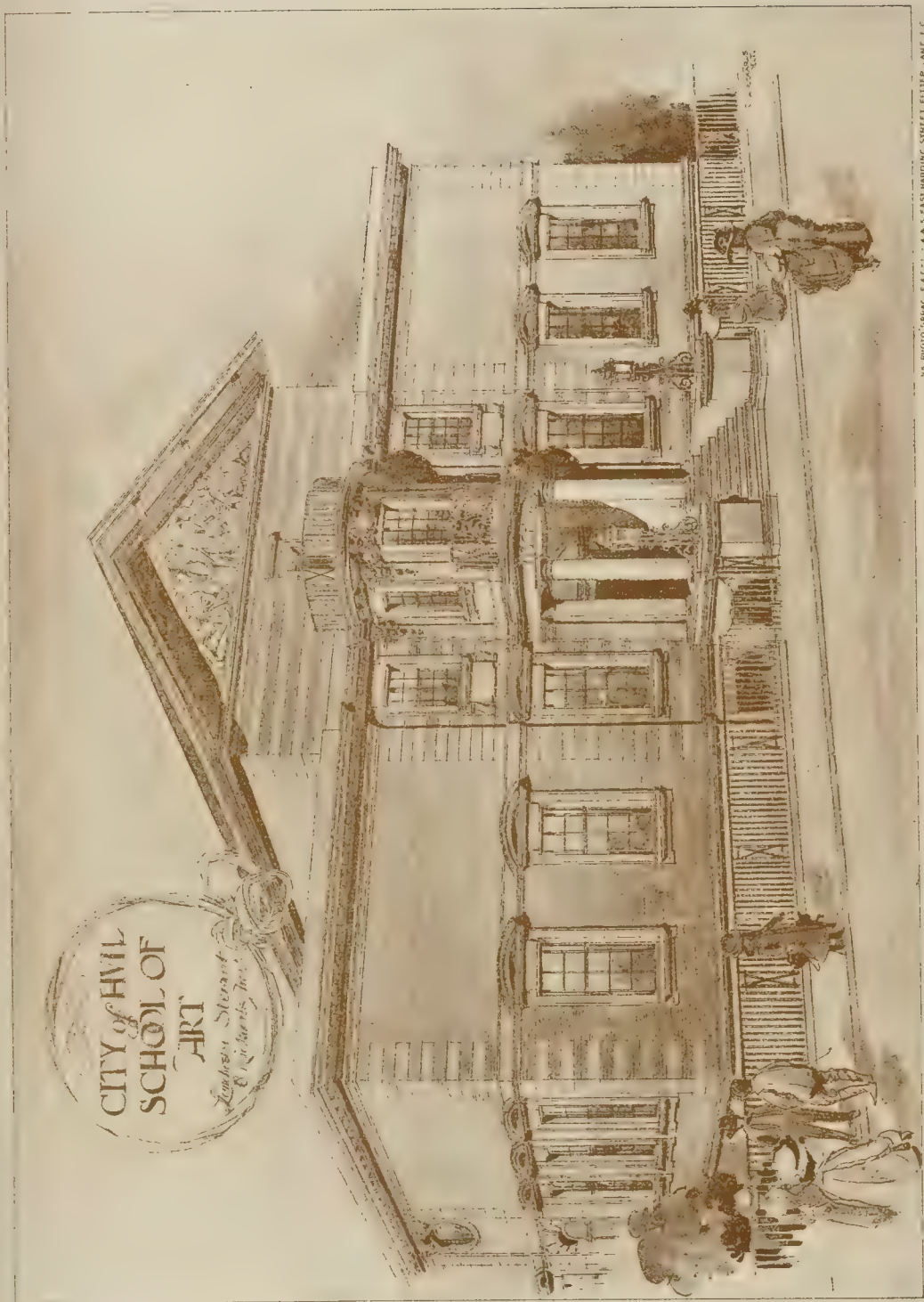


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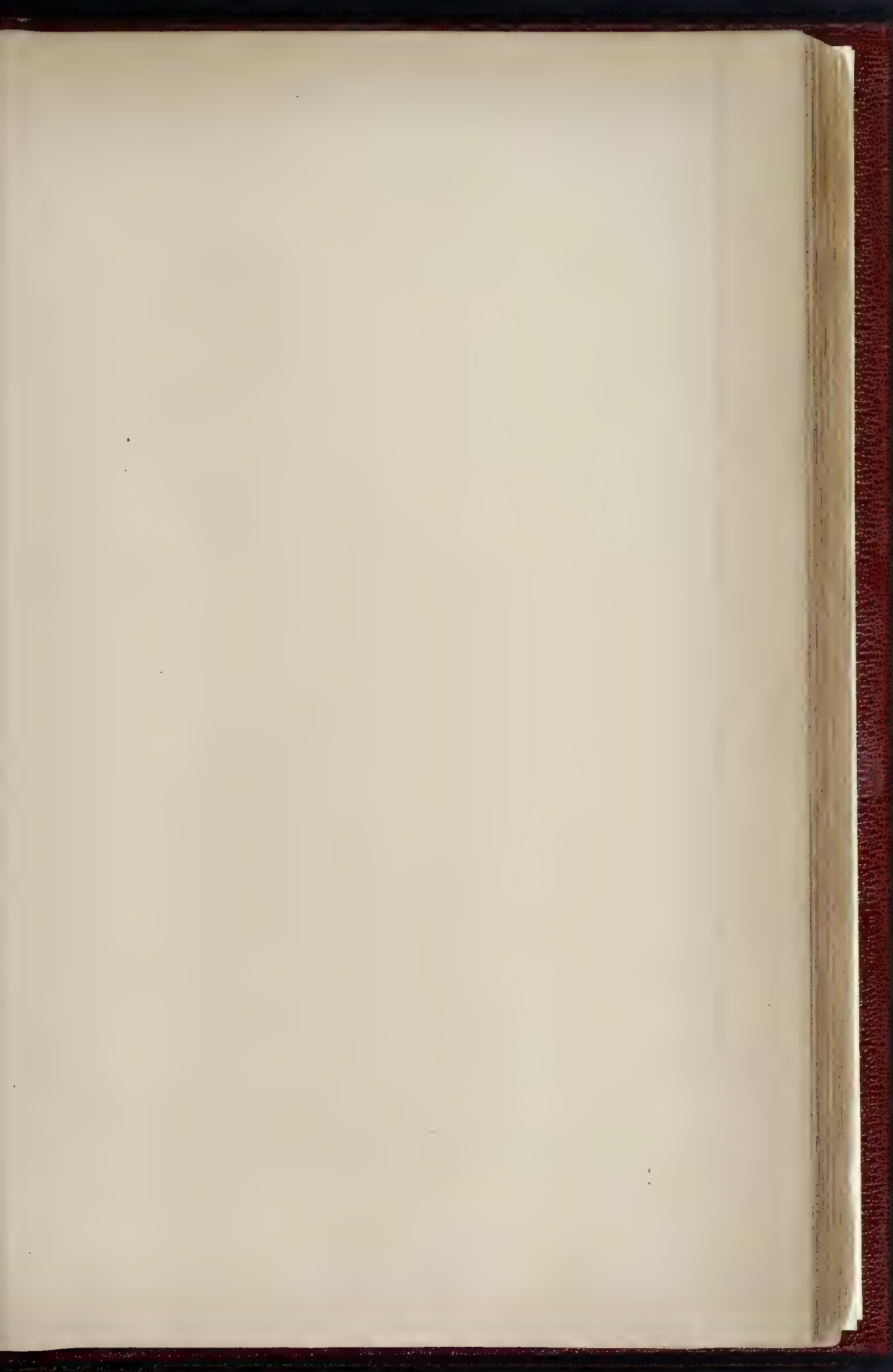
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THE BUILDER, APRIL 25, 1903











SK. PHOTO SPRAGUE & CO. LTD. 4 & 5 EAST HARDING STREET FETTER LANE E.C.

S. GIOVANNI AND PALAZZO MICHELETTI, FROM CATHEDRAL, LUCCA  
FROM A DRAWING BY MR. FRANK T. VERITY, F.R.I.B.A.





INK PHOTO SPRAGUE & CO. LTD. 4 & 5 EAST HARDING STREET FETTER LANE E.C.

PALAZZO CONTARINI, VENICE  
FROM A DRAWING BY MR. FRANK T. VERITY, F.R.I.B.A.















## Books.

*The Civil Engineer's Pocket-Book.* By JOHN C. TRAUTWINE. Revised by JOHN C. TRAUTWINE, jun., and JOHN C. TRAUTWINE, third. Eighteenth Edition, Seventieth Thousand. New York: John Wiley & Sons; London: Chapman & Hall, Ltd. 1902.

One were asked to name the two books most valued by the practising engineer in this country, the answer would almost certainly be "Rankine" and "Molesworth." The works familiarly known by these names require no further designation for the purpose of identification. As a comprehensive treatise on civil engineering, the former justly occupies the premier position, and it is equally valuable as a book of reference; while the latter is regarded as an indispensable item in the literary equipment of every engineer's office. The volume which is the subject of the present review also deserves an honoured place in the professional library, and we commend it to the architect quite as much as to the civil engineer. In some respects, Trautwine's "Pocket-Book" combines the features presented by "Rankine" and "Molesworth," for it is both a treatise and a pocket-book, avoiding wearisome mathematical complication on the one hand, and undesirable brevity on the other. Holding the opinion that even those who have been tolerable mathematicians in youth can seldom spare the time for retaining such an accomplishment in after business life, the author has aimed at the presentation of principles and facts in such a way that everybody may understand his meaning. Even in these days of technical education we believe there must be many sympathisers with so sensible an aspiration. In this connexion it may be interesting to quote one or two brief passages from the preface to the first edition of the work, of which one leading object has been "to elucidate, in plain English, a few important elementary principles which the savants have enveloped in such a haze of mystery as to render pursuit hopeless to any but a confirmed mathematician." Believing that comparatively few engineers are good mathematicians, and that nearly all the scientific principles which constitute the foundation of civil engineering are susceptible of complete explanation to any person who really possesses a sound elementary knowledge of arithmetic and natural philosophy, Mr. Trautwine does not entirely approve such engineering treatises as those of Rankine, Molesley, and Weisbach, saying that "although their books are the productions of master-minds, and exhibit a profundity of knowledge beyond the reach of ordinary men, yet their language also is so profound that very few engineers can read them." The writer himself, having long since forgotten the little higher mathematics he once knew, admits that he cannot understand them, and adds that "to him they are but little more than striking instances of how completely the most simple facts may be buried out of sight under heaps of mathematical rubbish." We know that these opinions were written more than thirty years ago, but, nevertheless, they will still find a responsive echo in the minds of practical engineers who regard mathematics as a "means" and not as an "end."

To discuss, or even to refer to, all the contents of this book, consisting as it does of more than a thousand pages of closely printed matter, would be too great an undertaking for a review such as the present. Among the chief subjects included are the following: Mathematics, Surveying, Natural Phenomena, Mechanics, Strength of Materials, Hydrostatics, Hydraulics, Constructions (including foundations, masonry, bridges, and roofs), and Materials (giving details concerning structural iron and steel, stone, bricks, cement, mortar, and sundry building operations and materials). Under the heading of Mathematics, we notice a new and enlarged table of five-place logarithms, in which the differences are more nearly constant than in the older form of table. There is also a new article describing the Logarithmic Chart and Slide Rule, the use of which should be very convenient in hydraulic and other computations. Two sections of the book that have been rewritten are those on Statics and on Beams. The title "Statics" may be thought to have a dry, theoretical sound, but the paragraphs relating to the thrust and resistance lines of arches, dams, &c., and to the

forces acting upon beams and trusses, are particularly interesting, while the Practical Considerations stated in separate paragraphs ought to be read. As if now stands, the section dealing with Beams is well up to date, and includes two somewhat unusual cases, the cross-shaped beam and the resistance of plates. Although the laws governing the resistance of a plate supported along its edges are but imperfectly understood, the rules given may be of service in arriving at approximate calculations of the strength of slabs and plates used as covers, or of monolithic floors. Under the head of Constructions, the chapter on Foundations is particularly noteworthy as dealing with practically every known method of work, and the same remark applies to the chapters on Stone and Brick Arches. In opening the general subject of Trusses, the author remarks that "the design, construction, and erection of trusses have become a speciality to which persons confine themselves more or less exclusively, and thus attain a degree of experience beyond the reach of the general engineer." These observations must, of course, be taken as applying more particularly to bridge design, and so far we quite agree with them, for most of the monstrosities in modern bridge-building are due to the trial essays of engineers unaccustomed to such work. As to the more general application of the truss in construction, it is necessary that every architect, and most engineers, should be familiar with the principles involved. Roof Trusses, both in steel and in timber, are briefly considered, and a good many drawings are given of details. Rivets and Riveting also form the subject of an interesting chapter. In the concluding section of the book there is much valuable information upon various materials of construction, but we are rather sorry to find that neither in the article on Cement nor elsewhere is there any reference to armoured cement, or armoured concrete. As this is admittedly the most important combination introduced within recent years, the omission seems to be unfortunate, although we have no doubt it may be intentional. The present edition contains about 200 pages more than its immediate predecessor, and altogether twenty of the articles have been almost, or entirely, rewritten. The general arrangement of the book is excellent, it has a copious index, and it opens so that the lines are parallel with the line of sight, the last being a very strong recommendation to busy men.

*Statics by Algebraic and Graphic Methods.*

By LEWIS J. JOHNSON, A.M., Soc. C.E., Assistant Professor of Civil Engineering, Harvard University. New York: John Wiley & Sons; London: Chapman & Hall. 1903.

This volume is a very successful attempt to make clear the general principles of statics, to define the inherent mathematical limitations of the science, and to show how its most important problems may be solved by analytical and graphical methods. The treatise, which is primarily intended for students of architecture and engineering, is divided into two parts, Part I. being devoted to the enunciation of general principles and methods of solving statical problems, and Part II. to applications of statics in actual practice. In a work of this nature new matter is not to be expected, and the chief object of interest is the manner in which the author presents well-known facts and develops his subject. The first three chapters, occupied by the definition and explanation of various preliminaries, are sufficient to show the ability of the author to express the abstract in succinct language easy of understanding by the beginner. Statical problems deal with bodies conceived to be in a condition of equilibrium, under the action of certain forces, and the solution of such problems consists in finding the value for each unknown element. As Professor Johnson remarks in Chapter IV., this at once suggests the use of algebra, and the principal task is to find how to write equations truly representing the conditions—that is, which will be true only if equilibrium is established. Having shown that a set of forces will be in equilibrium if they can result in neither (A) translation nor (B) rotation, the author, confining attention to coplanar forces, proceeds to establish first the algebraic, and then the graphic, equivalent of (A) and (B), in a manner that leaves very little to be desired. The chapter is concluded by a summary of the six

ways of stating the conditions of equilibrium, and the summary is arranged so as to be valuable for after reference by the student. A brief but logical survey of the scope of pure statics is contained in Chapter V.; and in the next chapter the methods of solution for the four most important "cases" are taken up—these cases being the only four of importance that are capable of solution by pure statics. As elsewhere in the treatise, algebraic and graphic methods are placed one after the other, so that the student may become familiar with each. The practice of using both methods not only enables results to be checked, but also helps to a clear perception of the operations performed.

Part II. commences with a chapter on "Centres of Gravity," wherein the difference between a true centre of gravity, and the centre of mass or area, is mentioned. The distinction is discussed in books on mechanics, but it is not of practical importance, and the ordinary definition may safely be accepted. In Chapter IX. the author adopts a definition of stress which is now generally considered to be inaccurate in this country. He says, "stress is the tendency to distortion or rupture in a body due to the action of the external forces." This is the theory enunciated by Lord Kelvin (then Sir William Thomson) in 1856. In the present day it is almost universally accepted that stress denotes the force, or combination of forces, exerted by the molecule of a solid under the action of external forces, in tending to recover its free condition, and which, for a state of equilibrium, is equal and opposite to the combination of the external forces applied to it. In one case stress is represented as pressure, and in the other as a force opposed to pressure or to any applied force. The discrepancy is clearly one that ought not to be perpetuated for the confusion of students. After further chapters, dealing with "structures," "stresses in non-framed structures" and "stresses in framed structures," wherein instructions are given for determining stresses, and for the guidance of the student with regard to exercises, some more complicated cases are considered. The sources of difficulty are divided into four classes, and the examples taken include such structures as the Fink truss, the bents of a mill building, the cantilever bridge, the three-hinged arch, and the hammer-beam truss. This is all useful matter to architectural students, as also is a brief discussion of the effects of friction, which forms the conclusion of the treatise. Although the work is of elementary character, it is thoughtfully written and should serve to give a generally sound basis for the addition of further knowledge. It is illustrated by numerous diagrams and a series of five excellent double-page plates at the end; but we are sorry to observe that that most useful detail—an index—has been entirely omitted.

*The Eighteenth-Century Architecture of Bath.*

Part I. By MOWBRAY A. GREEN, A.R.I.B.A. Bath: George Gregory, 1902.

THERE is a custom prevalent in the offices of certain publishers of which the first part of the above work furnishes a good example. We refer to the course quite usually taken when publishing a book in parts—the issuing of the preface and introduction with the last part instead of the first. Every one can, of course, understand that to a certain degree this arrangement may be convenient to author and publisher, but to the reader it is little less than maddening, and consequently the practice would seem to be not wholly without prejudice to the general welfare of such works.

It so happens that in this case we have seen the original prospectus, otherwise we should have been at a loss to know how the subject was going to be dealt with as a whole, and whether there was any chance of obtaining answers in the later parts to the thousand and one questions which the perusal of the first forces us to ask. We are promised a hundred plates, some photographs, some measured drawings illustrating the eighteenth-century architecture of the city, and, in particular, our attention is to be drawn to the work of the two John Woods.

Now the careful description of the architecture of a certain period within a certain locality seems to us to be quite the subject of the architectural book of the future. Obviously by this method the subject can be treated in far greater detail than is possible in a his-



torical account taking us up and down the length and breadth of a country, for local information of every kind can be readily sought and the results compared with existing architectural remains.

With the eighteenth century in England for your period, and Bath, the centre of English out-of-town fashion, for your locality, what should we not expect of you? The perusal of the first part of Mr. Mowbray Green's book leaves us with the impression that our expectations are not to be realised.

The eighteenth century was one in which the arts were held dear, and whatever may be our twentieth-century opinion as to the prevailing architectural taste of those days, we cannot forget that fashionable people were then, more often than not, cultivated people in the best sense of the word, and eighteenth-century letters abound with references to the art and to the artists of the day. It would seem to us, therefore, highly inadvisable to produce a book on the buildings erected in such a place as Bath without most carefully reviewing and quoting as often as possible the letters of the day, and every local document bearing upon the subject which careful research could bring to light and decent scholarship arrange. Not only should we reasonably expect to find bills and accounts shedding light upon the trade conditions of the day, but we should rest unsatisfied did we not find somewhere in England many of the original drawings made for some of the typical works in the town. We must still hope that some such treat may be in store for us in the succeeding part of Mr. Green's book, otherwise even a studied apologia would hardly suffice to excuse the appearance of a well-intentioned but inadequate book and (if the truth must be told) a somewhat irritating literary style.

*Siena: Its Architecture and Art.* By GILBERT HASTINGS. London: The De La More Press. 1902.

THE above title graces but fifty-five quarto pages, fourteen of which are devoted to introductory remarks. But if we hesitate to call the little work a book we must admit it to be an excellent essay, good in substance and of a pleasant literary flavour. It comes to us at a time when we are thinking of a large and careful work dealing with Siennese art in considerable detail, a work which has quite lately appeared in England; but this sort of book does not really harm the thoughtful essay, of which the little work before us is so good an example.

Those who know something of Italian art will be interested in the way in which the Cimabue controversy is handled by the author, and every one will be delighted with his style—style in thought as well as in words. Along these few pages of smooth and elegant writing are scattered good quotable ideas pointedly expressed, as when the author speaks of the porch at the base of the great tower flanking the Palazzo Pubblico as "hesitatingly Gothic."

The book might well find a place in the library of serious readers; the younger student, however, must not suppose that he can use this book as an introductory treatise to his studies in Italian art.

We may, in conclusion, express pleasure at coming across the admirable examples of metal work reproduced opposite pp. 28 and 30; photographs of these justly celebrated torch-holders are not too easily obtained. We must not omit to mention the admirable printing and sensible binding, which go so far towards making the little book in every way attractive.

*Old St. Paul's Cathedral.* By WILLIAM BENHAM, D.D., F.S.A. London: Seeley & Co. 1902.

WHAT is the real value of a quotation in archaeological or historical work? The opportunity of verifying it. It is often the case that quotations are the only passages of a book the verification of which would materially assist in the just estimate of its merits; consequently, when writers on matters of antiquarian interest fail to give proper references in footnotes or elsewhere, they not only deprive the critic of the opportunity of verifying their statements, but they withhold from the younger student that which is well within their power to impart, the knowledge of the sources from which their original information

was derived, and which may yield points of amazing interest to the thoughtful and earnest reader. A fine indifference to these considerations is often enough displayed nowadays, and Canon Benham is no whit less in fault in this respect than the majority of his book-making contemporaries.

In the work before us, which is as full of information and is as nicely written as other books by the same hand, inverted commas are not infrequently met with, but are hardly ever followed by the definite, and therefore alluring, reference. Latin quotations, some of them monkish elegiacs, give a scholastic grace to the page, and the sympathetic consideration of the author has led him to append not a few decent translations. Very charming and interesting indeed are the plates scattered up and down the book, for besides attractive reproductions of illuminated but irrelevant manuscripts, which are sifted amongst the pages with a prodigality truly astounding, there are a number of the familiar prints after Hollar, always so delightful to look at.

To digress for a moment. In glancing at the view of St. Paul's Church and the City from the south side of the water (Hollar, p. 23), one cannot help wondering how many people know that the "eel ships" shown there are still represented by some such craft to-day, and how many people there are who know why.

The canon expresses in more than one paragraph his disgust at the secular use of Paul's Walk, but it is open to question whether the secular use of certain parts (particularly the nave) of some of our English cathedral churches proceeded solely from godlessness. It is sometimes held, and not without reason, that the people felt the need of using, and the Church the need of recognising, the nave as a suitable and convenient meeting place for the citizens engaged on certain secular pursuits. This idea does seem to have held to the English mind in spite of various religious checks, and we may cite as an instance the fact that college chapels were and are to this day used for certain important official but secular purposes.

On p. 10, reference is made to the frequent use of the term "pardon" in connexion with burial grounds, and Canon Benham asks the question (which we have heard asked before) "does it indicate that these particular burial grounds were bought with money paid for indulgence or expiations?" The answer to this question is usually given in the affirmative, but there has been absolutely no definite historical evidence adduced as yet either in support or contradiction of the statement.

Some people will be interested to note the reference on p. 12 to the handing over in 1570 of a house on the south side of Paul's to the doctors of civil law as a "commons house." The history of this remarkable and unique body has yet to be properly written. Few people know that it was founded and patronised in the fourteenth century by Trinity Hall, in the University of Cambridge, for doctors of canon and civil law of both universities, and that it remained more or less as a corporate and collegiate body till a generation or two ago.

When dealing with the Chantries, Dr. Benham should not have omitted to mention the very important letter to the Dean and Chapter of St. Paul's,\* wherein, after a preamble concerning a report of the Mayor and Aldermen, he says:—"We have fully understood, and also see it daily with our own eyes when we pass by your Church of St. Paul's . . . that there are but few chaplains to sing there in proportion to the chantries . . . founded." They are in future to see that no chaplain undertakes the duties of more than one chantry.

There are one or two more documents which seem to us to have demanded the attention given to other and less interesting ones; but no matter. Architectural students may want some book of this kind for reference, but its interest lies not in its architectural description.

*Chinese Porcelain.* Vol. II. By W. G. GULLAND. With 400 illustrations. London: Chapman & Hall. 1902.

THE first volume upon "Chinese Porcelain" appeared in 1898, and was noticed in this journal. The new volume completes a most comprehensive exposition of this remarkable

industry. Chinese porcelain reflects the dynasties under whose auspices it was manufactured, for the great specimens were manufactured in royal potteries, and, like the alabaster slabs from the Assyrian palaces, they record the histories and the prowess of the reigning monarch. In the "Mille Cerf" we see the great hunting scenes of the court. Folklore and fairy-tale may be read upon a Mandarin plate. Symbolism is even wrapped up with the familiar hawthorn and magpie, which express long life and happiness. We told the story of the famous willow pattern, we remember, in our previous notice. During four centuries this remarkable art has flourished, from the trenchard bowls to the varied productions of our own day. The preservation of a great tradition, underlying the variety and change in treatment or subject, presents attractions that are independent of its artistic and decorative aspects, although it is with the latter that those who are not *connoisseurs* of this speciality are probably most concerned. The paste, the colours, the blues of the hawthorn, and the crimsons of the rose-peony, have their admirers. But the catholic lover of porcelain has to recognise this difficulty with regard to Chinese art—it will "go" with nothing else, as Mr. Gulland admits. It will be noticed that in any miscellaneous collection this particular ware is placed formally apart by itself, especially by dealers who know their business. This caste or exclusiveness must always act as a deterrent to casual collectors, and the collector of Chinese porcelain probably collects nothing else. It is these whom the author doubtless addresses for the "catalogue" character of his work, for which he apologises, will not recommend it to the hasty reader of handbooks.

We are interested in his references to the Oriental imitation of the Lowestoft china, a matter that has been in some dispute. It has been a question whether or not certain articles, presumably from this manufactory, were in whole or in part genuine productions. Mr. Gulland decides that the faience in dispute is wholly Chinese, and that Lowestoft was not the only style in which these imitators were adepts. The photographic plates, as the title-page sets forth, are numerous. The advances made in colour printing would have produced some very effective results and rendered the illustrations more descriptive, but, as is pointed out, a book which is to sell for a few shillings must make some sacrifices.

*Picturesque Old Houses.* By ALLAN FEA. With numerous illustrations. London: S. H. Bousfield & Co.

HAD the author asked himself why these old houses were picturesque, and so been drawn into distinctions and detail, such a digression would have been not only interesting in itself, but it would have rendered the selection of his excellent quarter-plate illustrations a little more inevitable than they now appear to be. The itinerary of his wanderings is too meagre for the purpose. It is at once too unsubstantial to need the illustrations itself, and in itself it is too discursive to add to their interest. We cannot help fearing that one of the results of the increasing reliance now placed upon the evidence of the Kodak will be that the faculty of verbal description will gradually become atrophied and die out. A visit, for instance, to Compton Wynyates is thus referred to:—"To see that wonderful old house under every aspect of light and shade, and to study it from every conceivable point of view, was, to me at any rate, an enormous treat." That is all. One thinks of what has been done without the aid of illustration, of Daniel Defoe's "Tour Through the Eastern Counties," or of Dorothy Wordsworth's "Tour in the Highlands."

Nevertheless, the camera has done good work—perhaps the best work that a camera can do; that is, to put on record facts, that will cease to be facts with the process of time and improvements. Indeed, as one may see, the charming half-timber house at East Mascalls is already neglected and ruinous, and the weather will ere long complete its end, if man does not. Many of the examples are unknown to us, and we are especially indebted to the author for the views of Asthall House—so typical of an old English manor—and of Hever Castle, which might legitimately claim to be the home of romance.

\* 19 Ed. III., Letter Book F, fol. ciii.



*The Stellar Heavens.* An Introduction to the Study of the Stars and Nebulae. By J. ELLARD GORE, F.R.A.S. London: Chatto & Windus. 1903.

WE have often noticed Mr. Ellard Gore's excellent and useful popular articles on astronomical subjects in the pages of the *Gentleman's Magazine*. The present little book is not exactly popular, it is only rudimentary; there is no light reading in it; but it is a brief and comprehensive summary of the present state of knowledge and opinion in regard to the stars generally, and as to double and binary stars, variable stars, star clusters and nebulae, with an outline of the principles on which the investigation into the distance and proper motion of stars is carried on. It is a very good book to give to an intelligent boy (not too young) with a turn for science; it will give him the outlines of a great subject in a concise form.

One query we would put: Why is the base in a parallax observation defined (p. 10) as the "radius of the earth's orbit"? If, as is usual, observations for ascertaining parallax are taken at intervals of six months, i.e. at two positions of the earth which are at their greatest possible distance from each other, that distance is twice the radius, or otherwise is the diameter of the earth's orbit. We seem to remember to have seen the same definition elsewhere; but if so, astronomers must use the word "radius" with a peculiar meaning of their own.

We presume that on p. 69 the sentence (about variable stars), "due to an eclipse by a dark or bright companion" should read—"a dark or bright companion."

#### TRADE CATALOGUES.

WE have received from the Linolite Co., of Victoria-street, Westminster, a catalogue describing their new system of electric lighting, which seems to us well adapted for many purposes. The reflector used consists of long strips of nicked copper or highly polished aluminium, which are bent so as to form long semi-circular channels about 2½ in. in diameter, and the edges are rolled round to form two small beads, each of which carries one of the electric wires. The lamps used are long tubular incandescent lamps about an inch in diameter, each containing a single straight filament. Hence in this system we have simply long lines of light. It takes up very little space, and is obviously very suitable for shop-window lighting, lighting for reflection from the ceiling, and outlining the outside of public buildings on special occasions. The reflectors can be installed easily, as they are sent out ready wired, so that it is only necessary to screw them into position and join the leads to the mains through a switch. The sockets for the lamps are contained in the reflector.

Messrs. Snowdon, Sons, & Co. send us a pamphlet containing a report on tests, by Professor Hudson Beare, of certain non-conducting compositions, which were applied to 3-in. steam pipe and tested under steam pressures of 80 lbs. and 45 lbs. per square inch. The various compositions were applied as nearly as possible at the same thickness, but slight variations were noticed after drying. In the opinion of Professor Hudson Beare, however, such differences are not sufficient to account to any material extent for the different weights of steam condensed. In each of the tests quoted, the asbestos composition manufactured by Messrs. Snowdon gave the most favourable results, the minimum condensation being 0.109 lb. and 0.143 lb. respectively per square foot per hour. Some further tests, made in Russia, are also quoted in the pamphlet, and the latter are interesting as affording a comparison between asbestos composition and other forms of non-conducting material. Diagrams are reproduced showing the nature of the apparatus used in the conduct of all the tests mentioned, and at the end of the pamphlet some particulars are given of the forms in which this asbestos covering is supplied.

THE INTERNATIONAL SOCIETY OF SCULPTORS, PAINTERS, AND GRAVERS.—This Society has leased the New Gallery, Regent-street, for the seasons of 1902, 5, and 6, and the Society's first exhibition in these galleries will be opened in January next. The President of the International is Mr. Whistler, and among the members of the Committee are Messrs. Guthrie, Lavery, Thaulow, Sauter, Sullivan, and Pennell.

## Correspondence.

### THE PUBLIC HEALTH ACTS.

SIR,—Many of the sanitary authorities in different parts of this country appear to be so well satisfied with their building by-laws, and with the interpretation put upon them by their building surveyors, that even where the right of appealing to a Health Committee by those building owners who feel aggrieved exists, it is, for all practical purposes, a useless safeguard against needless oppression.

I therefore ask the hospitality of your columns to make known some of the antiquated absurdities which seem to demand revision, and I have the greater reason for doing so since I have recently learned, through one of the Liverpool Corporation officials, that alterations are unlikely to be made in building by-laws until it is publicly shown that they are desirable. For this reason, I shall take examples from the Liverpool building by-laws, more particularly, to illustrate my remarks, but I wish to disavow the slightest intention of especial reference to Liverpool by-laws as being any more old-fashioned and pedantic than many others which I could name. The objection raised is against the whole principle upon which so many of the building by-laws of this country, as a whole, have been drafted, and which, admittedly, has the effect of doing irreparable harm to the cause of architecture, and of preventing an intelligent advance and economy in building construction.

Before citing a few examples, I desire to gratefully notice the more scientific spirit which pervades a few of the more important Corporations. These have recognised to some extent that the only practicable method of drafting by-laws is to enunciate principles, applicable to the nation as a whole and to varying localities, rather than to attempt an inventory of building construction, and that building by-laws should be constantly revised so that they may always be applicable to present-time needs and modern inventions. Only in such way can there be that progress and economy in building which marks the practice of engineering.

Glasgow, for example, has a by-law which reads as follows:—

"21. (1) (a) All new buildings erected for use as dwelling-houses, halls, schools, churches, theatres, music-halls, factories for public meetings, and warehouses, stores, factories, and workshops; and (2) all buildings, whether erected before or after the passing of this Act, which may hereafter be altered or adapted for use as aforesaid, shall be of sufficient strength and shall be designed and constructed so that the completed structure shall, in addition to the weight of the materials of which it is composed, be able to carry a safe load the following minimum weights, viz.:

Dwelling-houses 150 lbs. per square foot of floor;  
Halls, schools, churches, theatres, music-halls, and places for public meetings, 180 lbs. per square foot of floor;

Warehouses, stores, factories, and workshops, 224 lbs. per square foot of floor.

For the purposes of this Part of this Act, a safe load upon timber shall be held to be one-seventh, upon wrought-iron one-fourth, and upon cast-iron one-sixth of the breaking strain."

A scientific and progressive compliance with the above by-law should not be beyond the inventiveness of architects to devise in more than one stereotyped pattern, nor should it pass the skill of building surveyors to scientifically prove the sufficiency of the construction proposed.

The opposite system (and upon which the Liverpool by-laws are drafted) has not unfrequently placed many Sanitary Authorities throughout the kingdom in the most ludicrous positions; and the Local Government Board have so far recognised this that they have recently drafted amended model by-laws, which local authorities may adopt if they desire to do so, having for their object the cheapening of building in country districts hitherto required to be in accordance with regulations primarily intended to apply to buildings erected in a crowded city. But it is to be regretted that some Sanitary Authorities seem to make it a point of honour to sustain their by-laws, if once passed, against all objections raised by building owners, and even against the recommendations of the Local Government Board themselves, as though any criticism thereof were a reflection upon their own perspicacity. So much is this the case, that I have even found some persons, builders and others, who seemed to doubt whether this is really a free country, where, happily, the right to hold and express opinion is not always attended by dire consequences. The chief difficulty in such cases seems to be to induce sanitary authorities to realise that it is impossible for even the most versatile and far-seeing building surveyor to preconceive all the ideas of adaptations of building construction to architecture which the building community may find desirable; and that it is not practicable to draft a number of irrevocable "positive" by-laws which shall fit every case which human necessities and ingenuity may, respectively, require and evolve.

In selecting a few examples from the Liverpool Building by-laws in illustration of the purport of building by-laws generally, I scarcely know which to cite, for each seems more interesting than the

other. The following will, however, suffice as typical of the whole:—

LXXIX. (3. Amended).—*Relating to the Setting Back of Window-Frames, 4½ in. from the External Face of the Wall.*

This by-law was drafted, as I understand, to prevent window openings being constructed without an external arch, head or lintel; and the better avoidance of damage by fire was thereby intended. But how this by-law would prevent the wood lintel at rear of the window frame, and which possibly embraces seven-eighths of the entire thickness of the wall, from being consumed by fire, seems unexplainable; and, similarly, the insistence upon a wood lintel being provided would surely not secure, as a consequence, the provision of a relieving arch over the lintel, which alone would be of use in case of fire. The by-law would be of no practical use for the alleged purpose in view, and has the effect of preventing a pleasing form of window from being erected which has the merits of allowing more light to enter the apartment and of affording convenient internal space. Moreover, in Manchester, Wirral, Chester, and elsewhere, such a by-law does not appear, and I have not heard that those places suffer more from fires upon that account than does Liverpool. In any case, it should not be impossible to devise other and better ways of meeting the evil, did it exist, which would permit of greater building ingenuity and resource.

Under this same by-law, the Corporation reserve power to sanction, on application to them, the unconstructual and reprehensible method of installing half-timberwork walls by affixing timber to brick walls which are already the required thickness; but the sound construction of half-timberwork walling is not permitted to count as part of the walling. Surely this is not an encouragement to sound building.

LXXIII. (1.) (II.) (III.) (IV.) (V.).—*Relating to Footings.*

Footings, presumably, are intended to distribute the weight of a wall over a wider area than itself, to allow for the less resistance of a softer material; yet the same width of footings is required, whatever may be the nature of the foundation supporting the wall, and I have known of demands being made for the regulation footings to a wall which rested upon solid rock.

Schedule B.—*Relating to Timbers for Floors.*

Should the bearing of a joist exceed by even half an inch a certain specified length, the strength of the scantling has then to be increased, according to the by-laws, sufficiently to sustain an increased bearing of 2 ft., i.e., 23½ in. more than exists. Again, should it be desired to construct a floor or roof in a manner, or of materials, different from that referred to in the building by-laws, compliance with the building surveyor's individual opinion, the principle of which is previously unknown, is demanded, instead of there being a recognised principle of strength which could be complied with in a manner and with materials duly determined by calculations made upon the basis of accepted formulae.

LXXXI.—*Relating to Support of External Walls over Openings.*

A single opening of less than 6 ft. span must not be bridged by timber alone to support the external wall over same; yet an unlimited and continuous series of openings of as much as 10 ft. span each may be so bridged for such purpose. Moreover, a single opening of a span of (say) 10 ft. 0½ in. cannot be bridged by timber alone, but must have in addition a story post, which would reduce the clear span to less than 5 ft. (allowing for the width of the head of the story post)—i.e., to less than the minimum span of 6 ft. which has been previously, in the same by-law, prescribed.

CI. (3).—*Relating to Size of Flues.*

Every flue, for whatever purpose, must be 14 in. by 9 in., although the chimney-pots completing them may be only 7 in. in diameter. This reminder of old days, when boys climbed flues to sweep them, and when flues were designed with this view rather than the effective passage of smoke, probably explains nine-tenths of the smoky chimneys which exist, by checking the force of the draught.

L.C.A., 1902.—*Clause 39.—Relating to Fixed Dust-Bins.*

Last year the Liverpool Corporation spent 18,000l. in abolishing 14,000 ash-pits. Yet by Act of Parliament they have now taken power to compel occupiers to use fixed dust-bins instead of moveable ash-bins; and when a moveable ash-bin has been indicated upon submitted drawings, demand has been made for the construction of an ash-pit instead thereof.

LV. (1), (2), (3).—*Relating to the Deposit of Plans.*

Although there is no power conferred upon him by the by-laws to do so, the City Building Surveyor arbitrarily claims to dictate the quality of paper, the kind of ink, the colours, and the method adopted in the preparation of the drawings. A case might be cited where consideration of submitted drawings was deliberately delayed because the size of the printing was required to be in 1 in. instead of ½ in. deep letters. The by-law specifically states the information concerning the proposed building which the drawings must contain, yet further in-



formation is arbitrarily demanded (and delay deliberately caused until it is furnished), such as the endorsement of a stable as "not a dwelling-house," although the fact is obvious.

#### CALIX.—Relating to Party Walls.

The application of this by-law appears to be at the pleasure of the Corporation, although there is no power for them to exercise discretion in regard thereto provided for in the by-laws. For instance, a particular occupier, who could be named, has been permitted to cut away the party wall to enlarge the shop-window in one of his shops, but in another shop, when he did the same thing, a summons against it was served by the Corporation.

Instances innumerable might be cited showing the illogical and arbitrary nature and application of the Liverpool by-laws; and contrasts might be made between the condemnation and enforced removal of pavement areas and shop-fronts which projected  $\frac{1}{2}$  in. to  $\frac{3}{4}$  in. beyond the regulation distance, and of walls two-thirds of their regulation thickness being allowed to remain. But perhaps the best condemnation of the Liverpool By-laws is contained in the fact that when the Corporation, under the Housing Acts, commenced to build themselves, they found out the impracticability of complying with their own by-laws, and so forthwith obtained an Act of Parliament enabling them to ignore their by-laws.

One other point deserves notice. All cases under the Liverpool Building By-laws are taken before the stipendiary magistrate, who, however impartial he may endeavour to be, is clearly not a fit and proper person to adjudicate in cases where the Corporation is the prosecutor. In the London Building Act this cardinal principle of fairness is rightly recognised, and the *personnel* of the Tribunal of Appeal under the Act—before whom appeals against decisions under that Act may be taken—expressly excludes members or officers of the London County Council from acting thereon.

The cause of all the trouble in respect of building by-laws appears to be the attempt to adapt in piece-meal fashion a set of so-called "model by-laws," drafted shortly after the passing of the Public Health Act of 1875, to the various necessities of hundreds of Sanitary Authorities as occasion seems to demand. In the result, the building by-laws of to-day, some quarter of a century since the passing of the above Act, present a hopeless entanglement of incongruities and inconsistencies, and—whilst frequently placing the authorities who have to administer them in illogical and unenviable positions—offer but little assistance to those who desire to ensure sound buildings. On the one hand, it is undignified for a Sanitary Authority to need to excuse an obvious incongruity by the explanation that "it is according to the by-laws;" and, on the other hand, it would be helpful to the building community were scientific assistance offered them by the by-laws in the sound construction of buildings. Again, on the one hand, it surely does not promote respect for the by-laws by the building community to know that buildings sanctioned in one place as safe and sanitary, would elsewhere be condemned as dangerous and unhealthy, though, perhaps, only the width of a street or of a river separated the two districts; or that the obvious meaning and intention of a by-law should be perverted and twisted so that the by-law might be made to apply to a new and unlooked-for case in the hope that it would be not worth a building-owner's while to dispute an obvious incongruity; whilst, on the other hand, of how very much greater use the by-laws would be were they to offer assistance as to the principles to be adopted in deciding the form and strength of a truss, for example, which there might be some difficulty in determining for a particular situation, instead of stipulating the strength of a purlin, the calculation for which is simplicity itself.

It has been contended, I believe, that the usual rough and ready, and decidedly unscientific, drafting of building by-laws is due to the alleged ignorance of builders who, were they required to build in compliance with accepted formulae and coefficients propounded by scientists, such as Molesworth, Hurst, Rankine, and so on, would be unable to comprehend the meaning of the requirements of the authorities. Another view is that an unscientific drafting of by-laws not only saves trouble to building surveyors, but permits of persons without previous training and experience as architects and engineers occupying positions in authority over architects and engineers for which, by their training, they have not been specially fitted.

May one hope that the Building Surveyors of the United Kingdom, will, admitting "the necessity for the re-construction and consolidation of the Public Health Acts," join with architects in evolving rational building by-laws which would be a credit, instead of a reproach, to the common sense and wit of Englishmen.

T. MYDDELTON SHALLCROSS,

Liverpool, April 20.

#### THE VENTILATION OF SCHOOLS.

SIR,—Whilst not in accord with those who recommend the "Plenum" system I do not wish to discuss it here and now; but I am quite in agreement with "R. W. S." in deprecating the warming of buildings by means of heated air at comparatively high temperatures. More especially is the

effect pernicious in cases of intermittent warming, as in churches, when the air is warmed and the walls and other surfaces remain cold, so that, notwithstanding that highly warmed air is breathed, yet heat radiates from the body to the cold walls and surfaces. The exact opposite should be the condition to endeavour to achieve. "R. W. S." in his letter in your last issue at p. 417, writes of warming the air by steam, enclosed in pipes or vessels, at temperatures from 259 deg. to 274 deg. Fahr., and observes that steam at such temperatures deprives the air of much of its oxygen. Will he kindly follow on, and say what becomes of the oxygen? Granting that the oxygen cannot be destroyed, it must combine with something else, so that there must be deprivation of some other constituent, either of the air or building or apparatus, to be guarded against. But is it really true that warming the air deprives it of its oxygen instead of merely raising the temperature of the latter without eliminating it? A. H.

#### QUANTITY SURVEYORS' ASSOCIATION.

SIR,—As one of those present at the preliminary meeting when the question of the formation of the above was under discussion, will you allow me (without wishing to lengthen out to the voluminous correspondence this movement has entailed) to endorse Mr. Hoffmann Wood's statement in your issue of last week, that the wording of the circular to which Mr. Leaning takes exception was not solely due to Mr. Wood, but was the joint production of all those present after the matter had been fully considered.

However much Mr. Leaning may differ from us upon a question of policy and expediency, the course he adopts in making personal attacks is one to be deprecated by all the members of the profession, and is hardly likely to command itself to the Council of that very Institution (the Surveyors') whose cause he so ardently espouses.

ARTHUR G. CROSS.

#### RE MAIDENHEAD FREE LIBRARY.

SIR,—Will you kindly allow me, through the medium of your paper, to call the attention of the Assessor in the open competition for the above to the construction placed upon the following clause by the local Borough Surveyor, to whom all questions are referred by the Town Clerk?—

"18. A period of one month from the 10th day of March, 1903, will be allowed to address questions to the Town Clerk on the competition. At the end of this period a copy of such of the questions and the answers thereto as appear desirable, will be furnished to every competitor, and all designs will be required to reach the Town Clerk by the 30th day of May, 1903."

He claimed that the above clause prohibited him from answering questions until the month from March 10 had elapsed.

It is now April 22, and no answers have yet been received. A COMPETITOR.

#### BOOKS RECEIVED.

THE STELLAR HEAVENS. By J. Ellard Gore, F.R.A.S. (Chatto & Windus.)

#### GENERAL BUILDING NEWS.

INDEPENDENT CHURCH, ILKESTON.—It is proposed to erect a new Independent church at Ilkeston, from plans prepared by Mr. H. Tatham Sudbury, architect, Ilkeston. The site is at the junction of Wharcliffe-road and Albert-street.

CHURCH EXTENSION, BLYTH.—The new extensions at the parish church of St. Mary's, Waterloo, Blyth, were dedicated on the 14th inst. The extensions consist of a new north aisle and additions to the western portion of the edifice. The enlargement was carried out by Messrs. Carse, contractors, Amble, from the plans of Messrs. Hicks and Charlewood, architects.

PRIMITIVE METHODIST CHURCH, MATLOCK.—The foundation stones were laid on the 13th inst. of a new Primitive Methodist church on Matlock Moor. The building is to be Gothic in style. The architect is Mr. D. M. Wildgoose, and Mr. J. W. Wildgoose is the contractor.

CHAPEL, OULTON, NORFOLK.—A new Primitive Methodist church is being erected at Oulton by Mr. J. S. Young, of Oulton, from plans by Mr. F. W. Richards, architect, Lowestoft. The chapel will seat 300 persons, and will be 40 ft. long and 28 ft. wide inside, 14 ft. high at the plate, and 21 ft. from ceiling to floor.

CHURCH ALTERATIONS, BRIGHOUSE.—Mr. C. H. Fowler, architect, of Durham, has prepared plans for the improvement and enlargement of Brighouse Parish Church. The chief feature of the proposed alteration is an enlarged chancel. In addition to this, the present ceiling of the church is to be removed and open-timbered rafters substituted, whilst the organ is to be removed from the west to the east end. Contracts have been let for the execution of the work, amounting to about 4,000l.

EPISCOPAL CHURCH, LOCKERBIE, NEAR GLASGOW.—The new Episcopal church at Lockerbie, which has been built at a cost of about 2,000l., was

opened on the 18th inst. The church is erected in Ashgrove-terrace, practically a new suburb of the town, from plans prepared by Mr. John Douglas, Chester. The building is of red sandstone and is Early English in style.

RESTORATION OF ROWSTON CHURCH, LINCOLNSHIRE.—The Parish Church at Rowston, near Digby, was re-opened recently after restoration. Previously the restoration the chancel arch had entirely disappeared, and the whole of the east wall of the nave was occupied by a large painting down to within 8 ft. of the floor. The painting represented a classical arcade, above which was a rendering of the Royal arms of George II. The spaces in the lower portion were occupied by panels bearing the Lord's Prayer, the ten Commandments, and the Apostles' Creed. The roof immediately above was boarded in and painted with a design of cherubs' heads floating in clouds, among which appeared the Hebrew characters for Jehovah. The whole of this painting has been refixed elsewhere upon the church walls, and the chancel once more opened out into the nave by a new chancel arch. The flat ceiling of the chancel had been replaced by an open timbered roof in oak, and a group of "triple lancets" has been pierced through the east wall. The dilapidated roof of the north aisle has been replaced by a new open timbered roof, and in each case the old tiles have been carefully relaid upon the new roofs. The whole of the floors have been taken up and relaid upon a concrete foundation, none being used for pews, while new pews, choir stalls, inner porch and screenwork, all executed in oak, have been provided. The tower arch has also been opened out into the nave and provided with a new ringling floor. Outside, the earth has been lowered down to the floor line, the debased porch, which entirely hid the Early English doorway, removed, and two new buttresses erected to prop up the failing south wall. The churchyard has been provided with new entrance gates. The east windows have been filled with stained glass by Mr. A. O. Hemming, the three lights representing the Resurrection, the Crucifixion, and the Ascension. The architects for the work have been Messrs. W. Watkins & Son, of Lincoln, and the contractor, Mr. Frank Pattinson, of Ruskington.

WESLEYAN CHURCH, CAYTON, YORKSHIRE.—The foundation and memorial stones of a new Wesleyan Church were laid at Cayton recently. The new church is to provide accommodation for 150, and for 800 scholars in the Sunday school. The architect is Mr. E. Simpson (Scarborough), and Mr. A. Coultas (Scarborough) is the contractor. The estimated cost is 1,200l.

MISSION HALL, SUNDERLAND.—The Bishop of Richmond opened and dedicated the hall of the new mission buildings that are being erected in Wilson-street, Sunderland, on the 14th inst. The hall, which is the only portion of the scheme yet completed, has cost about 930l. It will accommodate some 150 people. The part of the scheme which remains to be executed comprises four classrooms in a two-storied building, and the carrying out of this work will provide the hall with a gallery to hold about forty-five people. The total cost of the scheme will be about 1,250l. The architects are Messrs. Joseph Potts & Son, Sunderland; and the contractor, Mr. James Armitage, Southwick.

SCHOOL, MANSFIELD.—The block of schools which has been erected in Berry Hill-road, Mansfield, by the Mansfield School Board, was opened on the 15th inst. The buildings consist of a mixed school for boys and girls and a separate block for infants. The mixed department consists of an assembly hall 52 ft. by 32 ft. 6 in., and seven classrooms, each 25 ft. by 24 ft., the whole giving accommodation to 530 boys and girls. There are also masters' and teachers' rooms and other apartments. The infants' block comprises five classrooms, each 24 ft. by 21 ft., and a babies' room, 21 ft. by 20 ft., affording accommodation for 350 children. All the classrooms are arranged round the central hall. The buildings were erected from designs by Messrs. Vallance & Westwick, by Mr. John Greenwood, at a contract price of 11,000l.

CATTLE MARKET, MARKET HARBOUROUGH.—The new cattle market was opened at Market Harborough recently. The entire cost of the new market, inclusive of site, will, it is estimated, amount to over 20,000l. The market is situated on the main road to Northampton, on the western boundary, and the main road to Kettering on the eastern. Mr. Herbert Coates is the engineer of the scheme.

LIBRARY, WAVERTREE, LIVERPOOL.—A new library and reading-rooms have been erected on the south side of Picton-road, Wavertree. The building stands back some 40 ft. The materials employed are red pressed bricks and Cefn stone, the roofs being covered with Welsh slate. The entrance is from the centre of the building. Entering through this door, the visitor finds himself in a capacious common vestibule. To the right hand is the gentlemen's reading-room, whilst to the left hand is the boys' reading-room; the ladies' reading-room is immediately behind the boys' room, and has a separate entrance. The lending department is opposite the inner central door of the vestibule. In the basement are the assistants' rooms, storerooms, and lavatories for the staff. The main reading-room is 47 ft. by 20 ft. 6 in. The



vestibule and reading-room walls are lined with a green dado, and the pavement of the vestibule is of white marble mosaic, surrounded and divided by black marble strips. Mr. Thomas Shelmerville, the Corporation Surveyor, has superintended the designing and carrying out of the work. The cost of buildings and furnishings will be 5,000l.

**POOR-LAW HOSPITAL EXTENSION, WITTINGTON, LANCASHIRE.**—The foundation-stones were laid on the 14th inst. of two new hospital pavilions and an annexe to the Nurses' Home at the workhouse of the Chorlton Union at Wittington. The infirmary accommodation is at present inadequate, and the Board of Guardians have recently obtained permission to borrow 33,200l. for purposes of extension. Mr. J. B. Broadbent, of Manchester, is the architect of the new buildings, and Mr. R. Carlyle is the general contractor. The pavilions, when complete, will practically make a new infirmary, which, with the existing hospital, will accommodate some 1,500 patients. The pavilions will have thirty-two beds on each of three floors. The surgical ward will contain thirteen beds, and altogether the number of beds provided is 205. The Nurses' Home provides for the present and for the future requirements of the nursing staff of the workhouse infirmary, and it is to be built on the single-corridor plan. There will be accommodation for forty-nine nurses and ten servants, or for fifty-five nurses if the servants are housed elsewhere. The cost of the home is put down at 7,400l. and that of the two pavilions at 25,300l.

**RAILWAY OFFICES, MIDDLESBROUGH.**—The North-Eastern Railway Co. have lately erected a block of offices in Middlesbrough. A site closely adjoining both the railway and the docks was obtained by clearing a block of cottages, and an access to the corner of Dock-street and Grey-street, upon which the company erected a building four stories in height, the ground floor being raised about 3 ft. above the street level. The ground floor consists of a large room used for meetings and interviews, two offices arranged en suite for the docks department—one for estate work, and one for the district superintendent of the railway. The first floor contains five rooms for the district superintendent, and two for the use of the engineer to the docks. The second floor consists of suites of offices, which may be used for the future extension of any of the departments, or for letting to independent tenants. The third floor is arranged into rooms for storage or lumber. A room is specially provided on the ground floor for the range of telephones used in the several departments. The main entrance doorway is from Dock-street, and is about the centre of the façade; the vestibule is about 6 ft. wide and gives access to the main staircase, and the corridors, which run the whole length of the building on each floor, are about 8 ft. in width. The main entrance doors and the vestibule screen are of polished oak. The flooring of the entrance and the corridors is of concrete, faced with cement. The staircase is constructed of stone, with metal balustrade, hard wood polished handrails. The building is lighted throughout by electricity supplied from the generating station of the company, the power having been carried out by Messrs. Graham Bros., of Middlesbrough. The lavatories have Bunsen gas-burners as a provision against frost in severe weather. The building is brick and terra-cotta throughout, from the works of the Burmanfolds Co., Ltd. The design of the building was prepared by Mr. Wm. Bell, the architect to the North-Eastern Railway Co.; and the contractor for the work was Mr. H. Barry, of Scarborough.

**SCHOOL BOARD OFFICES, NEWCASTLE.**—The new offices of the Newcastle School Board, Northumberland road, adjoin the new School of Cookery, and have a frontage in the Renaissance style. The architect is Mr. W. H. Knowles, the building was erected by Messrs. Lowery, of Newcastle, and the cost is about 12,000l. There is a flight of steps to the entrance and a porch. The main hall is floored with marble, and from this a square staircase leads to the apartments above. In the basement and storey rooms and a strong room for books and documents. On the ground floor, on either hand of the doorway, are an inspectors' room and a private room for the chief clerk. Adjoining is a clerks' room, and at the rear a general room for inquiries and other business. This apartment is fitted with a book lift which runs from the basement to the top of the building. To the rear of the inspectors' room is another lift for the use of the caretaker, and beyond that a room for the Board's clerk of works. On the upstairs floor—the staircase being lighted by a north window in coloured glass—are the rooms for m m b m s' use. The fittings of the Board-room are in dark oak, the carving having been executed by Mr. Ralph Hedley. The teachers' room is a three-story building at the rear, and is reached by a side passage through the eastern side of the offices.

**BOARD SCHOOLS, BENWELL.**—The new Board schools erected in Canning-street, New Benwell, were opened on the 18th inst. The schools, which occupy an acre and a quarter of ground, have been built at a total cost of 15,559l. 3s. 2d., accommodation being provided for 474 children. The buildings are erected on the central-hall principle. There are three departments, namely, infants', juniors', and seniors'. At the south end of the schools is a room which is adapted as a centre for cookery and

laundry work for the different schools under the Benwell Board. Two new features have been introduced in the seniors' department. One room is furnished with dark blinds so that geography may be taught with lime-light illustrations, and another is fitted up as a sort of laboratory, to be used for the teaching of mechanics and the carrying out of simple chemical experiments. Mr. J. W. Thompson is the architect for the buildings.

**SCHOOL, BERWICK.**—On the 18th inst. a new infant school, built by the School Board, was opened at Berwick. The new school is situated to the west of the old Bell Tower on a site which formerly formed part of the old town wall, very little of which is now left standing. It is a rectangular block, the maximum space being allotted for five classrooms, with central hall suitable for public meetings, &c. There are also teachers' and cloak rooms, book-store, and other conveniences. The cost of the school was about 4,300l. The architects were Messrs. Nicholson & Ditchie, Newcastle-on-Tyne.

**THE BALTIC EXCHANGE, CITY.**—The new Baltic Mercantile and Shipping Exchange, St. Mary-axe, was opened by the Lord Mayor on Tuesday. The building is erected on the site of Jeffrey-square, and occupies an area of about an acre. The large hall on the ground floor is 152 ft. in length, 136 ft. wide, and has a height of 30 ft. from floor to ceiling. It is approached from St. Mary-axe through a long vestibule. This latter is finished throughout with grey and white marble, and has a range of detached marble columns on either side. The windows are of painted glass, illustrated with the arms of the leading City Companies and the principal ports of the United Kingdom. The whole of the walls and the supporting columns in the main hall are finished with marble, which has been employed largely in the interior establishment of the building. On the first floor is a reading-room for the use of members, while underneath and at the end next Bury-street are post and telegraph and telephone offices. In the basement are located dining-rooms, smoking-rooms, and auction and arbitration rooms. Above the main hall are four floors of offices, with entrances in St. Mary-axe and Bury-street. The whole of the exterior front in St. Mary-axe as high as the first floor is of polished Norwegian granite, designed in the free Renaissance style. From this floor rises a series of polished granite columns with carved capitals surmounted by a pediment, on which rests a sculptured group representing Britannia, Neptune, and Ceres. The building was erected by Messrs. George Trollope & Sons, from the designs of Mr. T. H. Smith.

#### SANITARY AND ENGINEERING NEWS.

**EXTENSION OF CORPORATION WATERWORKS, AYR.**—The inauguration of recent extensions of Ayr Corporation Waterworks at Carclue and Knockjarder took place on the 16th inst. The Corporation obtained Parliamentary powers in August, 1899, to supplement the water supply to the burgh by the pumping of the water in the Carclue reservoirs to Knockjarder, and the construction of a service reservoir there. Under this scheme, the old waterworks at Milton, Grange, and Carclue belonging to the Corporation, which have been practically out of use for seventeen years, are now utilized for storing the capacity of the reservoirs at Carclue is as follows:—No. 1, 13,000,000 gallons; No. 2, 21,000,000 gallons. The water to be pumped is mostly taken from reservoir No. 2, the eastern embankment of which has been reconstructed. The two reservoirs have been connected by forming a junction between the two original outlet-pipes. This allows of the upper 10 ft. 6 in. of water, amounting to about 7,000,000 gallons, of reservoir No. 1 being run into reservoir No. 2, making the total quantity available for pumping to Knockjarder 25,000,000 gallons. The service reservoir is 300 ft. in diameter, averages 17 ft. 6 in. deep, and contains, when full, about 7,000,000 gallons. The whole works have been carried out during ten different contracts, at a total cost of about 34,000l. The works were carried out under the direction of Mr. John Young, Corporation Water Engineer, with Mr. P. I. Whitton as assistant engineer, and Mr. William Kelso as inspector of works.

**WATERWORKS, PRESTATYN.**—The new waterworks of Prestatyn Urban Council have just been opened by Mr. Henry Duncan McLaren. The old works were purchased from Lady M'Ken and reconstructed by Messrs. Beale & Priest, engineers, Liverpool, the contractor being Mr. Carder Penkridge, Staffordshire. The water is obtained from natural springs in the mountains, nearly 400 ft. above sea level.

#### FOREIGN.

**FRANCE.**—A curious exhibition of Mahommedan art has been opened at the Pavillon Marston of the Louvre. It occupies the first floor of the Musée des Arts Décoratifs, and includes about a thousand objects.—In the early part of May the monument to Ferdinand Fabe is to be inaugurated. It stands on one of the lawns near the nursery-garden of the Luxembourg. It consists of a bust of Fabe surmounting a stele beside which is a figure of

a Languedoc shepherdess.—M. Ernest Dubois, the sculptor, has completed the monument to Bossuet which is to be erected at Meaux. The figure of the great preacher is represented standing and in an attitude of energetic declamation; around the pedestal are grouped the figures of the Dauphin, Henrietta of England, Mme. de Vallière, and Turenne. On the rear face of the pedestal is a medallion portrait of Condé.—A new bridge over the Oise was opened on Sunday last at Ribacourt, near Montmauq.—The Municipal Council of Grenoble has decided to erect on the Place Victor Hugo a statue of Berlioz, a replica of the one by M. Baidat at the Museum of Grenoble.—M. Nogués, the Municipal Architect of Bagnères-de-Bigorre, has been commissioned to prepare plans for a new hospital for that town, to be carried out immediately.—The town of Blois has voted a sum of 400,000 francs for the erection of an Institution to be called L'Ecole Victor Hugo.—The seventeenth Archaeological Congress of France will be held at Poitiers, from June 16 to 18.—The death is announced, at the age of seventy-eight, of the painter Louis Schutzenberger, who was a pupil of Paul Delaroc and of Gleyre. He received medals in the Salons of 1850, 1861, and 1863, and the Legion of Honour in 1869. He excelled especially in depicting scenes of Alsatian life.

**INDIA.**—The large passenger station now being erected at the Mooltan Cantonment, on the North-Western Railway, is expected to be completed within the next two months.—A new circuit house is about to be erected at Asansol at a cost of 28,000 rupees.—The electric works syndicate at Mandalay is about to erect a large power station near the railway station in that city.—The Gaskwar of Baroda has ordered the construction of a mono-railway between Chital and Amreli.—Mr. G. C. Buchanan's scheme, estimated to cost 92½ lakhs of rupees, has been sanctioned, and is now being put into operation for the improvement and extension of the port of Raungon.—It is proposed to double the line between Insein and Letpadan, on the Fome section of the Burma Railway, a distance of seventy-eight miles.—Up to the present time very few metalled roads have been made in Burma, but a considerable improvement is about to be effected in that direction.—Electric tramways are about to be constructed in Nagpur; the work will probably be let to a firm of Bombay contractors.

—Sir Lawrence Jenkins, the Chief Justice of Bombay, has recently opened three new blocks of model dwelling-houses for poor Parsees at Tardeo. The houses were erected at the expense of rich Parsees in Bombay for the purpose of ameliorating the sanitary and other conditions of the more congested parts of the city.—Indian patent stone, which has been so successfully employed on military railway station platforms, is now being used in the neighbourhood of Government House, Calcutta. Large steel and cartridge metal rolling mills are to be constructed at Ishapur, at an estimated cost of fifteen lakhs of rupees.

#### MISCELLANEOUS.

**PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.**—Mr. E. Greenop, architect, has removed his offices from 5, Quality-court, Chancery-lane, to Falcon-court, 32, Fleet-street.—Mr. E. Shield, of Messrs. Law, Allen & Shield, architects, 5, Arundel-street, Strand, has dissolved partnership with Messrs. Law & Allen, and removed to a new office at 4, Abchurch-lane, W.—Mr. G. H. Paine, architect, has removed from 6, Stoke Newington-road, to 62, Moorgate-street, E.C.

**PRESENTATION TO CONTRACTORS BY THEIR STAFF.**—The staff of Messrs. Holliday & Greenwood, contractors, of Bristol, entertained Mr. James S. Holliday and Mr. Benjamin I. Greenwood to a dinner on Wednesday evening, the 22nd inst., at the Bridge House Hotel, and made them each a presentation of a handsome three-folding oak-framed illuminated address with plush back, and their monograms and photographs, in commemoration of their twenty-first anniversary of partnership in business. Mr. Charles Phillips, a director of the company, presided, and after the usual loyal toast was duly honoured, he asked the acceptance of both Mr. Holliday and Mr. Greenwood of the addresses, as a mark of the high regard and esteem in which the staff held them. Both partners thanked the staff for their kindness in presenting them with such beautiful testimonials, and hoped that they might be spared long to still be associated with them. Mr. Holliday, in proposing the toast of "The Staff," referred in very kind terms to the amicable relationship which had always existed, and sincerely hoped that it would be maintained.

**MEMORIAL WINDOW, ST. NICHOLAS' CATHEDRAL, NEWCASTLE.**—This window has been placed in St. Nicholas' Cathedral, Newcastle, to perpetuate the memory of the men of the Northumberland and Durham Imperial Yeomanry who fell during the late war, and as a recognition of the services of those of the regiment who served in the campaign. The principal part of the memorial is a three-light stained-glass window which is placed in the north aisle between similar memorials to the Northumberland Fusiliers and the local Volunteer Service sections. Measuring 14 ft. by 6 ft., the window has been executed by Messrs. Percy Bacon & Brothers,



of London. The window is divided into three compartments or lights, each of which bears a representation of an historical figure as the main treatment, with an angel in a subsidiary position. A brass tablet with the names of the thirty-four men who fell during the war is included in the memorial.

**SWANSEA CASTLE.**—It is announced that by the carrying out of some proposed public improvements the ruins of Swansea Castle are threatened with demolition. The castle, distinguished by its massive tower, was built in the reign of Henry I. by Henry Beaumont, Earl of Warwick, after his conquest of the lordship of Gower, when he fortified the town. The arcading is a relic of the time of Bishop Gower, and is similar to the fourteenth-century Decorated work he also carried out in the church, and in the episcopal palaces at Lamphey, near Pembroke, and at St. David's. For the latter, so characteristic of his work, compare the view after a water-colour drawing by Mr. T. G. Jackson, published in the *Builder* of December 3, 1892, showing in the foreground the courtyard and ruins of Bishop Gower's palace.

**THE CHARITY COMMISSION.**—The business of the Charity Commissioners was transferred on Monday from Gwydyr House, Whitehall, to Ryder-street, St. James's. The new offices, lately vacated as the Marlborough Hotel, were erected by Messrs. John Bennett & Co., contractors, in 1897-8, on the site of Nos. 12 and 14, Ryder-street, and No. 12 and "Ramsay's" Hotel in Bury-street, after plans and designs by Mr. G. D. Martin. Gwydyr House, built in what had been the Privy Garden of Whitehall Palace, was the first home of the Reform Club, established there in 1832. It was afterwards taken for the Local Government Board, and during some years past has been occupied by the Charity Commissioners.

**LONDON GEOLOGICAL FIELD CLASS.**—The Saturday afternoon excursions of this class, conducted by Professor H. G. Seeley, F.R.S., will commence on April 25. Amongst the localities to be visited this season will be Walton-on-the-Hill, Aylesbury, Harefield, Sevenoaks, Leighton, and Turbridge Wells. Further particulars can be obtained from the Hon. Sec., Mr. R. Herbert Bentley, 33, Church-crescent, Muswell Hill, N.

**INCORPORATED SOCIETY FOR PROMOTING THE ENLARGEMENT, BUILDING, AND REPAIRING OF CHURCHES AND CHAPELS.**—This Society held its usual monthly meeting, on the 19th inst., at the Society's house, 7, Dean's-yard, Westminster Abbey, S.W. The Rev. Canon C. F. Norman in the chair. Grants of money were made in aid of the following objects, viz., building new churches at Eastbourne, St. Philip, Sussex, 200l.; Foulridge, St. Michael and All Angels, near Colne, Lancs, 55l.; and Stoughton, Emmanuel, near Guildford, 70l. in lieu of a former grant of 60l.; and towards enlarging or otherwise improving the accommodation in the churches at Astley, St. Peter, Stourport, 40l.; Battersea, St. Mary-le-Park, Surrey, 50l., making in all 150l.; Seighford, St. Chad, Stafford, 15l.; and Sydling, St. Nicholas, near Dorchester, 10l. The following grants were also paid by works completed: Llandwywe, St. Dwywe, Merioneth, 20l.; Thetford, St. Cuthbert, Norfolk, 50l.; and Swinham, Prior, St. Mary, near Cambridge, 130l. In addition to this the sum of 204l. was paid towards the repairs of twenty-two churches from trust funds held by the Society. The Archbishop of Canterbury, President of the Society, has announced his intention to take the chair at the annual general court to be held at the Church House on Tuesday, May 10, at 2.30 p.m.

**MEMORIAL TO THE ENGINEER OF THE SEVERN TUNNEL.**—A lych-gate was dedicated recently to the memory of the late Mr. T. A. Walker, the engineer for the Severn Tunnel, who was interred at Caerwent churchyard. The gate was built by Mr. Couzens, of Cardiff, from designs by Mr. Halliday, the Diocesan Architect. It is of oak, and bears a brass plate with the inscription:—"In affectionate memory of Thomas Andrew Walker, by members of his staff on the Severn Tunnel, Manchester Ship Canal, Buenos Ayres Harbour and other works. Born, 1828; died, 1889."

**METROPOLITAN ASYLUMS BOARD.**—A meeting of the managers of the Metropolitan Asylum District was held at the offices on the Embankment on Saturday. Sir Robert Hensley presiding. Mr. Thomas Cooper, A.M., Inst. C.E., was appointed to the post of first assistant engineer to the Board at a salary at the rate of 300l. per annum, in succession to Mr. Hilton Johnson, resigned. The Board accepted the tender of Mr. Henry Martin, of Northampton, for the erection for the sum of 6,467l., of a home for female attendants at the Leazes Asylum, in accordance with plans prepared by Messrs. Newman & Newman, architects. The board also approved plans prepared by Messrs. A. & C. Harston for the provision of additional accommodation, &c., at the Joyce Green Hospital at an estimated cost of 7,650l.

**SLATERS AND TILERS' CONFERENCE, LEEDS.**—The seventh triennial conference of the Amalgamated Society of Slaters and Tilers of England and Ireland Provident Society was concluded at the Union Tavern, Meadow-lane, Leeds, on the 17th inst. Mr. H. Parker, of Leeds, the newly-elected President, occupied the chair. The conference had been occupied since Monday in revising and amending the rules of the Society. Delegates have at-

tended from Bishop Auckland, Carlisle, Bolton, Bradford, Bury, Dublin, Huddersfield, Leeds, Liverpool, Middlesbrough, Chesterfield, Hull, Darlington, Derby, Leicester, Manchester, Newcastle, Nottingham, Northampton, South Shields, Stockton, Sheffield, Sunderland, West Hartlepool, and Wigton. An address was given by the Secretary of the National Association of Slate Merchants (Mr. J. Townsley, of Hull). Founded in 1882, and having its headquarters at Newcastle, the Society now has a membership of over 1,500. Some figures were presented making a comparison between last year and the previous year (1901), when trade was at a very low ebb. In 1901 the Society paid out 266l. in sick pay and 241l. in strike pay, and had a total expenditure of 1,598l., or 52l. more than the income; whilst last year they have improved to the extent of 580l., having disbursed 645l. in sick pay, and only 31. 16s. in strike pay, making a total expenditure of 965l. According to a table prepared to show the proportionate outlay of every pound of the Society's income 9s. 3d. is spent in sick pay; 2s. 5d. in funeral benefits; and 2s. 7d. in trade benefits—including money provided for railway fares to get work and strike pay.

**THE AUCTIONEERS' INSTITUTE.**—The annual General Meeting of the Auctioneers' Institute of the United Kingdom will be held at the offices, 57 and 58, Chancery-lane, London, on Thursday, May 7, 1903, at 2.30 p.m., to receive the annual report and accounts, elect members of Council and auditors, and to transact the ordinary business of the Institute. The seventeenth annual dinner of the Institute will take place at the Hotel Cecil on Thursday, May 7, at 6.30 p.m., under the presidency of Mr. John Heppes.

**INTERNATIONAL FIRE BRIGADES COUNCIL.**—The International Fire Brigades Council will, at the invitation of the British Fire Prevention Committee, hold its biennial meeting in London, on July 11, in connexion with the impending International Fire Prevention Congress, which opens on July 7, most of the members of the Council having expressed their intention of accepting the invitation. The Committee to attend the Congress. The Council comprises representatives of Austria-Hungary, Belgium, Denmark, France, Germany, Italy, Norway, Roumania, Russia, Spain, Switzerland, and the United States, some fifty officers in number.

**BUILDING MATTERS IN PARLIAMENT.**—In the discussion on the Civil Service Estimates in the House of Commons on the 21st inst., Dr. Farquharson raised a protest on the vote to complete the sum of 101,400l. for Royal parks and pleasure gardens, against the letting for building purposes of a narrow strip of land at the end of Palace Gardens, Kensington. With trees forming an avenue this was an agreeable place of recreation, and he feared that buildings would be erected which would wholly spoil that part of a pleasant suburb. Mr. Fellowes, interrupting, said the land in question was not under the control of the Office of Works; it did not form part of Kensington Gardens. The Chairman said it was Crown land, and was under the administration of the Office of Woods and Forests. Mr. Kearley complained of the disgraceful condition of the Birdcage-walk roadway and the annoyance caused by repairing being undertaken during Session time. Mr. Skewes-Cox asked questions in reference to the improvement of access to and from Richmond Park by Kingston Gate. Mr. Fellowes, replying to Mr. Skewes-Cox, said he had communicated with Lord Windsor, and hoped to be able to give the hon. member some information in the course of a few days. Birdcage-walk was not mentioned earlier on account of the Session time. The vote was then agreed to.

On the vote to complete the sum of 43,700l. for Houses of Parliament buildings, Mr. Powell Williams drew attention to the fact that a new statue of Mr. Bright had been obtained in place of the unsatisfactory statue of that statesman which was originally placed in the central lobby, but was afterwards removed. The Chairman asked whether the right hon. gentleman's point was that some site should be provided. Mr. Powell Williams: Some different site. The Chairman said that was a matter of discretion resting with the First Commissioner of Works. There was no charge in the Estimate in respect of any piece of ground upon which this statue was placed. Therefore he thought the right hon. gentleman should raise the point on the salary of the First Commissioner. Mr. Powell Williams said he would do so. Mr. R. Lucas and Mr. Macdonald drew attention to the defects in the accommodation and arrangements of the House of Commons. Mr. W. Redmond asked whether it was intended to carry out the recommendations of the Committee on the Accommodation of the House, and Mr. Powell Williams further conversation. Mr. Fellowes said it was the intention of the First Commissioner to ask for the reappointment of the Committee which was dealing last session with the ventilation and sanitation of the House. A number of the recommendations of the Committee on House of Commons Accommodation had already been carried out; but, in view of the financial situation, the Board of Works did not feel justified in asking for the large sum which would be necessary to effect the more expensive improvements suggested by that Committee.—The votes to complete the sums of 66,120l. for miscellaneous legal

buildings, Great Britain, and 50,150l. for art and science buildings, Great Britain, were agreed to.—On the vote to complete the sum of 55,500l. for diplomatic and consular buildings, and for the maintenance of certain cemeteries abroad, Mr. Gibson Bowles said that the Greek Government proposed to lease one of the English cemeteries in the Ionian Islands, where many distinguished Englishmen were buried, for the building of a casino. It would be an outrage if this desecration were permitted. Mr. Fellowes said that the Foreign Office were taking steps to protest against this proposal, and in a short time it was hoped that a satisfactory arrangement would be reached. The vote was agreed to.—Votes to complete the following sums were agreed to:—564,000l. for Inland Revenue buildings, 447,000l. for sundry public buildings in Great Britain not provided for on other votes, 209,019l. for surveys of the United Kingdom, 21,204l. for harbours under the Board of Trade, and 23,980l. for Peterhead Harbour.

## CAPITAL AND LABOUR.

**DISPUTES AT ST. HELENS.**—A meeting of the master builders was held at the Raven Hotel, Church-street, on the 15th inst., when the disputes which have arisen in the building trade in the town were again under consideration. The meeting was private, but it is stated that two gentlemen were nominated to arbitrate on the dispute with the bricklayers with respect to the "walking-out" question, but they had yet to be accepted by the Bricklayers' Association. The masters refused to give any information with regard to the joiners' "lock-out," except that they were determined to adhere to their terms and not to give in. They consider that it is utterly absurd that they should be dictated to by the men, and that they should be told where to get their work done. They consider that the men have nothing to gain by continuing the "lock-out," as they have had hundreds of applications for work from joiners in various parts of the country, and it will cost the men endless expense to send them all back. "Picketing," too, they say, is illegal, and the men are liable to prosecution. Practically all the members of the Masters' Association make all their own joinery, and there are but a few who purchase "ready-made" work.

**NEWCASTLE STONEMASONS.**—The strike of Newcastle and district stonemasons was under the consideration of the local Building Trade Employers' Association, Northumberland-street, on the 20th inst. The deliberations lasted for about two hours. At the close the reporters were informed that the masters had decided to withdraw the notices relative to a nine hours' day instead of an eight hours' one, and other suggested alterations of rules—a decision which means that the men affected will restart work. The employers, it is stated, fully expected that the men would have granted the asked-for extension of a week's time, and if such had been given, they state that there would have been no strike. The Newcastle masters could not settle the dispute until there had been a meeting of the Northern Counties Federation, when they could secure advice on the subject.

**NEWCASTLE BRICKLAYERS' WAGES.**—On the 16th inst. a meeting of the union bricklayers of Newcastle and district was held in the Co-operative Hall, Darn Crook, Newcastle, for the purpose of considering the employers' request for a reduction in the men's wages of 1d. per hour, making the rate 9d. The men declined to consider the question of any reduction. The notice of reduction does not expire until September 12.

## LEGAL.

### ACTION BY ARCHITECTS.

The case of Ardron & Dawson v. Edwards came before Mr. Justice Grantham and a special jury in the King's Bench Division on the 21st inst., an action by the plaintiffs, a firm of architects carrying on business at No. 6, Old Queen-street, Westminster, against the defendant, Mr. William Maitland Edwards, for damages for alleged breach of contract.

The plaintiffs' case was that, in October, 1899, the defendant, an architect, entered into an agreement for a lease of certain premises in Great Tothill-street and the Broadway, Westminster, conditional upon his erecting certain buildings thereon in the manner therein described, and instructed the plaintiffs to prepare reports, plans, and specifications for that purpose. The plaintiffs alleged that, by letters passing between them and the defendant, dated October 11 and 12 and November 2, 1899, defendant agreed to pay them for the work, in the event of his being able to form a syndicate, as intended, for the erection of such buildings, the usual commission of 5 per cent. on the outlay thereby incurred, exclusive of out of pocket expenses. The estimated outlay for the work was 137,023l. The plaintiffs alleged that they prepared the necessary plans and specifications for the defendant, and that the syndicate which he had formed, were erecting the buildings substantially in accordance with the plans, and that defendant refused to pay them any part of the 5 per cent. or any sum for the preparation thereof. Alternatively plaintiffs claimed



that between June, 1899, and March, 1900, at defendant's request, they prepared reports, plans, and specifications for him, and had various interviews and negotiations on his behalf in regard to the erection of buildings in or near Great Tophill-street and the Broadway, Westminster, for which they had not received any payment. The plaintiffs claimed to be paid a reasonable sum for such services at the rate of 3 per cent. on the estimated outlay of £37,025.

The plaintiffs also claimed that between June, 1899, and February, 1900, they received instructions from defendant to do work on his behalf in connection with (1) certain questions of ancient lights for St. Margaret's School, Westminster; (2) a proposed tenancy by Messrs. Cook & Hammond of premises in the buildings; and (3) the preparation of plans for stabling in Chapter-street and Regency-street, Westminster; and for the work under these heads the plaintiffs claimed £27. There was also a claim by plaintiffs for 12s. 4s. 9d. for out-of-pocket expenses.

By his defence the defendant alleged that plaintiffs prepared the plans and specifications as a speculation, and in expectation that a syndicate which he was then endeavouring to form to erect the buildings would adopt the plans and employ the plaintiffs as architects. He alleged that, being unable to form that syndicate, the matter fell through. In April, 1902, a different syndicate to that contemplated in October, 1899, was formed, but defendant denied that that syndicate was erecting the buildings substantially, or at all in accordance with any plan of the plaintiffs. Defendant admitted that he employed the plaintiffs to do certain work in respect of property near Great Tophill-street, between the dates alleged, and brought into court the sum of 89s. 14s. as being sufficient to satisfy the plaintiff's claim.

Mr. Arthur Powell, K.C., and Mr. Herbert Smith, appeared for the plaintiffs; and Mr. Hume Williams, K.C., and Mr. W. S. Shaw, for the defendant. During the course of Mr. Ardron's evidence a settlement was arrived at, the terms being that the defendant should pay to the plaintiffs in settlement of their claim, 500s., and the costs of the action. Judgment was entered accordingly.

#### WORKMEN'S COMPENSATION ACT CASES:

WEAVING v. KIRK AND RANDALL.

The case of Weaving v. Kirk and Randall came before the Court of Appeal, composed of the Master of the Rolls and Lords Justices Stirling and Mathew, on the 22nd inst., on the appeal of the applicant from the refusal of Judge Addison, sitting at the Woolwich County Court, to award her compensation under the Workmen's Compensation Act, 1897. There was also a cross appeal by respondents from the finding of the learned Judge that the place where the accident occurred was a "warehouse" within the meaning of the Act. Mr. Ruegg, K.C., and Mr. W. M. Thompson, appeared for the applicant, and Mr. Arthur Powell, K.C., and Mr. A. Willis for the respondents. Mr. Ruegg, in opening the applicant's case, said he was appearing on behalf of the widow of a man who was killed while in the employment of the defendants, a large firm of builders and contractors. His case was that the learned County Court Judge was wrong in refusing to award the widow compensation under the Act. Originally the action was brought under the Employers' Liability Act. After hearing the evidence, Judge Addison thought the case was an Employers' Liability Act case, and then application was made to the learned County-court judge to assess compensation under the Workmen's Compensation Act, 1897. The ground on which that was asked was that the place where the accident occurred was a "warehouse" and that the defendants were at all events, for the time being, the "occupiers" of the warehouse, and therefore the occupiers of a factory within the meaning of the Act. The learned County-court judge found that the place was a "warehouse" within the meaning of the Act, but he was of opinion that the defendants were not the "occupiers" of the warehouse in the meaning of the Act, and on that ground he refused to give compensation to the applicant. He submitted that the learned Judge was clearly wrong on that point. The respondents, the employer, gave cross notice of appeal on the ground that the learned County-court judge was wrong in finding that the place was a warehouse at all. He (Mr. Ruegg) submitted, on the other hand, that the learned Judge was justified in finding that the place where the accident happened was a "warehouse" within the meaning of the Act. The respondents of the case were, shortly these: The respondents, Messrs. Kirk & Randall, had entered into a contract with the Government to put up shelves in a place which formed part of the Woolwich dockyard, on which a large number of goods were to be stored for Army purposes. During the course of the work the applicant's husband, who was in the service of the respondents, fell and was killed. The learned counsel asserted that these facts showed that the respondents had undertaken to do work in a warehouse, and that they were for the time being the occupiers of the warehouse.

The Master of the Rolls said that the only point seemed to be whether the occupation was enough in

the meaning of the Act to make the respondents "undertakers."

Mr. Ruegg said that the evidence was that the employers went there and took their workmen there, and were engaged in doing work at the time the man met with his death. That made the respondents the "undertakers" within the meaning of the Act. "Undertaker" within the meaning of the section meant the occupier, and Section 104 of the Factory Act, 1901, defined that the person having the actual use and occupation of a "dock, quay, wharf, or warehouse" shall be deemed to be the occupier of a factory.

The Master of the Rolls asked if that section was incorporated in the Workmen's Compensation Act.

Mr. Ruegg said it was.

The Master of the Rolls said he thought the Court had better hear what Mr. Powell had to say on the matter.

Mr. Powell said that the place where the accident happened was a Government store in the Woolwich Dockyard, and was part of a large building, and he submitted that, according to the distinctions drawn in this Court, it was not a "warehouse" within the meaning of the Act. His second point was that, even if it was a warehouse, the respondents were not the "occupiers" within the meaning of the Act. In the case of *Burr v. Whiteley*, that Court had laid down that there was a distinction to be drawn between a place where goods were simply stored and a warehouse. The fact that goods were simply stored in a room did not constitute the room where the goods were stored a warehouse. In the present case the goods which were stored were for Government purposes, and he submitted that that did not constitute the place a warehouse within the meaning of the Act. On his second point, that the respondents were not the "occupiers" of the warehouse within the meaning of the Act, the learned counsel argued that if a man was sent into that court simply to glaze a window, the man was not the "occupier" within the meaning of the Act. Therefore, a man who was sent to put shelves into a warehouse could not be deemed to be the occupier. If he (counsel) asked the user in the court to reach him a book from the shelves that did not constitute the user the occupier of the court. To constitute the respondents the "occupiers" within the meaning of the Act, there must be occupation *quod* warehouse. It was not *quod* warehouse at all that the respondents were in there. They were simply putting up shelves in the place.

In the result their lordships sent the case back to the learned County Court Judge for him to state, if he could, what the evidence as to "occupation" was, and if it was not sufficiently in his mind to take evidence in order that he might inform the Court upon that point.

IVES v. LANGLEY.

On the 22nd inst. the case of Ives v. Langley came before the Court of Appeal, composed of the Master of the Rolls and Lords Justices Stirling and Mathew, on the appeal of the applicant from the refusal of the Judge of the King's Lynn County Court to award him compensation under the Workmen's Compensation Act, 1897, in respect of personal injuries sustained in the course of his employment with the respondent.

Mr. Disturnal appeared for the applicant, and Mr. Low, K.C., and Mr. North for the respondent.

Mr. Disturnal said that the point on which the learned County Court Judge decided against the applicant was that he was not, in the circumstances of the case, "on, in, or about a building" within the meaning of Section 7 of the Act when he met with the accident.

Mr. North said the learned Judge also found that the building was not being repaired or constructed by means of scaffolding.

Mr. Disturnal submitted that the learned Judge decided the case solely on the question of whether the applicant at the time of the accident was "on, in, or about a building," and upon that his contention was that the learned Judge misdirected himself, and that really in point of fact the evidence all went to show that the man was "on, in, or about a building" when he met with the accident. The defendant was a builder, the King's Lynn, and he was building for himself, as building owner, four cottage houses under one roof. At the back of each house there was a yard, and from each yard there was a gate leading into a passage. The applicant was engaged in putting up the gate leading from the yard of the first house when he injured his knee. The injury developed, and the man became incapacitated, and was unable to follow his employment as a carpenter. In these circumstances the learned counsel submitted that the County Court Judge was wrong in holding that the workman at the time of the accident was not "on, in, or about a building."

The Master of the Rolls said he could not help feeling that the learned Judge decided the case on the question of scaffolding.

Mr. Low said that his instructions were that the learned Judge found that the man was not employed "on, in, or about a building" which was being constructed by means of scaffolding.

Mr. Disturnal said that if the Court took that view, he should argue that scaffolding was being

used. It was true that there was no scaffolding at the moment in use on the house in the yard of which the accident occurred, but scaffolding was being used on the third house. The statute did not say "on, in, or about the house," but "on, in, or about a building," and that being so, his submission was that this workman was employed "on, in, or about a building" which was being constructed by means of scaffolding, the scaffolding being in the third house which was part of the one building.

Mr. Low submitted that the decision of the County Court Judge ought to stand. The Judge treated each cottage as a separate building, and therefore the question became one of fact whether or not the workman was employed "on, in, or about a building" on which scaffolding was being used. He contended that the plaintiff was not at work "on, in, or about a building"; but if he was, he was not at work on a building on which scaffolding was being used.

The Master of the Rolls, in giving judgment, said that, in his opinion, the appeal must succeed. In this case there was no material on which the Court could say whether the learned Judge decided that no scaffolding was being used. All he, in fact, said by his judgment was that the workman was not employed "on, in, or about a building." That was a conclusion which could not be supported by the evidence, which showed that the man was employed "about" the erection of the cottages. The gate was in the curtilage of the building and was part of the undertaking. Then the Court knew that scaffolding was being used in one of the cottages, which was part of the entire building. For these reasons, the decision of the County Court Judge could not stand.

The Lords Justices concurred, and the appeal was accordingly allowed with costs.

On the application of Mr. Disturnal an order was made for the payment to the workman of 18s. 11d. a week (being half his average weekly earnings) as from July 3 last during incapacity.

ELVIN v. WOODWARD AND CO.

The case of Elvin v. Woodward & Co. came before the Court of Appeal, composed of the Master of the Rolls and Lords Justices Stirling and Mathew, on the 21st inst., on the appeal of the applicant, a painter in the employment of the respondents, from an award of the Judge of the Shoreditch County Court, under the Workmen's Compensation Act, 1897.

It appeared that the respondents had contracted to repair and paint a house in Finsbury-square, E.C., which was above 30 ft. in height, and the applicant was engaged in the painting work of the house. On the day the accident happened the applicant was painting a wall 10 ft. or 11 ft. high above the street, and was standing upon a pair of painters' steps, which were 8 ft. high, and had ten flat steps, with a board on the top, upon which any one could stand when at work. The steps were supported by wooden uprights, and could easily be moved from place to place. While standing on the steps the applicant slipped, fell off, and sustained injury. At this time, the main scaffolding which had been used in repairing the house and been taken down. The learned County Court Judge found that the applicant was injured by a fall from steps upon which he was standing to enable him to paint a wall higher than he could reach when standing on the ground; but he held that the steps, though used at the time of the accident to support the man while doing the work, afforded no assistance in the question of whether he was injured by means of scaffolding, and gave his award in favour of the respondents. If the Court of Appeal should be of opinion that there was any evidence on which he might find that the steps were a scaffolding he awarded the applicant 11s. a week for fourteen days after the accident. He accordingly gave judgment for the respondents. Hence the present appeal of the applicant.

At the conclusion of the arguments of counsel the Master of the Rolls, in giving judgment, said it was exceedingly difficult to find any principle of law to apply in ascertaining what was a scaffolding. He however based his decision on this, that these steps might be a scaffolding. He could not draw any distinction in point of law between a staging consisting of planks placed across trestles or foot-stools (*vide* decision of House of Lords in "Hoddinott v. Newton, Chambers & Co.") and ordinary painter's steps which carried their own support with a top wide enough to form a platform for a man to stand upon when at work. That being so he thought there was evidence on which the learned County Court Judge might find that the steps were a scaffolding, and he therefore was of opinion that the appeal should be allowed and an award made in favour of the applicant for 11s. a week from fourteen days after the accident.

Lord Justice Stirling differed from the judgment of the Master of the Rolls. He did not think that an ordinary pair of painter's steps, which enabled a painter to paint a wall out of his reach from the ground could fairly be regarded as a scaffolding. He thought the view taken by the learned County Court Judge was correct.

Lord Justice Mathew agreed with the judgment of the Master of the Rolls, and by a majority of the Court the appeal was accordingly allowed.

A stay of execution was granted upon the terms



of the respondents agreeing to pay the applicant 1*l*. a week from fourteen days after the accident, the costs being paid to the applicant's solicitor upon their undertaking to repay them if an appeal to the House of Lords should prove successful.

Mr. Ruegg, K.C., and Mr. Chester-Jones appeared for the applicant; and Mr. Arthur Powell, K.C., and Mr. Addington Willis for the respondents.

#### SUNDERLAND BUILDING BY-LAWS: BUILDER'S APPEAL.

THE hearing of the case of *White v. The Mayor, &c.*, of Sunderland, was concluded before a Divisional Court of the King's Bench, composed of the Lord Chief Justice and Justices Wills and Channell, on the 21st inst., on the appeal of Mr. John William White, a builder, of Sunderland, from a decision of the Sunderland magistrates, convicting him of a breach of the borough by-laws in connexion with the building of houses called Colchester-terrace, on the High Barnes estate. The charge against the appellant was with having, between July 7 and September 2, 1902, unlawfully erected a building at Colchester-terrace on a site with party walls of less thickness than 9 in., as required by the by-laws made under the provisions of the Public Health Act, 1875. It appeared that certain plans were approved in 1885, and several of the houses were erected before the passing of the new by-laws, but the Local Authority required the appellant to comply with the new by-laws in respect to the houses which had not been commenced, and as he refused he was summoned before the magistrates and fined. He now appealed on the ground that the buildings which remained to be erected at Colchester-terrace were not "new buildings," that they had been commenced before the passing of the new by-laws and were therefore excepted from the operation of those by-laws.

Mr. Montague Lush, K.C., and Mr. Schiller appeared for the appellant, and Mr. C.A. Russell, K.C., and Mr. Sisney represented the respondents.

Mr. Lush agreed that the appellant had acquired an indefeasible right to erect the houses according to the plans which had been approved, and that the local authority could not deprive him of that right by passing new by-laws, and that the new by-laws were *ultra vires* in so far as they sought to deprive the appellant of the right which he had acquired. He further argued that Colchester-terrace was one entity—one building in fact, and that the commencement of one of the houses which formed the terrace was the commencement of the whole terrace.

Mr. C.A. Russell having addressed the Court on behalf of the respondent to the appeal.

The Lord Chief Justice, in giving judgment, said he had come to the conclusion that the Justices were right in coming to the decision which they had done on the evidence before them. He did not see any hardship or unfairness in the alteration of the new by-laws as to the thickness of party-walls, and he thought it would be very undesirable to tie the hands of local authorities for all time from altering their by-laws in respect to the construction of houses simply because the houses formed part of a terrace, the plans in respect to which had been previously approved. The question in this case as to the time of the commencement of the building of the houses was one of fact, and he was of opinion that the new by-laws were not *ultra vires*, and that the Justices were right.

The other learned Judges concurred, and the appeal was accordingly dismissed with costs.

#### PATENTS OF THE WEEK:

##### APPLICATIONS PUBLISHED.\*

4,577 of 1902.—J. J. JOURNEYMAN: *Apparatus for Lifting Stone or other Material.*

An apparatus for lifting stones and other material, comprising rising and falling arms suspended from the hook of the lifting tackle, pivoted levers passing therethrough; a cross-bar to which the levers are pivoted carrying a screw for adjustment in relation to the stone to be lifted; levers pivoted to the side levers previously referred to provided with shoes, or plates, at one end to engage with the material to be lifted, and at the other end with one or more toothed wheels, or sectors, and pivoted catch levers operating in connexion with the toothed wheels.

8,257 of 1902.—W. C. LINDSAY: *Drawing Stands and Tables.*

Means for fixing a board in an upright position consisting of separate detachable legs, each prepared at the top to fit to the board, and to receive a locking bolt which passes through the board, or part thereof.

2,679 of 1903.—W. GRAINOR: *Fire Grates or Furnaces Applicable for Heating Washing Boilers and for other Purposes.*

Grates or furnaces, having the receptacle for the fire of a short grate bottom with sloping back at rear, and in front fire bars with outwardly projecting flange at top, in combination with a pair of

\* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

wing plates projecting forwards from the sides of the grate, a sloping shutter arranged to slide in guides over the space between the lower part of said wing plates, so that it can be raised or lowered to increase or diminish, or entirely cut off the supply of air admitted to the fire or flue through the vertical bars, and a plate located over the space between the wing plates at the upper part so as to close the same or admit when removed to a free opening for feeding fuel into the fire.

23,812 of 1902.—R. WRIGHT and R. P. B. WRIGHT: *Construction of Windows.*

Windows having sliding sashes, consisting in mounting the sashes on rods located at one side of the sash frame, so as to render the said sashes capable of being swung inwards.

26,777 of 1902.—L. LLEWELLYN: *Locks.*

For preventing the opening of locks and the like from outside the apartment, a plate to cover the lock or the like and having three flanges, by the upper of which flanges the plate is hinged to the door, the lower flange having a continuation extending forward, the said continuation being provided with a slot near its lower end, through which slot protrudes a staple attached to the door, the whole being held down by a padlock attached to the said staple.

1,553 of 1903.—E. J. HOPKINS and J. G. KEILLER: *Windows and the Like.*

Windows and the like, consisting of spring bolts fitted on the sashes, slotted plates mounted on the window frames and in the slots of which the said spring bolts are adapted to engage automatically to hold the sashes securely in position, and devices for causing the withdrawal of the said spring bolts to allow of the sashes being moved to new positions.

2,164 of 1903.—S. G. WELLMAN: *Sash Locks or Fastenings.*

A sash lock comprising a casing having a transverse pivot aperture at one end and a stop shoulder at the opposite end, and a dog located therein provided with a lip deflected into a plane parallel with the body of the dog to enter said aperture, and lateral flanges at the opposite end to engage said shoulder.

2,501 of 1903.—J. T. YOUNG and J. WREN: *Spring Catch for Sliding Sashes of Windows, Louvers, and the Like.*

An automatic spring catch for sliding sashes of windows, louvers, and the like, consisting in a spring bolt mounted within a casing on the frame, and having a bevelled head in combination with a metallic wearing or catch-plate on the stile of the sash, said plate having a series of bevelled recesses.

18,583 of 1902.—G. LIVINGSTONE and THE SANITARY BLOCK AND TILE PAVEMENT CO., LTD.: *Manufacture of Blocks and Tiles for Paving and other Purposes.*

This consists in the manufacture of a block or tile by mixing granulated wood with a binding agent.

1,025 of 1903.—J. TAYLOR and L. ASHWORTH: *Ridge Tiles.*

A ridge tile formed at one end with an internal recess end cut or plain and at the other end with corresponding external projections so as to form a tongue and groove or dovetail interlocking engagement when in position on a roof ridge.

1,998 of 1903.—T. H. MOONEY: *Mosaic Tiling.*

The process for making mosaic tiling, which consists in placing a body of cement and particles of marble in a semi-liquid form in a mould, in imparting to said mould a series of quick vibrations during which the particles of marble and the cement become united and the surplus water rises to the surface, in applying to the back of said cement and particles of marble a body of cement and sand in semi-liquid form, in imparting to the mould a subsequent series of slow vibrations during which the body of cement and sand becomes set and adheres to the back of the particles of marble and sand, and the surplus water is caused to rise to the surface of the cement and sand.

26,258 of 1901.—L. P. FORD: *Manufacture of Artificial Stone Bricks.*

The continuous process of manufacturing artificial stone bricks and the like, which consists in automatically measuring the lime and sand, conveying the same to a pug or mixer, thoroughly stirring and heating the materials, slaking the lime, and, if necessary, wetting the materials in said mixer, and conveying them towards one end of the same, and cooling them on their exit, prior to their entrance into the brick-making machine.

26,259 of 1901.—L. P. FORD: *Mould for the Manufacture of Large Blocks of Artificial Stone.*

The manufacture of artificial stone when use is made of the expanding property of lime or cement to obtain compression, consisting of a cylindrical mould.

7,216 of 1902.—G. C. HURRELL: *Pipes or Conduits for Electrical Conductors.*

This consists of casings of a simple parallel form, provided with separate jointing and bearing flanges.

7,694 of 1902.—J. R. HORTON: *Kilns or Apparatus for Calcining Purposes.*

A kiln or apparatus for calcining purposes, the

bottom of which is made with downwardly inclined surfaces that terminate in inclined outlets, each provided both with an inner door, whereby the outlet can be completely closed, and with an inner door that can be independently operated and is adapted to arrest the discharge of treated material through the outlet when required and to hold up the contents of the kiln or furnace in such a way as to enable the outer door to be easily and quickly closed.

9,117 of 1902.—J. BRIGGS and W. HANSON: *Draught Plates for Kitchen Ranges, Steam Boiler Furnaces, or the Like.*

This consists in the combination of a draught-plate for kitchen ranges and steam boiler furnaces, of a fan or fans cut from the sheet with radial vanes, and the construction of draught-plates for kitchen ranges and steam boiler furnaces, or the like, consisting of a fan or fans cut from a sheet of metal with radial vanes, each fan arranged to revolve within a ring of metal surrounding the edges of the fan or fans, which are carried by cross strips of metal.

9,648 of 1902.—G. R. SMITH: *Apparatus for Heating Greenhouses, Buildings, and the Like by Liquid Fuel.*

In an apparatus for heating greenhouses, buildings, and the like by liquid fuel the combination of a vertical boiler, water inlet and outlet circulating pipes connected therewith, a central flue in said boiler open at top and bottom and provided with cross or other water circulating tubes, a burner for consuming liquid fuel in the form of spray situated at the bottom of the boiler flue to heat the same, a vessel containing the liquid fuel under air pressure, and pipes for conveying the same to the burner, with means for regulating the flow, the whole forming a heating apparatus.

10,705 of 1902.—R. PAGE: *Appliance for Fastening Windows and Retaining Window Sashes in any Position.*

Construction of an appliance for fastening windows and retaining window sashes in any position, consisting of a plate having turned-up ends for clamping the sashes, a clamping plate laid upon the side of one of the sashes and a screw passing through one of the turned-up ends of the first plate by which the respective sashes may be pressed together.

11,378 of 1902.—C. J. HANCOCK: *Hinges.*

This consists of butt hinges with joint tubes or sockets locked to the body part of the respective plates or butts.

11,905 of 1902.—G. CASTLEDEN and J. STUDD: *Door and Gate Latches.*

In a door and gate latch, the employment of a pivoted latch or bolt, the nose of which normally engages laterally with a catch, and the tail of which is adapted to be operated by a rotary handle or pivoted lever.

12,383 of 1902.—H. D. TILLY: *Portable Domestic Fire Escape.*

This consists of an improved portable fire-escape, comprising a ladder constructed of twisted steel wires forming the sides, and cross wires twisted to the side wires, and threaded through steel or iron tubes forming the rungs.

8,132 of 1902.—W. H. EDWARDS: *Fastenings and Bolts for Casements, Doors, Windows, and the Like.*

A fastener for casements, doors, windows, and the like, consisting of an operating handle having an sleeve or extension, which constitutes the bolt of the fastener, such bolt being mounted upon a stationary peg or bracket arm, and the advancing and retiring movement being obtained (when the handle is brought over or rotated) either by the action of a screw thread on one part and an engaging stud or projection on the other part, or by engaging screw threads formed on both the parts.

#### MEETINGS.

FRIDAY, APRIL 24.

*Institution of Civil Engineers (Students' Meeting).—*Mr. H. S. Watson on "Bacterial Sewage-Disposal Works at Ash, Dover." 8 p.m.

*Royal Institution.*—Hon. R. J. Strutt, M.A., on "Some Recent Investigations on Electrical Conduction." 9 p.m.

*Institution of Mechanical Engineers.*—1. President's Address. 2. Professor W. E. Dalby on "The Education of Engineers in America, Germany, and Switzerland." 8 p.m.

SATURDAY, APRIL 25.

*Royal Institution.*—Professor Langton Douglas, M.A., on "The Early Art of Siena." 1. 3 p.m.

MONDAY, APRIL 27.

*Society of Arts (Cantor Lectures).*—Mr. W. Worby Beaumont on "Mechanical Road Carriages." 1. 8 p.m.

*Builders' Benevolent Institution* (31, Bedford-street, W.C.).—Committee meeting at 5 p.m.

TUESDAY, APRIL 28.

*Society of Arts (Applied Art Section).*—Visit to the Whitefriars Glassworks. Paper by Mr. H. Powell on "The Table Glass." 7.30 p.m.

*Institution of Civil Engineers.*—Annual general meeting of corporate members only, to receive the Report of the Council, and to elect the Council and auditors for the ensuing year. 8 p.m.



## WEDNESDAY, APRIL 29.

Architectural Association Discussion Section.—Mr. H. Cotman on "A Tour in Gloucestershire." 7.30 p.m.  
Society of Arts.—Mr. T. A. Brockbank on "Automatic Wagon Couplings on Railways." 8 p.m.  
Edinburgh Architectural Association.—Mr. A. Hunter Crawford on "The Building of a House." V. Illustrated. 8 p.m.

Institution of Civil Engineers.—Students' visit to inspect the widening operations in progress at London Bridge. Assemble at the Bridge, north side, 2.30 p.m.  
Southern Counties Builders' Federation (31, Bedford-street, W.C.).—Council meeting at 3 p.m. Annual general meeting at 5.30 p.m.

## THURSDAY, APRIL 30.

Royal Institution.—Professor Dewar, M.A., on "Hydrogen: Gaseous, Liquid, and Solid." 11. 5 p.m.  
Institution of Electrical Engineers.—Mr. W. Aitken on "Divided Multiple Switchboards: An Efficient Telephone System for the World's Capitals." 8 p.m.

## FRIDAY, MAY 1.

Architectural Association.—Mr. A. Needham Wilson on "Architecture and the Public." 7.30 p.m.  
Junior Institution of Engineers.—Mr. R. W. Newman on "The Effect of Design on Methods of Construction, from a Contractor's Point of View." 8 p.m.

## SATURDAY, MAY 2.

Royal Institution.—Professor Langton Douglas, M.A., on "The Early Art of Siena." 11. 3 p.m.  
British Institute of Certified Carpenters (Carpenters' Hall).—Business meeting, 6 p.m.  
Edinburgh Architectural Association.—Visit to Wemyss Castle.  
Sanitary Inspectors' Association.—Visit to works of Stuart's Granolithic Stone Co., Ltd., Millwall, E.

## SOME RECENT SALES OF PROPERTY:

## ESTATE EXCHANGE REPORT.

April 7.—By J. C. TOWNER (at Lewes).  
Chailley, Sussex.—Middleton Farm, 21 a. 3 r. 36 p., f., y. r. 274. 108. 45,325  
Westlands Farm, 160 a. 1 r. 10 p., f. and c. y. r. 354. 1,000  
Plumpton, Sussex.—Sevelands Farm, 19 a. 2 r. 35 p., part f. and part ut. 1,693 yrs. g.r. 65. 8d. y. r. 374. 940  
April 15.—By LEOPOLD FARMER & SONS.  
Kilburn.—36, Oxford-rd., ut. 55 yrs. g.r. 121. c.r. 554. 460  
Highbury.—28, Highbury New Pk., ut. 409 yrs. g.r. 121. 108. c.r. 354. 1,000  
By WM. THOMSON (at Douglas).  
Douglas, Isle of Man.—Victoria-st., &c., the Grand Hotel, the Commodore Hotel and Restaurant, the Victoria Swimming Baths, and premises adjoining; also two shops and two boarding-houses, area 3,313 yds., f., c. r. 1,723. 27,500  
By A. BURTENSHAW & CO. (at Hailsham).  
Hailsham, Sussex.—1 to 4, Egerton Cottages, f., w. r. 524. 700  
Hailsham, Sussex.—53, South-rd., f., y. r. 221. 55 to 61 (odd), South-rd., and cottage adjoining f., w. r. 381. 65. 450  
April 15.—By FURBER, PRICE, & FURBER.  
Paddington.—27, Highbury-rd., ut. 81 yrs. g.r. 81. c.r. 701. 530  
By C. GERRETT & CO.  
Norwood.—Woodside Green, Studley, f., p. 1,900  
9 and 11, Wende-rd., f., y. r. 606. 650  
By KROENIG & CO.  
Hendon.—Sunny-gds., Emile Villa, f., c. r. 451. 69, Church-rd., ut. 62 yrs. g.r. 61. c. r. 361. 450  
April 17.—By DUNN, SOWARD, & COVAT.  
Barking, Essex.—Choats Manor Way, freehold grazing marshes, 53 a. 2 r. 21 p. 2,350  
Choats Manor Way, enclosure of marsh land, 5 a. 2 r. 1,850  
By P. & G. GREY.  
Islington.—7 to 15 (odd), St. Paul-st., ut. 24 yrs. g.r. 216. y. r. 1071. 1,180  
By LIVING, MARSH, & CO.  
Kensington.—35, Holland Villas-rd., ut. 421 yrs. g.r. 251. y. r. 1456. 2,100  
By FRED. VARLEY & SON.  
Finsbury Park.—31, 33, and 35, Ambler-rd., ut. 64 yrs. g.r. 184. 188. y. r. 1201. 2,875  
19, Ennis-rd., ut. 64 yrs. g.r. 61. 65. y. r. 454. 385  
17, Gloucester-rd., ut. 56 yrs. g.r. 121. 128. c. r. 704. 750  
Contractions used in these lists.—F. g. r. for freehold ground-rent; l. g. r. for leasehold ground-rent; i. g. r. for improved ground-rent; g. r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; u. r. for estimated rental; w. r. for weekly rental; q. r. for quarterly rental; y. r. for yearly rental; u. for unexpired term; p. a. for per annum; yrs. for years; l. a. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; g. d. for gardens; yd. for yard; g. r. for grove; b. h. for beer-house; p. h. for public-house; o. for offices; s. for shops.

## PRICES CURRENT OF MATERIALS.

\* Our aim in this list is to give, as far as possible, the average prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

## BRICKS, &amp;c.

Hard Stocks . . . 15 0 per 1,000 alongside, in river.  
Rough Stocks and Crates . . . 12 0 " " " "  
Facing Stocks . . . 212 0 " " " "  
Shippers . . . 2 50 " " " "  
Pleatons . . . 1 7 6 " " at railway depot  
Red Wire Cuts . . . 1 12 " " " "  
Best Fareham Red . . . 3 12 0 " " " "  
Best Red Pressed . . . " " " " " "  
Rushton Facing . . . 5 0 0 " " " "  
Best Blue Pressed . . . " " " " " "  
Staffordshire . . . 4 5 0 " " " "

## PRICES CURRENT (Continued).

BRICKS, &c.  
£ s. d.  
Do. Bullnose . . . 4 12 0 per 1,000 at railway depot.  
Best Stourbridge . . . " " " " " "  
Fire Bricks . . . 4 8 0 " " " "  
GLAZED BRICKS.  
Best White and Ivory Glazed . . . " " " " " "  
Stretchers . . . 13 0 0 " " " "  
Headers . . . 12 0 0 " " " "  
Quoins, Bullnose, and Flats . . . 17 0 0 " " " "  
Double Stretchers . . . 10 0 0 " " " "  
Double Headers . . . 16 0 0 " " " "  
One Side and two Ends . . . 19 0 0 " " " "  
Two Sides and one End . . . 20 0 0 " " " "  
Splays, Chamfered, Squints . . . 20 0 0 " " " "  
Best Dipped Salt Glazed Stretchers and Headers . . . 12 0 0 " " " "  
Quoins, Bullnose, and Flats . . . 14 0 0 " " " "  
Double Stretchers . . . 10 0 0 " " " "  
Double Headers . . . 14 0 0 " " " "  
One Side and two Ends . . . 15 0 0 " " " "  
Two Sides and one End . . . 15 0 0 " " " "  
Splays, Chamfered, Squints . . . 14 0 0 " " " "  
Second . . . " " " " " "  
White and Dipped Salt Glazed . . . 2 0 0 " " less than best.  
Thames and Pit Sand . . . 6 9 per yard, delivered.  
Thames Ballast . . . 6 0 " " " "  
Best Portland Cement . . . 30 0 per ton, delivered.  
Best Ground Blue Lime . . . 27 0 " " " "  
NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime . . . 108. 6d. per yard, delivered.  
Stourbridge Fire-clay in sacks 27s. 6d. per ton at rly. dpt.  
STONE.  
£ s. d.  
Ancaster in blocks . . . 11 per ft. cube, deld. rly. depot.  
Bath . . . 7 " " " "  
Farleigh Down Bath . . . 8 " " " "  
Beir in blocks . . . 6 " " " "  
Grinshell . . . 10 " " " "  
Brown Portland in blocks 2 " " " "  
Darley Dale in blocks . . . 2 " " " "  
Red Corshill . . . 5 " " " "  
Closeburn Red Freestone 2 " " " "  
Red Mansfield . . . 4 " " " "  
YORK STONE—Robin Hood Quality.  
£ s. d.  
Scrapped random blocks 2 10 per ft. cube, deld. rly. depot.  
6 in. sawn two sides landings to sizes (under 40 ft. super.) . . . 2 3 per foot super.  
6 in. Rubbed two sides Ditto . . . 2 6 " " "  
3 in. Sawn two sides slabs (random sizes) . . . 0 11 " " "  
1 in. to 24 in. Sawn one side slabs (random sizes) . . . 0 7 1 " " "  
14 in. to 2 in. ditto, ditto 0 6 " " "  
BEST HARL YORK—  
Scrapped random blocks 3 0 per ft. cube  
6 in. sawn two sides landings to sizes (under 40 ft. super.) . . . 2 8 per ft. super.  
6 in. Rubbed two sides Ditto . . . " " " "  
3 in. sawn two sides slabs (random sizes) 2 " " "  
1 in. self-faced random flags . . . 0 5 " " "  
Hopton Wood (Hard Bed) in blocks . . . 2 3 per ft. cube, deld. rly. depot.  
" " 6 in. sawn both sides landings . . . 2 7 per ft. super.  
" " 1 in. to 24 in. Sawn one side slabs . . . 2 2 " " "

SLATES.  
£ s. d.  
20 x 10 best blue Bangor . . . 13 6 per 1000 of 1200 at rly. dep.  
20 x 12 " " " " " " 13 7 6 " " "  
20 x 10 best seconds " " " " " " 13 0 0 " " "  
20 x 12 " " " " " " 13 0 0 " " "  
16 x 8 best " " " " " " 7 0 0 " " "  
20 x 10 best blue Portmadoc . . . 12 5 0 " " "  
16 x 8 best blue Portmadoc 6 5 0 " " "  
20 x 10 best Eureka un-fading green . . . 15 2 6 " " "  
20 x 12 " " " " " " 17 2 6 " " "  
18 x 10 " " " " " " 12 10 0 " " "  
16 x 8 " " " " " " 10 5 0 " " "  
20 x 10 permanent green 11 0 0 " " "  
18 x 10 " " " " " " 9 5 0 " " "  
16 x 8 " " " " " " 6 20 0 " " "

TILES.  
Best plain red roofing tiles . . . 4 0 per 1,000, at rly. depot.  
Hip and valley tiles . . . 3 7 per doz.  
Best Broseley tiles . . . 5 0 per 1,000  
Do. Ornamental Tiles . . . 5 8 6 " " "  
Hip and valley tiles . . . 4 0 per doz.  
Best Rushton Red, brown or brinded Do. (Edwards) 57 6 per 1,000  
Do. ornamental Do. . . 60 0 " " "  
Hip tiles . . . 4 0 per doz.  
Valley tiles . . . 3 0 " " "  
Best Red or Mottled Staffordshire Do. (Peaks) 51 9 per 1,000  
Do. Ornamental Do. . . 54 0 " " "  
Hip tiles . . . 4 3 per doz.  
Valley tiles . . . 3 8 " " "  
Best " Rosemary " brand plain tiles . . . 48 0 per 1,000  
Do. Ornamental Do. . . 50 0 " " "  
Hip tiles . . . 4 0 per doz.  
Valley tiles . . . 3 8 " " "

PRICES CURRENT (Continued).

## PRICES CURRENT (Continued).

WOOD.  
At per standard.  
£ s. d. £ s. d.  
Deals: best 3 in. by 11 in. and 4 in. by 6 in. and 11 in. . . . 15 10 0 16 10 0  
Deals: best 3 by 9 . . . . 14 10 0 15 10 0  
Battens: best 24 in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in. . . . 12 10 0 12 10 0  
Battens: best 24 by 5 and 3 by 6 . . . 10 10 0 less than 7 in. and 8 in.  
Deals: seconds . . . . 1 0 0 less than best  
Battens: seconds . . . . 10 10 0 " " "  
2 in. by 4 in. and 2 in. by 6 in. . . . 9 0 0 9 10 0  
2 in. by 4 in. and 2 in. by 7 in. . . . 8 10 0 9 10 0  
Foreign Sawm Boards—  
1 in. and 14 in. by 7 in. . . . 8 10 0 more than battens.  
2 in. . . . 10 0 0  
Fir timber: Best middling Danzig or Memel (average specification) . . . 4 10 0 5 0 0  
Seconds . . . . 4 5 0 4 10 0  
Small timber (8 in. to 10 in.) . . . 3 12 6 3 15 0  
Small timber (6 in. to 8 in.) . . . 3 0 0 3 10 0  
Swedish balks . . . . 2 15 0 3 0 0  
Pitch-pine timber (30 ft. average) . . . 3 5 0 3 15 0

JOINERS WOOD.  
At per standard.  
White Sea: First yellow deals, 3 in. by 11 in. . . . 23 0 0 24 0 0  
3 in. by 9 in. . . . 21 0 0 22 10 0  
Battens, 24 in. and 3 in. by 7 in. . . . 17 0 0 18 10 0  
Second yellow deals, 3 in. by 11 in. . . . 18 10 0 19 0 0  
Battens, 24 in. 3 in. by 9 in. . . . 17 10 0 19 0 0  
Third yellow deals, 3 in. by 11 in. . . . 13 10 0 14 10 0  
and 9 in. . . . 15 10 0 16 10 0  
Battens, 24 in. and 3 in. by 7 in. . . . 12 10 0 13 10 0  
Petersburg: first yellow deals, 3 in. by 11 in. . . . 21 0 0 22 10 0  
Do. 3 in. by 9 in. . . . 18 0 0 19 10 0  
Battens . . . . 13 10 0 15 0 0  
Second yellow deals, 3 in. by 11 in. . . . 16 0 0 17 0 0  
Do. 3 in. by 9 in. . . . 13 10 0 14 0 0  
Third yellow deals, 3 in. by 11 in. . . . 13 10 0 14 0 0  
Battens . . . . 10 0 0 11 0 0

White Sea and Petersburg—  
First white deals 3 in. by 11 in. . . . 14 10 0 15 10 0  
" " 3 in. by 9 in. . . . 13 10 0 14 10 0  
Battens . . . . 11 0 0 12 0 0  
Second white deals 3 in. by 11 in. . . . 13 10 0 14 10 0  
" " 3 in. by 9 in. . . . 12 10 0 13 10 0  
" " battens . . . . 10 10 0 11 0 0  
Pitch-pine: Deals . . . . 10 0 0 11 0 0  
Under 3 in. thick extra . . . . 10 0 0 11 0 0  
Yellow Pine—First, regular sizes . . . 33 0 upwards.  
Oddments . . . . 22 0 0 24 0 0  
Seconds, regular sizes . . . . 24 10 0 26 10 0  
Yellow Pine Oddments . . . . 20 0 0 22 0 0  
Kauri Pine—Planks, per ft. cube . . . 0 3 6 0 4 6  
Dennis and Steffen Oak Logs—  
Large, per ft. cube . . . . 0 2 6 0 3 6  
Small " " . . . . 0 2 3 0 3 6  
Wainscot Oak Logs, per ft. cube . . . 0 5 0 0 5 6  
Dry Wainscot Oak, per ft. sup. as inch . . . . 0 7 0 0 8 0  
2 in. do. do. . . . 0 0 6 0 0 8

Dry Mahogany—  
Honduras, Tabasco, per ft. sup. as inch . . . . 0 9 0 0 11  
Selected, Figury, per ft. sup. as inch . . . . 0 1 6 0 2 0  
Dry Walnut, American, per ft. sup. as inch . . . . 0 10 0 0 12  
Teak, per load . . . . 16 10 0 20 0 0  
American Whitewood Planks—  
Per ft. cube . . . . 0 4 0 0 5 0

Prepared Flooring—  
Per square.  
1 in. by 7 in. yellow, planed and shot . . . . 0 13 6 0 18 0  
1 in. by 7 in. yellow, planed and matched . . . . 0 14 0 0 18 0  
14 in. by 7 in. yellow, planed and matched . . . . 0 16 0 0 18 6  
1 in. by 7 in. white, planed and shot . . . . 0 11 6 0 13 6  
1 in. by 7 in. white, planed and matched . . . . 0 12 0 0 14 0  
14 in. by 7 in. white, planed and matched . . . . 0 14 6 0 16 6  
1 in. by 7 in. yellow matched and beaded or V-jointed boards . . . 0 11 0 0 13 6  
1 in. by 7 in. do. do. do. . . . 0 14 0 0 16 0  
1 in. by 7 in. white do. do. do. . . . 0 10 0 0 12 6  
1 in. by 7 in. do. do. do. . . . 0 11 6 0 13 6  
6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.  
In London, or delivered.  
Railway Vans, per ton.  
£ s. d. £ s. d.  
Rolled Steel Joists, ordinary sections . . . 6 5 0 7 5 0  
Compound Girders . . . . 8 6 0 9 5 0  
Angles, Tees and Channels, ordinary sections . . . . 7 17 6 8 17 6  
Flat Plates . . . . 8 5 0 8 15 0  
Cast Iron Columns and Stranchions, including ordinary patterns . . . 7 2 6 8 5 6

METALS.  
Per ton, in London.  
£ s. d. £ s. d.  
Iron—  
Common Bars . . . . 7 15 0 8 5 0  
Staffordshire Crown Bars, good merchant quality . . . . 8 5 0 8 15 0  
Staffordshire " Marked Bars " . . . 10 10 0 " " "  
Mild Steel Bars . . . . 9 0 0 9 10 0  
Hoop Iron, basis price . . . . 9 5 0 9 10 0  
" " galvanised . . . . 10 0 0 " " "  
(\* And upwards, according to size and gauge.)

[See also page 447.]



## COMPETITIONS, CONTRACTS AND PUBLIC APPOINTMENTS.

(For some Contracts, &amp;c., still open, but not included in this List, see previous issues.)

## COMPETITIONS.

Nature of Work.	By whom Required.	Premiums.	Designs to be delivered
*Carnegie Library and Museum	Limerick Borough Council	75 <i>l.</i> and 25 <i>l.</i>	June 18
*Artisans' Dwellings, High Winchbank Estate	Sheffield City Council	50 <i>l.</i> , 30 <i>l.</i> , and 20 <i>l.</i>	No date.

## CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c., supplied by	Tenders to be delivered
Additions, &c., to Shad. Bristol	Great Western Railway Co.	G. K. Mills, Paddington Station, W.	April 28
House, Pontypool, Mon.	do.	do.	do.
Public Baths, Chapman-street, &c.	Oldham Corporation	Grooms & Grant, Architects, 2, St. Peter's-square, Manchester	do.
Additions to Gas Works	Ilford Gas Co.	The Engineer, Gas Works, High-royal, Ilford	do.
Two Bridges, over River Spalden	Hochdale Corporation	Borough Surveyor, Town Hall, Rochdale	do.
Villa, Milnsbridge, Yorks.	do.	J. E. Linn, Architect, Milnsbridge	do.
Chancel and Vestries, Christ Church, Moulton	do.	E. W. Lockwood, Architect, 7, Byron-arcade, Huddersfield	do.
Rebuilding Inn, Lower Cumberworth, Yorks	do.	J. B. Abbey & Son, Architects, 34A, New-street, Huddersfield	do.
Two Houses, Mapplewell, near Barnsley	do.	Crawshaw & Wilkinson, Architects, 18, Regent-street, Barnsley	April 29
Hospital at Workhouse	Claremorris (Ireland) Guardians	H. Goodyear, Civil Engineer, Town Hall, Colchester	do.
Additions to Council Offices	Colchester Corporation	F. W. Ridgway, Architect, Bond-street, Dewsbury	do.
Alterations to Premises, Union-street, Dewsbury	Messrs. J. Tetley & Son, Ltd.	T. Watkins, Club Chambers, Pontypool	do.
Workhouse Mortuary	Pontypool Guardians	City Treasurer, Town Hall, Manchester	do.
Foundation Works, London-road, &c.	Manchester Corporation	Wm. Bell, Architect, Central Station, Newcastle	do.
Ten Houses, Sunderland-road, Gateshead	North Eastern Railway Co.	J. J. Roper, 74, East-street, Bridport	do.
Hospital Buildings, Bradpole	Bridport R.D.C.	Burlett Ward, Architect, Wisbech	do.
Additions to Workhouse Infirmary	Holbeach Guardians	Office of Board, Embankment, E.C.	do.
*Erection of Verandah, Cliftonville, Margate	Metropolitan Asylums Board	R. Robertson, Civil Engineer, Public Offices, Claxton Moor	April 30
Additions, &c., to Schools, Claxton Moor	do.	R. Swancott, Case-d. Cottage, Carno	do.
Chapel, Carno, Wales	do.	B. Stocks, Architect, St. Peter's-street, Huddersfield	do.
Foundry, Offices, &c., Nile-street, Huddersfield	do.	C. H. Fowler, Architect, The College, Durham	do.
Church Restoration, Wanlip, near Leicester	do.	Donald Macgregor, Oban	do.
Cottage, Lochboisdale, South Dist. N.B.	do.	James & Morgan, Architects, Charles-street Chambers, Cardiff	do.
Rebuilding Chapel, Kesh, near Walsby	do.	J. B. Francis, Architect, Abergavenny	do.
Cottages, Richmond-road, Abergavenny	do.	Harrison & Co., Architects, Church-street, Lancaster	do.
Hotel, Bowerham, Lancs.	do.	Alex. Gray, 3, Cluny-square, Buckle	do.
Corn Mill, Buckle, N.B.	do.	A. D. Wallace, Town Clerk, North Berwick	do.
Gas Works	North Berwick Town Council	The Clerk's Office, St. John's Hill, S.W.	do.
*Oak Fencing, Tooting Home	Wandsworth and Clapham Union	City Engineer's Office, Leeds	May 1
Boundary Wall, Lower Wortley	Leeds Corporation	Director of Works Department, 21, Northumberland-avenue, W.C.	do.
*New Coast Guard Station, Sunderland	The Admiralty	J. E. Parker, Civil Engineer, Post Office Chambers, Newcastle-on-Tyne	do.
Water Supply Works, Thornton Dale	Pickering R.D.C.	R. Horsfall & Son, Engineers, 22A, Commercial-street, Halifax	do.
Excavating Track & Laying Pipes (3 mi.) Booth Moor	Rushworth U.D.C.	T. Canning, Civil Engineer, Mill-street, Newport, Mon.	do.
Extension of Gas Works	Abercrom (Mon.) Town Council	J. H. Davies & Sons, Architects, 14, Newgate-street, Chester	do.
Additions, &c., to Workhouse	Chester Guardians	J. F. C. Snell, Civil Engineer, Town Hall, Sunderland	do.
Electricity Sub-station, Whickham-street	Sunderland Corporation	A. E. White, Civil Engineer, Town Hall, Hull	do.
Baths Foundations, Beverley-road	Hull Corporation	Engineers' Offices, Derby Station	do.
*Cleaning, &c., Goods Warehouse, &c., at St. Pancras	Midland Railway	Company's Architect, Ardenhill House, Derby	do.
*Painting, &c., Sheffield Goods & Locomotive Stns., &c.	do.	Blackwood & Jury, Architects, 41, Donegal-place, Belfast	do.
Additions to Schools, St. Mary's, Bourne	do.	S. Clarke, Watchmaker, Hanau	do.
Electric Lighting Station	Leek U.D.C.	J. Taylor, Architect, Leek	do.
Water Supply Works	Settle U.D.C.	T. A. Foxcroft, Surveyor, Town Hall, Settle	May 2
Alterations to Haugh Shaw School	Halifax School Board	W. H. Oatley, 29, Union-street, Halifax	May 4
Works at Chapel, Castle-street, Luton	Manchester Corporation	J. B. Brown & Son, Architects, Luton	do.
Additions to Public Hall, Rusholme	Lanes C.C. and Preston & Co., R.D.C.	City Architect, Town Hall, Manchester	do.
Bridge Works, Blackford	Grimsby Corporation	Clerk, County Council Offices, Preston	do.
Shelters, Bandstand, &c., Grant-Thorold Park	Macclesfield R.D.C.	H. G. Whyatt, Civil Engineer, Town Hall-square, Grimsby	do.
Laying Water Mains, &c.	Southampton Corporation	J. Thorpe, King Edward-street, Macclesfield	do.
Electricity Supply Station Superstructure	Isle of Wight U.D.C.	J. A. Crowther, Engineer, Municipal Offices, Southampton	do.
*Formation of Roads and Sewers, Tottenham	Portsmouth Corporation	G. Traverser, Architect, 73, Moorgate-street, E.C.	do.
*Technical Institute and Free Library	The Committee	A. E. Smith, Architects, 145, Victoria-road North, Southsea	May 9
Additions to Literary Institute, Aylesbury	Bromley U.D.C.	P. Taylor, Architect, Aylesbury	do.
*Sewerage Works	do.	Council's Surveyor, Bromley, Kent	do.
*Turf Pavine Works	do.	do.	do.
*Supply of Road Materials	do.	do.	do.
*Alterations and Additions to Hospital, Winchmore Hill	Metropolitan Asylums Board	Office of Board, Embankment, E.C.	May 6
*Erecting Sanitary Annexes, Levensden Asylum	do.	do.	do.
*Laying Steel Pipes	Hammersmith Borough Council	Council's Surveyor, Town Hall, Hammersmith, W.	do.
*Wood Paving Works	do.	do.	do.
*Disposal of Clinker from Refuse Destructor	Fulham Borough Council	Borough Electrical Engineer, Townmead-road, Fulham	do.
*Erection of Schools	Acton School Board	C. Monson & Sons, Architects, Grosvenor House, Acton Vale, W.	May 7
*Painting, &c., Repairs to Tate Public Library	Laureth Borough Council	Borough Engineer, Lambeth Town Hall, S.E.	do.
Office at Waterworks, near Shawford	Southampton Corporation	W. Matthews, Engineer, Municipal Offices, Southampton	do.
Engine Room, Boiler House, &c.	Brillington Corporation	E. R. Matthews, Civil Engineer, Town Hall, Bridlington	May 9
*Conventicles, &c., Highbury Fields	London County Council	Architects' Department, 18, Pall Mall East, S.W.	May 12
*Boiler, Potting Shed, &c., Meath Gardens	do.	do.	do.
*Erection of Male and Female Blocks, &c., at Asylum	Down District Asylum Committee	Grime, Watt, & Tulloch, 77A, Victoria-street, Belfast	May 13
*Alterations to Barnet Workhouse	Barnet Union	White, Son, & Pili, High-street, Barnet	do.
*Orphanage Buildings, Walsall	R.A.D.B. Orphanage Fund	P. W. Mager, Hon. Architect, Aldridge, near Walsall	May 14
*Freshwater and Treated Main Sewerage Works	Isle of Wight U.D.C.	W. B. G. Bennett, Son, & Berry, Southampton	do.
*Two Lodges, Stables, and Loco. Sheds, &c.	Birmingham Corporation	J. Mansergh & Sons, 5, Victoria-street, S.W.	do.
*Supplying and Fixing Fire Hydrants, Main, and Pump	Metropolitan Asylums Board	Office of Board, Embankment, E.C.	May 19
*Land Rastery, Lincoln's Inn Fields, W.C.	Commissioners of H.M. Works	H.M. Office of Works, Storey's Gate, S.W.	do.
*Pulling Down & Re-erecting New Building, Oxford-st.	London County Council	Architects' Department, 19, Charing Cross-road, W.C.	May 26
Ten Houses, Grenville-street, Dukinfield	do.	A. Newton & Co., Solicitors, 23, Great Marlborough-street, W.	No date.
House, Heighington, Co. Durham	do.	George & Son, Architects, Old-square, Ashton-under-Lyne	do.
Hall, High-street, Neath	do.	J. Copeland, Post Office, Staindrop	do.
House, Alnwick	do.	Heberston & Co., Architects, 14, Pearl-street, Cardiff	do.
Additions to Hotel, Asken, Yorks	do.	O. Ravell, Junr., Architect, Alnwick	do.
Farm Buildings, &c., Baildon, Derbyshire	Messrs. Carter's Brewery Co.	Garside & Pennington, Architects, Ropergate House, Pontefract	do.
do.	Earl of Mansfield	W. Sugden & Son, Architects, Leek	do.

## PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*Officer to Teach Carpentry, &c., Poplar	London School Board	10 <i>l.</i> &c. per annum	April 28
*Borough Engineer and Surveyor	Stanford U.D.C.	20 <i>l.</i> &c. per annum	May 1
*Assistant Engineer, Buildings Department	Rancon Municipal	Rs. 100 per mensem	May 4
*Assistant Surveyor (Eastern District)	Wandsworth Borough Council	20 <i>l.</i> per annum	May 9
*Assistant Works Engineer	Colombo Municipal Council	4,000 rupees per annum	June 1
*Assistant Mechanical Engineer	do.	do.	do.

Those marked with an asterisk (\*) are advertised in this Number.

Competitions, iv.

Contracts, iv. vi. viii. x. &amp; xxi.

Public Appointments, xviii.



[See also next page.



ST. ALBANS.—For residence, Spencer Park, for Mr. H. W. Edwards. Mr. Percival C. Blow, architect, 7, London-road, St. Albans:—  
 W. Sharp ..... £1,154 10 0  
 F. Stanley ..... 1,130 0 0  
 Vail & Co. .... 1,143 15 0  
 Whibley & Jervis ..... 1,140 0 0  
 J. T. Bushell ..... 1,128 16 5  
 E. Dunham ..... 1,111 0 0

ST. ALBANS.—For residence, Kingsbury-road, for Herr Keller. Mr. Percival C. Blow, architect, 7, London-road, St. Albans:—  
 Whibley & Jervis ..... £753 10 0  
 J. T. Bushell ..... 749 12 0  
 E. Dunham ..... 695 0 0  
 F. Stanley ..... 675 0 0

ST. ALBANS.—For cottage for Miss Rowe, Sandridge-road. Mr. Percival C. Blow, architect, 7, London-road, St. Albans:—  
 J. T. Bushell ..... £275 0 0  
 Dumbleton ..... 247 10 0

ST. ALBANS.—For the erection of a detached residence, Clarence-road, St. Albans. Mr. S. Doddimeade Edmunds, architect and surveyor, 79, Victoria-street, St. Albans:—  
 Goodchild & Sons, St. Albans\* ..... £560

ST. ALBANS.—For the erection of proposed engineering works, The Camp, for Messrs. J. W. Flower & Co. Mr. S. Doddimeade Edmunds, architect and surveyor, 79, Victoria-street, St. Albans:—  
 Goodchild & Jervis ..... £2,420 0 0  
 Fry ..... £2,512 0 0  
 Boff Bros. .... 2,475 0 0

WATFORD.—For the erection of detached residence, Whippendale-road, Watford, for Mr. R. John. Mr. S. Doddimeade Edmunds, architect and surveyor, 79, Victoria-street, St. Albans:—  
 Henry Brown, Watford\* ..... £799

WIRRAL (Cheshire).—For the construction of the Fender Valley Outfall Sewer for the Rural District Council. Messrs. Beloe & Priest, C.E., 13, Harrington-street, Liverpool:—  
 Lee & Son ..... £53,600 0 0  
 J. Byrom ..... 51,107 0 0  
 J. & T. Binns ..... 41,813 11 0  
 Bennie ..... 40,682 19 6  
 Johnson & Son ..... 35,873 0 0  
 Graham & Sons ..... 35,231 0 0  
 Johnson & Langley ..... 34,951 12 5  
 Bower Bros. .... 34,698 0 0

WOOTTON.—For the erection of a private residence on Sea Cope Hill Estate, Wootton, Isle of Wight, for Mr. Thomas Boys. Mr. John I. Barton, architect, Ryde:—  
 Wheeler Brothers ..... £1,050 0 0  
 Please jun. & Co., Wootton\* ..... £1,018 10

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## PUBLISHER'S NOTICES.

THE INDEX (with TITLE-PAGE) for VOLUME LXXXIII. (July to December, 1902) was given as a supplement with the number for January 10th.

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\*Stamps must not be sent, but all sums should be remitted by Postal Order, payable to J. MORRIS, and addressed to the Publisher of "The Builder," Catherine-street, W.C.

Advertisements for the current week's issue are received up to THREE o'clock p.m. on THURSDAY, but "Classification" is impossible in the case of any which must reach the Office after HALF-FAST ONE p.m. on that day. Those intended for the Outside Wrapper should be in by TWELVE noon on WEDNESDAY.

ALTERATIONS IN STANDING ADVERTISEMENTS OR ORDERS TO DISCONTINUE same must reach the Office before TEN o'clock on WEDNESDAY MORNING.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, &c. left at the Office in reply to advertisements, and strongly recommends that of the latter COPIES ONLY should be sent.

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# The Builder.

VOL. LXXXIV.—No. 3745.

MAY 2 1903.

## ILLUSTRATIONS.

Victoria and Albert Museum, South Kensington..... Mr. Aston Webb, A.R.A., F.R.I.B.A., Architect.  
Royal School of Art Needlework, Exhibition-road..... Mr. F. B. Wade, F.R.I.B.A., Architect.  
Japanese Ornament..... Plate VI.

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### Architecture at the Royal Academy.



THE architectural room at the Academy is a curious mixture of a comparatively few drawings of important buildings and a miscellaneous collection of smaller

things, picturesque or not picturesque as the case may be. It will never be much more than that until the Academy awakes to a better perception of the meaning of architecture, and until there is a wider and more comprehensive view taken of the proper way of illustrating architecture in an exhibition. The Academy is essentially a painters' institution; the majority of the members know and care little about architecture; the present President is known to be indifferent to it. And the situation is rendered more unpromising from the fact that the selection is not in the hands of the right men. The two architects who are at present Associate members of the Academy really represent the most serious architectural work of the day more fully than any R.A.s; but, as Associates, they have no vote or influence in the matter. Of the five R.A. architects, the two who would probably have the widest sympathies are unfortunately incapacitated by ill health from taking an active part; and the three others are architects who, whatever their artistic merits in their own sphere, have never carried out a great public building, and probably have hardly the practical qualifications necessary for such a task. Consequently they judge of designs solely from a picturesque point of view; and last year we had the curious experience of seeing the works of architects who have gained the greatest competitions of recent years turned out of the show at the bidding of members who had either never attempted any such tasks, or had tried them and failed for want of power in practical planning. All this is the result of the predominating influence of painters in the Academy; they look at architecture solely

as a matter of picturesque detail, and do not realise that architecture consists in a conception of which plan is the basis. In Paris this is fully realised and all architecture is illustrated by plans, and plans on a large scale, and is not regarded from the merely pictorial point of view. As things at present stand there is no question that the A.R.A. architects are far more competent to manage the architectural section of the exhibition than the R.A.s; and if they were allowed to have a hand in the matter there would be more confidence on the part of exhibitors, and better and more representative exhibitions.

Models, to take them first, are two in number; we wish there were more. No. 1693 is a model of the principal entrance of Wallace Town Hall, by Messrs. Wallace & Gibson; we know not whether the identity of one architect's name with that of the place is anything more than a mere coincidence. The sculpture is by Mr. Fehr, and it is the sculpture that makes the value of the design, which otherwise presents only ordinary and well-worn classic details. The deep recess in the upper portion, behind the sculptured frontispiece of the central doorway, is however a good feature. There is plenty of life and vigour in the sculpture, which shows in its character and lines the influence of Stevens. The other model (1692) represents the corner of Mr. Belcher's Royal Friendly Society's building in Finsbury-square. It is not a very good subject for a separate model, for, as one may see from a glance at the view of the whole building on the adjacent wall (1452), the angle portion is too little salient in character and too closely connected with the remainder of the design to show very well as a separate model, in which aspect it wants force and unity. The cupola over the angle is the portion which shows best in the model; the general design of this portion, with its concave podium on each face and a lantern rising in the midst, is picturesque, but it would be the better for a little more simplicity of line and not so many small pedestals carrying nothing. The view of the whole building shows that it has a ground floor and mezzanine faced with granite, the remainder being stone; this

difference, which is important in the effect of the building, should have been in some way indicated in the model; indeed we do not know why there is so little attempt at colouring models to represent the actual effect of the material, which could easily be done; we have often seen it done in small models of houses and farm buildings, though the exhibitors of models of larger buildings, or portions of them, seem content with the half-and-half unreal effect of white plaster. Mr. Belcher has done better things than this design, which seems rather to want unity and concentration; in particular the colonnades half way up each front seem to want a motive, and not to belong to the rest. However, this is only said by comparison with better things by the same architect, who has accustomed us to expect much from him.

The centre position on one of the end walls is occupied by Mr. Aston Webb's perspective view and elevation of the new front of the South Kensington Museum (1489), of which the perspective view is published in our present issue. We are not entirely in sympathy with this terra-cotta architecture (for we presume this is mostly a terra-cotta fronted building); but it must be admitted that the older buildings at South Kensington gave the lead for this, and it is a style of building which seems almost to belong to the neighbourhood. The design as a whole is an example of breadth and dignity, and of the power which comes of symmetrical treatment in a large building. The central feature shows a reminiscence of Chiaravalle, treated on broader proportions and with a different termination from its original; a good example of the use which may be made of ancient examples as suggestions, without mere copying. Two plans are affixed to the drawing; we give one, on a rather larger scale, on another page. From its size and character, as well as its dignified architectural treatment, this is the leading exhibit of the year, representing a building which will be one of the most important additions to our rather inadequate list of national buildings, and one in which as much care has been given to the planning and arrangement as to the external design.

Two of the R.A. architects are repre-



sented in the centre of the side and of the other end wall. Mr. Bodley exhibits an exterior view of St. Mary's, Clumber (1574), his diploma work deposited on his election as an Academician, and an interior of a proposed new church at Leeds. The latter shows a Gothic nave of early Decorated type with painted wooden vault. The drawing of St. Mary's, Clumber, gives a view of a church of about the same imaginary date, a singularly harmonious composition with its large tower and spire, and a fine and artistic drawing; we presume by the architect, as it is a diploma work. Neither of the designs show anything to indicate that they were built in the twentieth century; they are imitative work, but they are perfect in their way; of St. Mary's, as shown in this drawing, it may be said that, if not genuine Medieval work, it is every bit as good—for those who think that the best of recommendations. If you copy, better perhaps copy a complete and consistent style than a mingled and more or less debased one; a consideration suggested on contemplating one of the drawings of the other R.A. exhibitor, Mr. Jackson's "New Buildings for Hertford College, Oxford" (1640), with its meaningless pilasters springing off corbels. These, and the mullioned windows between, are *genius loci*, no doubt; but can nothing better be done with modern Oxford buildings than this kind of stereotyping of old features? The drawing shows a bridge across the street, connecting we presume the old buildings with the new; we understand that there is some dispute with the city authorities (or is it with University authorities?) as to the permission of this innovation. We do not see why it should be objected to; it is a picturesque addition to the street and can do no one any harm that we know of; the treatment is pleasing enough, and some sculpture is well introduced on the centre of the face of the bridge, but one would have liked to have seen a better and more constructional-looking springing of the bridge from the building, instead of it looking as if it were merely butted against the wall with no adequate abutment: the effect produced on the eye is that it will push the wall in. The "Entrance to the Sedgwick Memorial Museum, Cambridge" (1643) we like better, though the materials here are only the *disiecta membra* of Late Classic ("debased Classic" we call it, but that is out of order now); the exterior staircase, with its bovine animals at the base of the ramp (of what are they symbolic?) is a picturesque feature, and the doorway, with its carved tympanum and flanking columns, looks well. The drawing is an excellent bit of pencil work, we presume by the architect, who is one of the few exhibitors who make their own drawings for the Academy.

Of other designs for public buildings which are exhibited, and which we may take in the order of hanging, Messrs. Lanchester, Stewart, and Rickards show a dignified design in pure classic style for the new Town Hall at South Shields (1443); a competition design we presume. There is nothing new here in the detail, except the treatment of the small cupola with the bell visible in the centre; but there seems to be a kind of traditional suitability in the classic style for a Town Hall; as Mr. Russell Sturgis observed recently, in an article in an American paper, it is pardonable that corporations should wish their new official building

"to look like a town hall," and it is certain that the classic style of architecture, from some association of ideas, has this kind of look—for a town hall for a large town at all events; one for a country town may suitably be treated in a more picturesque manner. This is a low-proportioned solid-looking building, in an architectural sense a one-storied building. The solidly treated masses of wall at each end and at each side of the centre make an effective contrast with the columnar portions of the façade. We regret that no plan is added, which should always be done. If the Academy would once make a rule of not hanging buildings without a plan we should soon see a wholesome change in this respect; but there seems on the contrary to be a kind of persuasion (rightly or wrongly) that the addition of a plan is prejudicial to the chance of a drawing being hung, as spoiling its pictorial effect. If this is so, nothing could be more absurd, seeing that plan is the very basis and beginning of architectural design—or should be. Mr. Gibbs, of the firm of Gibbs & Flockton of Sheffield, exhibits his or their design for University College, Sheffield (1445), a building erected round a quadrangle, with the hall in front, making the principal feature in the view. A square tower with an octagonal turret, and another octagonal turret in another portion of the composition, give a picturesque outline to a building in a very quiet collegiate Gothic style. A separate feature is rather happily made of the library, an octagon building standing separate, somewhat in chapter-house style, and approached by an arcaded passage. Altogether, a pleasing building. Mr. H. T. Hare, in the design for the "Municipal Buildings, Crewe" (1447) shows how ordinary classic materials may be used with vigour and effect; four massive engaged columns decorate the recessed centre portion, between which on the ground story are circular-headed door and windows with sculpture introduced in a fine bold manner over them. There is a unity and force of effect about this design which render it very satisfactory to the eye; it combines simplicity with boldness. No plan is given. It is still more unfortunate that no plan has been appended by Mr. Ricardo to his design the "Proposed Government Offices at Johannesburg" (1453), for the design is hardly comprehensible without them; it appears to be a double façade divided up internally into courtyards. One of the faces is treated very effectively and in a manner well suited to a hot climate, with deep recesses on each story, the lower one an arcade with large semicircular arches springing from short but deep piers standing buttress-wise at right angles to the building; the upper story is also arched in recesses, the middle one has a loggia with a small order of Ionic columns. The treatment of the whole is sternly plain, hardly an ornament being admitted, but it has distinct originality and character about it, and, if carried out, may probably influence Johannesburg architecture a good deal, which we should think requires influencing.

We come next, omitting one or two designs of no great value, on Mr. Aston Webb's large detail drawing of one bay of the Royal College of Science at South Kensington (1463), a model detail drawing of clear precise execution; more the sort of thing one generally finds at the Salon

than at the Academy. It shows a combination of stone classic details with brick filling, partly used in alternating bands with the stone work. Messrs. Lanchester, Stewart, & Rickards's "Town Hall, Deptford" (1485), is another building in good "Town Hall style," with a columned loggia below, and large windows above separated by long panels with sculpture decoration; a very satisfactory design. A semicircular bay on columns projects over the central entrance, breaking the otherwise square arrangement of the whole. The same firm also exhibit their "front of the Hull School of Art" (1491), illustrated in our issue of the 25th ult. Mr. Hare's "Municipal Buildings, Harrogate" (1499) does not interest us as much as his Crewe design; it is made up of old materials—windows alternately with angular and segmental pediments, and a plain tower in the rear with a well treated lantern stage; it is all very suitable but not altogether exciting, if we may so put it. Mr. Adshead's "Technical School and Free Library, Ramsgate" (1532) is a Georgian building shown in a charming coloured drawing bringing out the contrast of white stone and red brick, the stone being massed at the ground stories of the pavilions; sculptured decoration is well introduced.

Mr. Starmer Hack shows an interesting design for the Lahore Post Office; we are glad to see that London architects are beginning to get some footing in India and the Colonies, and it is certain that Anglo-Indian architecture wants improving very much; at present it is nearly all in the hands of the P. W. D. engineers, with results which are certainly not satisfactory in an artistic sentence. The Lahore Post Office, from the small block plan appended, appears to be, or to be intended to be, a building with a plan in the shape of the letter V, and this entrance façade forms the base of the V. It is in a style of somewhat Elizabethan type, but with cupolas of Oriental outline; a good deal of colour in different materials appears to be introduced, with an elaborate kind of strap ornament in the spandrels of the arcade. It is a pleasing and picturesque composition, and looks suitable to Indian climate and surroundings, while recalling European forms. We may conclude this notice by the mention of Mr. Mountford's large and finely executed tinted detail elevation of the main entrance to the new Sessions House, hung very high, but powerful enough in execution to be well seen; it shows the entrance and part of the order above, and is a good piece of sound classic work.

We will consider other classes of buildings illustrated on another occasion.

#### THE EDUCATION OF ENGINEERS.

IN considering the education of engineers, it is necessary to recognise the two main classes into which the profession is divided. There will always be men who undertake the design and supervision of complete and comprehensive works, whether large or small, and others who are concerned only in the manufacture and erection of machinery, appliances, and materials. In the first class we have men who are engaged upon the design of roads, railways, canals, harbours, waterworks, drainage systems, and similar



undertakings; and in the other we have those who invent, design, manufacture, and erect machinery, apparatus, and materials required for the execution of works designed by the first class. It would be tedious to enumerate all the branches into which the two main classes might be subdivided, and a little reflection will show that no one engineer can ever hope to become a universal expert in his profession. In certain respects, however, the knowledge possessed by all engineers should be coincident. The basis of all specialised engineering education should be a sound and sufficient knowledge of mathematics, drawing, mechanics, and chemistry, of the design of machines and structures, and of workshop and allied practice. Upon such a foundation, the young engineer may proceed to build up knowledge and experience of special character, and he may then hope to become not merely a specialist but one who will be able to deal confidently with incidental problems arising in the branch of engineering adopted by him. At the same time it is highly important that the training imparted should not be too academic in character. Many of our leading engineers have received practical workshop training, to which much of their subsequent success may be attributed. In the present day too many pupils get little more practical training than that afforded in the drawing office of a consulting engineer. The same sort of thing occurs in the case of architectural pupils, with the analogous result that when the necessity afterwards arises for employing certain materials, apparatus, and machinery, the manufacturing engineer is expected not only to sell what is required, but also to prepare designs for its application and to act in an educational capacity. The remedy is to be found in the improvement of existing educational methods, and an important step in this direction will probably result from the reading and discussion of a paper by Professor Dalby at the meeting of the Institution of Mechanical Engineers held last Friday.

At the present time there is no difficulty in obtaining theoretical scientific training of a high character, but the weak point is the difficulty of co-ordinating college with workshop education. Starting with the assumption that the training of an engineer should be partly in scientific principles and partly in workshop practice, Professor Dalby thought it a fit subject for discussion by the Institution, as to what course of training would be the best adapted for carrying the principle into effect, so that future engineers of this country should not be at a disadvantage in any respect in comparison with the engineers of other countries. As a basis for discussion, the author stated a few facts connected with the training of engineers in America, Germany, and Switzerland. Among the establishments mentioned by the author are the Massachusetts Institute of Technology, Cornell University, and Sibley College, in the United States; the Technical High School, Charlottenburg; and L'Ecole Polytechnique, Zurich. It is unnecessary to dwell in detail upon the courses of instruction provided at these institutions, as they all bear a general family resemblance to the courses in British technical colleges, and the differences could only be explained by the aid of comparative schedules. The remark may, however, be made that a feature in all of them is the manner in which they develop from a common scientific basis in the first

two years, into widely divergent and special branches in the remainder of the course. An admirable arrangement, both in the United States and on the Continent, is that many of the specialised lectures are given by men in actual practice, and who are not regular members of the teaching staff. Something is to be said in favour of the contention made by Professor Dalby that the best courses in this country do not permit time for the development of instruction into specialised branches of engineering, as it is thus developed abroad. Generally speaking, the American courses are more practical in character, and include more laboratory and handicraft training than is recommended in the German schools. The German or Swiss student ends his course at the age of twenty-three with a degree or diploma and no workshop training, beyond a year which is insisted upon as a preliminary to entry for some students at Charlottenburg. In America the student generally finds himself with a degree or diploma at the age of twenty-one, possessing what workshop knowledge he has picked up at the college. With these assets he is said by the author to have no difficulty in getting further training on actual works.

It is probably true that the American, German, and Swiss student starts his collegiate course with a better education on which to build than is the case with youths in this country, who often waste time at college in learning things they ought to have learned at school. Otherwise we are not sure that the foreign system of education is altogether alluring. Any one who wants a first-class workshop education can probably get it better in one of our large engineering establishments than in any technical laboratory. The great point is to establish a basis for co-operation between factories and colleges, and Mr. Yarrow, who took part in the discussion last week, referred to the adoption of what is termed the "sandwich" system in the apprenticeship rules recently made for his works. The total course of training extends over six years, and the idea is that the winter months should be devoted to college and the summer months to workshop practice. One serious objection to this scheme is its want of continuity, and it certainly appears to be desirable that theoretical study should accompany practical work day by day. Those gentlemen who spoke during the discussion did not entirely favour the suggestion of Mr. Yarrow. Professor Barr thought that a certain amount of workshop training might usefully precede a collegiate course, and he read letters from several eminent Scotch engineers disapproving of the sandwich system; and Mr. Allen, of Bedford, spoke of the assistance given to pupils in his works by the appointment of a technical demonstrator, who is in constant touch with the pupils, and who attends at a fixed time in the lecture-room to explain any difficulties arising out of the day's work. Mr. Aspinall, general manager of the Lancashire and Yorkshire Railway, gave some account of the technical schools in the company's works at Horwich, which are crowded every night by apprentices and workmen, and where the teaching staff consists of thoroughly trained engineers and others actually engaged in the management of different departments. Mr. Aspinall expressed the greatest possible confidence in the value of the tuition thus imparted, and had no doubt that equally valuable

educational facilities were afforded by other railway companies.

The examples here cited sufficiently indicate that useful work is already being done by the chiefs of large industrial concerns, but the great thing is that organised effort should be made. An important movement in this direction will probably be made without loss of time, as a resolution was passed at the meeting that a committee, consisting of the President, Mr. W. H. Maw, Sir William White, and Mr. Yarrow, should be appointed to deal with the question of engineering education, and we understand that the co-operation of other leading institutions will be invited. Another hopeful feature is to be found in the statement made by Sir Arthur Rücker, that he felt convinced that the London University would be only too pleased to have the opportunity of discussing matters with the proposed committee, and of making such arrangements as would best conduce to the benefit of students and the convenience of employers.

#### NOTES.

Hainault Forest.

The opposition of the Corporation of the City to the Bill which is being promoted

for the purpose of carrying out the purchase of a portion of Hainault Forest as an open space is very surprising; fortunately, however, it is not likely to prevent the Bill being carried through Parliament. Mr. Buxton has with praiseworthy public spirit negotiated the purchase of a large portion of this forest for a small price. The annual charge which the City would have to pay would only be 40*l.*, and there is evidently some motive not divulged which has caused this opposition. There can be no doubt that it is absolutely necessary that where tracts of open land in the neighbourhood of London can be obtained for public use this should be done. London must continue to grow outward, and when the builders have begun to purchase land it is generally too late for the public to step in; the future should be therefore safeguarded by the purchase of land so as to create permanent open spaces, if possible continuous, round greater London. Already in the northern suburbs land is being built over which a few years ago might have been purchased at a reasonable price and dedicated to the public use. We should like to see Wembley Park obtained as a public open space.

The Penryn Dispute in the Commons.

THE debate on Tuesday on the Penryn Quarries Dispute was a mere political engagement.

No new facts as to the dispute between Lord Penryn and his workmen came to light, and no fresh suggestions as to the settlement were made. It is still obvious that a more energetic President of the Board of Trade than Mr. Gerald Balfour would have made some attempt to end the conflict; but, of course, the Government supporters would not, being a political Party, do otherwise than support his action by their votes. The object of the Opposition was, no doubt, attained—namely, to show their sympathy with the workmen in this struggle, and also that the Government and their supporters were the friends rather of the employers than of the workmen. There can be no doubt that the Penryn dispute is as regards capital and labour an abnormal one; for the employer



is a nobleman with landed estates, and not an ordinary man of business. We know nothing of the financial results of the quarry, but it is highly probable that had the employer been an ordinary man of business he could not have afforded to carry on this long contest with his workmen.

Liabilities of  
House-owners  
for Street  
Improvements.

A MOST important decision, but one somewhat complicated to follow, has been given by Mr. Justice Wright, in the case of *The Mayor, &c., of Hampstead v. Gaunt*, on those sections of the Metropolis Management Act, 1855, and the amending statute of 1862, which have already been the subject of so much litigation. The defendant had become possessed, as owner of a certain house and premises in November, 1896. The Vestry had passed a resolution to pave the new street, on which those premises abutted, in July, 1886, and soon afterwards the work was completed. In 1896, soon after the defendant had obtained possession, they made a demand upon him for his proportion of the expenses they had thus incurred. Section 105 of the Act of 1855 provides that the "owners of houses forming the greater part of such new street" shall "on demand" pay the Vestry the estimated expenses of paving, &c. Section 77 of the amending Act extends this provision to the owners of land abutting on such a street, making the expenses recoverable either before or during the execution of the work, or after its completion, but contains no provision as to "demand." The defendant's contention was that under the earlier Act the demand could only be made on the owner of the premises who held them at the time the apportionment arose, and that under the amending Act the right of action was barred by lapse of time by virtue of the Statute of Limitations. The Court held that the two sections must now be read as one, and as a result that the provisions as to "demand" applied equally to owners of houses and to owners of land, and that the remedy provided by the amending Act of proceeding either summarily or by action was applicable also to both cases. The result of this finding is that the action was not barred by lapse of time, as the "demand" had been made within the statutory period, but we anticipate this question may at some time come before the Court of Appeal, as this interpretation of these sections savours rather of legislation, and, moreover, places an unexpected burden on the purchasers of property of which they may have had no notice at the time of purchase.

Ladders and the  
Workmen's Com-  
pensation Act.

CONSIDERABLE difficulty has been experienced in determining what on the face of it appears a comparatively simple question under the Workmen's Compensation Act—whether a ladder constitutes scaffolding so as to bring a building over 30 ft. in height within the operation of the statute. We commented on this question in the *Builder* for June 21, 1902, and on the authority of the case of *Marshall v. Rudeforth* considered it settled law that a ladder by itself was not scaffolding, being also strengthened in this opinion since both Lords Justices Stirling and Mathew had given expression to the view that *Wood v. Walsh*, a decision of the Court of Appeal to that effect, remained good law, despite the *dicta* in the

House of Lords in *Hoddinott v. Newton, Chambers*. The decision of the Court of Appeal, however, last week, in the case of *Elvin v. Woodward & Co.* (the *Builder*, ante p. 443) has again placed this question in doubt, as they have now held a pair of builder's steps, 8 ft. high, with a flat board on the top, to constitute "scaffolding." Lord Justice Stirling dissented again from this decision, and as the Court granted a stay of execution pending an appeal it is to be hoped a direct decision of the House of Lords will soon be obtained on a point which certainly ought no longer to be left in doubt.

Liability between  
Landlord and  
Tenant.

IN the case of *Lumby v. Faupel* the Lord Chief Justice had under consideration what words in a lease would suffice to charge a tenant with expenses recovered from the landlord by the Local Authorities in respect of paving a street. On March 22, 1902, we commented on this subject when the case of *Foulger v. Arding* was decided in the Court of Appeal, and we suggested a form of words which would suffice in all cases to place all such liabilities on the shoulders of tenants. In the lease in question the words were, "all rates, taxes, and assessments whatsoever, which now are, or during the said term shall be imposed or assessed upon the said premises, or on the landlord or tenant in respect thereof by authority of Parliament or otherwise." The Lord Chief Justice distinguished the case of *Foulger v. Arding*, and held that these words did not impose this liability on the tenant, and upon an examination of the case of *Foulger v. Arding* it is apparent the omission of the word "impositions" has led the Court to this conclusion. There are innumerable cases on this subject, and both the Court of Appeal and the Lord Chief Justice have commented on the unsatisfactory state of the law on the point, and seeing that these questions arise out of transactions between parties of everyday occurrence, some finality in the law is most earnestly to be desired. The words we suggested in our former note would have sufficed to impose this liability on the tenant without any question.

Proportions  
for  
Concrete.

A SOMEWHAT anomalous fact is that different engineers frequently attempt to arrive at similar results by the use of widely differing specifications for concrete, and it may often be the case that the more expensive mixtures possess smaller structural values than less costly mixtures. The following figures, deduced from the "Treatise on Masonry Construction," by Professor Ira O. Baker, are significant on the latter point:—

Proportions.	Structural Value.	Cost.
1 : 2 : 4	100	100
1 : 3 : 3	069	121
1 : 3 : 2	058	164

Similarly, a 1 : 3 : 6 concrete would indicate a structural value of 0.615, and a relative cost of 0.87. According to these calculations, it appears that money may be wasted with extremely undesirable results when the idea is that an increase of strength is being secured by the additional expenditure. An essential point in making concrete is admittedly to fill all voids in the agglomerate, but an excess of cement and sand should be avoided, beyond a small percentage. A convenient method of deter-

mining voids consists in first ascertaining the specific gravity of the material as a whole, including the voids. The percentage of space occupied by the particles can then be found by dividing the specific gravity of the mass, including the voids, by the specific gravity of the solid particles; the voids being represented by the difference between the whole volume and the space occupied by the solid particles. Knowing the percentage of voids, it is easy to calculate the volume of mortar required to flush a given volume of stone or other material. The composition and consistency of the mortar must be suitably settled for the work contemplated, and to ensure the requisite fluidity. Of course, the proportions of concrete must always be varied conformably with the nature of the required duty. For instance, while 1 : 6 : 12 might be a proper mixture for the bottom of a pond, it would be desirable to use 1 : 1 : 2 concrete for the surface of a footpath, or other work where great density and resistance to wear are essential.

A CORRESPONDENT writes to ask "whether coke enters into the chemical composition of Portland cement, or is merely present—if present at all—in the form of dross." The answer is that it does not enter into the chemical composition. Coke, slag, Kentish rag, and such like materials are occasionally found in Portland cement, and whilst some manufacturers of Portland cement hold that they improve the quality of the cement, the vast majority rightly think that they are adulterants. The Association of Cement Manufacturers, together with practically all influential engineers and architects, are strongly of opinion that the best Portland cement should not be adulterated with coke or any other material. The composition of the unadulterated cement is calcium oxide and silicate of alumina.

THE travelling public have cause for thankfulness at the decision arrived at by the

Police and Sanitary Committee of the House of Commons, following a similar decision of an ordinary Parliamentary Committee, to refuse the authorisation of schemes which involve a tramway crossing a railway line on the level. This appears to be a common arrangement in America, but we have had experience of the terrible disasters attendant on such schemes, and this can hardly be one of the methods championed by even the most ardent admirers of American railway management.

QUITE a ferment has been caused in Edinburgh, which has recently been reflected in the House of Commons, in discussions on the estimate for the drains of Holyrood Palace. The actual point of complaint made by many Members in the debate was that the Lord High Commissioner had gone to live during his brief stay in Edinburgh at an hotel, on the ground that the drains of Holyrood Palace rendered the place unfit for habitation at the time. Mr. Balfour's explanation seems to point to the fact that on recent investigation the sanitary condition of the Palace, as one might very well expect, was found to be bad, and therefore in view of the King's



approaching visit the drains had to be overhauled, and this overhauling took place just when the Lord High Commissioner had to pay his official visit to the capital of Scotland. There is no doubt that the sanitary condition of many of these old palaces and houses is not up to modern requirements, and if they are to be used as dwelling-places at all they should be properly and periodically inspected. At the same time it is somewhat amusing to think that so much heat could have been engendered in the House of Commons by this matter.

LAST week we mentioned an improved form of fire-ladder as deserving the attention of those responsible for the equipment of fire brigades. The present note refers to an apparatus which in many cases ought to supersede the time-honoured hose. It is termed a water-tower, and consists essentially of a truck, upon which is mounted a mast built of 3-in. steel tubing, braced so as to form a rigid frame arranged to swing on trunnions, and a telescopic tube which can be moved up and down through the centre of the mast. When fully extended, the top of the tube reaches the height of 76 ft., and water is delivered through a 2½-in. ball-jointed nozzle, which projects 2 ft. 6 in. above, giving a total elevation of 78 ft. 6 in. The tower is worked by means of a Pelton water-wheel on the body of the truck, and is raised or lowered by segmental worm gears fitted at the lower end of the mast. The tower can be used at an angle of 35 deg. on either side of the perpendicular, and it may be swung in either direction, and raised or lowered whilst in operation. Among the advantages of this ingenious contrivance, the following should be noted:—The entire front of a building, 90 ft. wide, can be completely covered; a stream of water can be thrown right through a building, and the direction of the stream may be changed by gearing connected with the vertical axis of the nozzle; and as the tower can be raised or lowered when in operation, the stream can be immediately moved from the top to the bottom of a building, or *vice versa*. When working to its full capacity the tower will deliver 4,500 gallons of water per minute, and it can be made ready to deliver water into a building within ninety seconds after connexion with the engines affording the necessary supplies. The tower thus briefly described has been employed with considerable success in San Francisco, and is attracting attention in other cities of the United States and Europe. We hope London is one of these.

THE Friday evening discourse last week at the Royal Institution was given by the Hon. R. J. Strutt, the subject chosen being "Some Recent Investigations on Electrical Conduction." He began by pointing out that the fact of the gold leaves of an electroscope remaining apart when charged proved that at low-potential differences air is practically a non-conductor. When, however, high voltages were applied to rarefied air, then its insulation broke down, and we got the extremely complex phenomenon of a gaseous discharge. The lecturer stated that air was not a perfect insulator. He showed a striking experiment to illustrate how easily it became a conductor.

When a Röntgen ray tube was started 30 ft. away from a charged electroscope the leaves rapidly collapsed, showing that the radiation had made the air a conductor. He also showed this effect by bringing a radium salt near the electroscope. It was very instructive to note that the radiations in the two cases caused all the air in the neighbourhood to become conducting. The mere presence of the flame of a Bunsen burner had also a similar effect. Mr. Strutt also proved experimentally that the air did not immediately lose its conducting properties when the radium salt was removed. He said that the conducting power of air is due to Becquerel rays, and gave the results of many experiments he had made to prove this. He found, for example, that platinum was about three times as radio-active as zinc, although its activity was many million times less than that of radium. The properties of mercury vapour offered a fruitful field for research, but the experimental difficulties in the way of determining the critical point of mercury—that is, the point at which the density of mercury was equal to the density of its vapour—were very formidable. Mercury was shown for the first time in public in a quartz vessel at a bright red heat.

ON Saturday last Professor Royal Institution Lectures. Langton Douglas gave the first of a short course of two Saturday afternoon lectures at the Royal Institution on "The Early Art of Siena." The lecture dealt entirely with the architectural history of Siena Cathedral, treated of in connexion with, and as the expression of, the character and circumstances of the Sienese people; for the lecturer started with the thesis that art was not to be considered as a phenomenon in itself, but as the outcome of social and political surroundings. Accordingly a good deal was said as to the disposition and habits of the Sienese, who were regarded by their neighbours in Italy as being of a somewhat peculiar and eccentric character, which was not without its manifestation in the parti-coloured architecture of their cathedral. Professor Douglas combated the view of some critics that Siena Cathedral was begun under Cistercian influence; this only came into operation at a later date, when the main design had been settled and to a great extent carried out. He showed reason for tracing in the building the combined influences of Lombard architecture, of the Pisan style, and of Burgundian architecture. The lecture was well illustrated by a number of lantern views, including a view of the still remaining portions of the projected transformation of the cathedral, when it was proposed to build a much larger cathedral on another axis, retaining the existing cathedral as the transept. This project came to an end before it had been carried very far, owing to the decline of the commercial and political prosperity of the city. Though not an architect, Professor Douglas has evidently studied the technical side of architecture. One could not but regret that there was not a larger audience, and especially more architects, to hear a lecture which was one of the best and most interesting on an architectural subject that we have listened to. The second and concluding lecture will be given this (Saturday) afternoon, at 3 p.m.

Fine Art Society. At the Gallery of the Fine Art Society there is an exhibition of figure pictures in oil, tempera, and water-colour "by A. Young Hunter and Mary Y. Hunter"—so the catalogue gives it, so that we do not know the relationship between the two artists. We must be impolite enough to confess that the value of the collection seems to us to lie more in the gentleman's work than the lady's. The best of hers is "The Breath and Bloom of the Year" (32), a picture of a pretty girl backed by a mass of flowers; but in other pictures her figures are very weak. Mr. Hunter shows in some of his paintings a great deal of humour in the depiction of character, and a great deal of executive ability in the painting of accessories. The best are "A Study" (6), merely a head; "Fine Feathers" (15); "The Philosopher of Ferney" (18)—not Voltaire, but a travelling pedlar; and "In Times of Peace" (36), a fine piece of colour made out of a very simple subject.

At Mr. Dunthorne's Gallery Mr. Dunthorne's in Vigo-street there is a collection of small water-colour drawings by Colonel R. Goff, who we presume is an amateur, which deal largely in architectural subjects—street scenes in foreign cities, &c., and treat them very well. There are also some studies of landscape effect which are interesting not only as compositions but as giving the character of the country in the neighbourhood of some celebrated cities, such as "Banks of the Arno, Florence" (outside of the city); "Misty Morning, Tuscany"; "Tuscan Study—January"; the last named showing an undulating country with a single low-roofed white house in the middle distance. Sketches like these are of interest because they are not often made; English sketchers in Italy generally devoting their attention to the cities rather than to their surroundings.

#### LIST OF CHURCHES IN ENGLAND THAT EXHIBIT TRACES OF SAXON BUILDING.

COMPILED BY PROFESSOR BALDWIN BROWN.

THE following list is a supplement to the series of papers on "The Statistics of Saxon Churches," which appeared in the *Builder* in the autumn of 1900. It contains in alphabetical order, according to counties, the names of the churches then noticed, together with those of some other examples to which the writer's attention has kindly been directed by readers of the previous papers.

The criteria of Saxon or non-Saxon are those previously discussed, and it may be repeated here that no weight has been attached to the mere appearance of antiquity in a building, nor to local or historical considerations which may point to a pre-Conquest date for particular examples. The inclusion of a church in the list has been determined almost entirely by the presence of definite features which are known to be Saxon. These features are in every case worth cataloguing, though in a few isolated instances they may represent a survival of Saxon forms in post-Conquest buildings. The percentage of such survivals is probably greatest in the East Anglian region, where the Saxon peculiarity of the double-splayed window appears in what must certainly be Norman work on the western side of the cloisters at Norwich Cathedral. So far as this region is concerned, the fact casts a doubt on the validity of this particular criterion, and wherever in this part of England we have only double-splayed windows to judge by, some uncertainty must attach to decisions. In other parts of the country reliance on special features of the kind seems thoroughly to be justified. Where they are present other considerations are almost always in favour of a Saxon ascription.



In the case of each example on the list, there is added a very brief indication of the amount of Saxon work to be seen in the building, and of any features of special interest which this work may offer. It is, of course, impossible in the few words used to give a complete inventory, and all that is proffered is some general guidance as to what a visitor may expect to find upon the site.

In most cases some indications have also been added as to probable date. These are of a general kind, and in many instances are necessarily tentative. The Saxon epoch may be divided conveniently into three periods: A, B, and C. A covers the time between the conversion of the Saxons and the beginning of the Danish inroads, or about 600 to 800 A.D.; B comprises the period of the Danish wars up to the time of the religious revival in the time of King Edgar, or 800 to about 950 A.D.; while C extends from 950 to the Norman Conquest in 1066. The letter A, B, or C, placed after the name of an example indicates the period to which in each case the example may most reasonably be ascribed, while in the case of period C, the small numerals 1 and 2 placed after the letter, as C<sup>1</sup>, C<sup>2</sup>, serve to show whether the example is more likely to belong to the last half of the tenth century or the middle of the eleventh.\*

The criteria of date relied on for this apportionment of examples among the periods were discussed in two papers in the *Builder* of September 7 and September 14, 1901, and the following brief summary is all that is here needed. The evidence on which certain churches or parts of churches are now generally accepted as of the first period is of different kinds. It attains to certainty in the case of the existing crypts at Ripon and Hexham, which are the work of Willrid, about 675 A.D., and it reaches varying degrees of probability in the following cases—St. Martin and St. Pancras, Canterbury, may be in part Romano-British, and in part of Augustine's time; the early foundations at the west end of Rochester Cathedral are ascribed to about 606 A.D., Lyvinge, the apsidal church c. 635. The old Saxon foundations at Peterborough may go back to the establishment of the Monastery about 660; those at Reculver to c. 670; Monkwearmouth and Jarrow to c. 675-680; Brixworth to c. 680. Escomb and Corbridge, for which no definite year can be suggested, and also Stone-by-Faversham may be of the same early period. St. Peter-on-the-Wall, near Bradwell, Essex, has many characteristics of the earliest period, but there are difficulties, into which there is not space to enter, that militate against its unreserved acceptance.

For the third, or C period, the criteria are more distinct. These are (1) cruciform plans of the Latin-cross type and western towers, and (2) the characteristic Saxon features of double-played windows, pilaster strips, and mid-wall shafts in openings in belfries, or at times in the walls of naves. The cruciform (Latin cross) plan belongs to advancing Romanesque, and we know that it was in use in England by 970, the date of the building on this scheme of the abbey church of Ramsey, in Huntingdonshire, while the Saxon western towers, and the characteristic features just enumerated, seem connected with similar structures and details which were coming into use in Germany at about the tenth century.

For the intermediate period, B, that of the Danish troubles, there is no definite criterion, but examples may be provisionally assigned to it, when (1) they lack the positive signs of antiquity of the churches of the first period, but (2) exhibit none of the characteristic marks of the later epoch above noted. It must accordingly be understood that ascription to the second period, indicated by the letter B in the list, merely means that there is nothing about the example which obliges us to place it after the middle of the tenth century. Long-and-short work, which does not occur in period A, may belong either to period B or C, but in some cases where an example on the list has nothing Saxon to show but long-and-short work, no indication of period has been given.

For the division of the third epoch into two sub-periods one reason is the appearance in some examples of such advanced Romanesque features as recessed arches, soffit and angle-

\* A three-fold division of period C is feasible, but the two-fold division indicated is sufficient for the present purpose.

shafts, and mouldings somewhat elaborately profiled. These are not likely to date earlier than about the reign of Edward the Confessor. Again, the numerous western towers with the characteristic Saxon belfry openings must in the main belong to the latest period, for the reason that some of the class, such as Hornby, near Bedale, Yorks, were obviously built in Norman times, and this adoption of Saxon features into the Norman building epoch would not have taken place had not these Saxon features been in familiar use at the time of the Conquest. All the above are marked C<sup>1</sup>.

On the other hand, certain examples have been placed in the first sub-period C<sup>1</sup>, partly because they show definite indications in the retention of older features, such as baluster shafts in the double openings, and partly because, though elaborate in workmanship, they do not exhibit the features of advanced Romanesque referred to above.

The adoption of this scheme of chronology has the advantage that it spreads the examples more evenly over the whole period than is the case when we accept a date in the seventh century for a few examples, and relegate all the rest to the time near the Norman Conquest. We know from records that there was both activity and ambition among church builders, alike in the seventh and eighth centuries and in the time of Edgar, and need not hesitate to ascribe to these periods buildings that seem to accord with them in architectural character. At the same time it must be repeated that this dating of individual examples is necessarily, in the existing state of our knowledge, more or less provisional. In every case, however, when a date has been assigned in the following list, some definite architectural facts have furnished a reason for the ascription.

#### Bedfordshire.

Bedford (St. Peter), C.—Axial tower, chancel. Clapham, C<sup>2</sup>.—Western tower.

Stevington, C<sup>1</sup>.—Western tower, wooden mid-wall slab in south window of tower.

#### Berkshire.

Wickham, C<sup>2</sup>.—Western tower, Roman shafts reused in belfry openings.

#### Buckinghamshire.

Wing, C<sup>1</sup>.—A basilican church, with crypt of advanced form under the presbytery, which ends with polygonal apse.

[Iver; the blocked windows here have an Early Norman rather than a Saxon character.]

#### Cambridgeshire.

Cambridge, St. Benet, C<sup>1</sup>.—Western tower, with balusters in belfry openings; fine tower arch.

Cambridge, St. Giles, C<sup>2</sup>.—Tower arch, preserved when church was rebuilt.

#### Cheshire.

No Saxon churches recognised. At Edisbury there is a fairly preserved Saxon entrenchment station of the year 914.

#### Cornwall.

[The church at Tintagel has some Saxon character in its masonry, but this is not pronounced enough for inclusion in the list.]

#### Cumberland.

No examples recognised.

#### Derbyshire.

Repton, C<sup>1</sup>.—Square-ended chancel and eastern end of nave with transeptal chapels; a columned crypt under the chancel showing two periods of Saxon work.

#### Devon.

Sidbury, C<sup>2</sup>.—A small crypt of late form under Norman chancel.

#### Dorset.

Sherborne, C.—Fragments of blocked doorway at a west end of present church. A relic of pre-Conquest bishop's church.

Wareham (St. Martin), C<sup>2</sup>.—Complete nave and chancel church, with later additions.

#### Durham.

Billingham, C<sup>2</sup>.—Western tower with perhaps fabric of nave.

Escomb, A.—Complete nave and chancel church, with characteristic openings and details.

Hart, B.—Fabric, with fragmentary details, of a possibly Early Saxon church.

Jarrow, A.—Present chancel. Baluster shafts, &c., from old church now destroyed.

Monkwearmouth, A.—Western porch and western end of nave are early. The tower raised on the porch is of the eleventh century. Interesting openings and details.

Norton, C<sup>2</sup>.—Cruciform church; central tower and transepts are Saxon.

Sockburn, B.—Fragments of nave.

#### Essex.

Colechester, Trinity Church, C.—Western tower. Greenstead, C<sup>2</sup>.—Nave of timber church, dating about 1020.

Hadstock, C<sup>2</sup>.—Fine Late Saxon nave, with double-played windows.

Great Hallingbury, C<sup>2</sup>.—Recessed chancel arch in Roman brick, with Saxon characteristics.

West Mersea, C<sup>2</sup>.—Double-played lights in western tower.

[St. Peter-on-the-Wall.—Perhaps a Saxon church of early date; now a barn; ended apsidally.]

#### Gloucestershire.

Bibury, C.—Fragments of chancel arch, with carved rood above; double played light in nave.

Coln Rogers, C<sup>2</sup>.—Nave and chancel; good details.

Daglingworth, C.—Parts of the fabric; a western division existed in the nave.

Deerhurst, St. Mary, B or C<sup>1</sup>.—Western tower, nave, ruined apse, transeptal chapels, with later aisles to nave; a monastic church; interesting examples.

Deerhurst Chapel, C<sup>2</sup>.—Nave and chancel of 1056.

Misderden, C.—North and south doorways.

#### Hampshire.

Boarhunt, C<sup>2</sup>.—Complete nave and chancel church; nave had western division.

Breamore, C<sup>2</sup>.—Large Saxon church practically complete; transept or transeptal chapel; incomplete central tower.

Corhampton, C<sup>1</sup>.—Nave and chancel church, good details.

Headbourn Worthy, C.—Nave and part of chancel; remains of carved rood over western door.

Hilton Ampner, C.—Fragments.

Little Simsbourne, C.—Fabric of nave.

Titchborne, C<sup>2</sup>.—Late Saxon chancel, with double-played lights and broad pilaster strips at corners.

Warblington, C.—Small Saxon tower with doorways on three faces 15 ft. from the ground, embedded in face of later church.

#### Hertfordshire.

Kilpeck.—The Norman church shows a fragment of long-and-short work on the north side.

#### Hertfordshire.

St. Alban's, St. Michael, B.—A Saxon nave<sup>3</sup> of c. 950, with internally-played lights; arcades to side aisles later.

#### Huntingdonshire.

#### Kent.

Canterbury, St. Martin, A.—Nave and chancel both Pre-Conquest, the latter, perhaps, Pre-Saxon.

Canterbury: St. Mildred, B.—the south wall of the nave and part of that of the chancel of a large church; massive quoins.

Canterbury: St. Pancras, A.—foundations of apsidal single-aisled church, with western porch and lateral chapels; Roman brick.

Dover: St. Mary-in-the-Castle, C<sup>1</sup>.—A complete cruciform church with central tower; fine example, much restored.

Lydd, C or B.—Relics of Saxon basilican church at the north-west corner of the present medieval edifice. A double-played window.

Lyvinge, A.—Foundations of apsidal church.

Reculver, A.—Portions of existing ruins belong to the apsidal basilican church of c. 670.

Rochester, A.—Early foundations (not now visible) at western end of the present cathedral.

Stone by Faversham, A.—Early masonry showing Roman technique in chancel of ruined church.

Swanscombe, C.—Western tower.

Whitfield, C<sup>1</sup>.—Nave and chancel of small Saxon church, with later additions.

#### Lancashire.

Heysham Church, C.—A Saxon west door; a north door, preserved apart.

Heysham Chapel, B.—Ruins of plain oblong oratory; a Saxon south door.

#### Leicestershire.

Birstall, C<sup>1</sup>.—Saxon chancel, with pierced wooden mid-wall shaft in north window.

Leicester, St. Nicholas, C.—Nave.

#### Lincolnshire.

Alkborough, C<sup>2</sup>.—Western tower.

Barholm, C<sup>2</sup>.—South door, with enrichment on jambs.

Barton-on-Humber, C<sup>1</sup>.—Tower and western adjunct; pilaster strip, baluster shafts, and other details. Tower formed originally the body of the church.

Bracebridge, C<sup>2</sup>.—Western tower, nave, with chancel arch.

Branston, C<sup>2</sup>.—Western tower with external arcading in advanced Romanesque style; west end of nave.

Broughton, C<sup>2</sup>.—Half-round stair turret; tower once the body of the church; good tower (formerly chancel) arch.

Little Bytham.—Fragment of long-and-short work.

Cabourn, C<sup>2</sup>.—Western tower.

Cleby, C<sup>2</sup>.—Western tower.

Coleby, C<sup>2</sup>.—Western tower.



Great Coringham, C<sup>2</sup>.—Western tower.  
 Cranwell.—Long-and-short quoins to nave.  
 Glientworth, C<sup>2</sup>.—Western tower.  
 Hainton, C<sup>2</sup>.—Western tower.  
 Great Hale, C<sup>2</sup>.—Western tower, turret stair in corner: good caps.  
 Hamstons, C<sup>2</sup>.—Western tower.  
 Harpswell, C<sup>2</sup>.—Western tower, proportions not Saxon.  
 Heapham, C<sup>2</sup>.—Western tower.  
 Holton-le-Clay, C<sup>2</sup>.—Western tower.  
 Hough-on-the-Hill, C.—Half-round turret; western tower, with early detail.  
 Lincoln, St. Benedict, C<sup>2</sup>.—Western tower.  
 " St. Mary-le-Wigford, C<sup>2</sup>.—Western tower.  
 " St. Peter-at-Gowts, C<sup>2</sup>.—Western tower, west end of nave.  
 Marton, C<sup>2</sup>.—Western tower.  
 Nettleton, C<sup>2</sup>.—Western tower.  
 Ropsley, C<sup>2</sup>.—Fabric of nave, long-and-short quoins.  
 Rothwell, C<sup>2</sup>.—Western tower, west end of nave.  
 Scartho, C<sup>2</sup>.—Western tower.  
 Skillington.—Long-and-short quoin to nave.  
 Springthorpe, C<sup>2</sup>.—Western tower.  
 Stowe, C<sup>2</sup> and C.—Saxon central tower, with tower arches (upper part destroyed); Saxon transepts, Norman nave and chancel. Probably about 1040; transepts perhaps earlier.  
 Stragglethorpe.—Door in western wall.  
 Thurbury, C.—Western tower, with long-and-short quoins.  
 Walth, C<sup>2</sup>.—Axial tower, now central.  
 Wilsford.—Long-and-short quoins to nave.  
 Winterton, C<sup>2</sup>.—Western tower.  
 Worlaby, C<sup>2</sup>.—Western tower.

#### Middlesex.

Kingsbury.—Long-and-short work in western quoins.

#### Monmouthshire.

[St. Woolos, Newport.—The plain structure that precedes the enriched Norman doorway of the fine Norman church is in all probability pre-Conquest, but it possesses in its present condition no characteristic marks. The openings are all modern.]

#### Norfolk.

Bessingham, C<sup>2</sup>.—Round western tower, with fabric of nave.  
 Coltishall, C.—Part of north wall of nave.  
 Dunham Magna, C<sup>2</sup>.—Saxon nave and axial tower between nave and (later) chancel; curious western door.  
 Houghton-on-the-Hill C.—Fabric of nave wooden, mid-wall slab.  
 Howe C<sup>2</sup>.—Round western tower.  
 East Lexham, C.—Round western tower, curious mid-wall slab with cross.  
 Newton C<sup>2</sup>.—Evidence of plan like Dunham.  
 Norwich, St. Julian, C<sup>2</sup>.—Round western tower.  
 " Cathedral Cloisters, C.—The double-splayed circular lights in the west wall are of Norman origin.  
 Rockland, All Saints, C<sup>2</sup>.—Nave quoins are in long-and-short work.  
 Scole.—Traces of long-and-short work.  
 Veynham, C<sup>2</sup>.—Tower originally over the chancel, strip-work externally.  
 Witton C<sup>2</sup>.—Round western tower with fabric of nave.

#### Northamptonshire.

Barnack C<sup>1</sup>.—Fine western tower with strip-work and carved details, sedile and aumbries in tower walls, fine tower arch, indications of west wall of Saxon nave.  
 Earls Barton, C<sup>1</sup>.—Fine Western tower with strip-work and details: baluster shafts in belfry openings and windows.  
 Brigstock, C<sup>1</sup>.—Half-round stair turret, western tower, fabric of nave: characteristic openings.  
 Erixworth, A and C<sup>1</sup>.—Large early basilican church with polygonal apse; interesting features of plan, original aisles lost, later Saxon western tower with half round stair turret.  
 Geddington, C.—Traces of arcading in strip-work on north wall of nave.  
 Greens Norton.—Fabric of nave with long and short quoins, great height of walls.  
 Pattishall, C<sup>2</sup>.—Fabric of nave, chancel arch.  
 Peterborough, A.—Foundations under present tower of eastern end of large early church, apparently of the T-form which appears in early churches of Gaul.  
 Stowe-nine-churches, C<sup>1</sup>.—Tower arch.  
 Wittering, C<sup>2</sup>.—Nave and chancel church with later additions; good chancel arch.

#### Northumberland.

Bolam, C<sup>2</sup>.—Western tower, corbel caps.  
 Bywell, St. Andrew, C<sup>2</sup>.—Western tower.  
 Corbridge, A.—Western tower over earlier porch, nave, fine archway from porch to nave.  
 Heddon-on-the-Wall.—Surviving long-and-short quoin to nave.  
 Hexham, A.—Crypt of church built by Wilfrid about 675, closely resembling the crypt at Ripon.  
 Lindisfarne.—Portions of side walls of chancel and foundations of apse appear to be remains of the pre-Norman church.  
 Ovingham, C<sup>2</sup>.—Western tower.  
 Warden, C<sup>2</sup>.—Western tower, Roman worked stones as imposts of tower arch.

Whittingham, C<sup>2</sup>.—Long-and-short quoins to western tower.

#### Nottinghamshire.

Carlton-in-Lindrick, C<sup>2</sup>.—Tower arch and possibly parts of fabric.

#### Oxfordshire.

Caversham, C.—Western tower.  
 Langford, C<sup>2</sup>.—Axial tower with Saxon features, keyhole opening in mid-wall slab.  
 Northleigh, C<sup>2</sup>.—Axial tower.  
 Oxford, Cathedral, B or C.—Traces of triapsidal eastern end of early church.  
 Oxford, St. Michael, C<sup>1</sup>.—Western tower with double played loops and double belfrey openings with baluster shafts.

#### Rutland.

Market Overton, C.—Characteristic tower arch.

#### Shropshire.

Barrow, C<sup>2</sup>.—Saxon chancel.  
 Clec, St. Margaret, C<sup>2</sup>.—Herring-bone facing in north wall of chancel similar to that in Saxon church at Diddlebury.  
 Diddlebury, C<sup>2</sup>.—North wall of nave with characteristic openings; herring-bone facing in the interior.  
 Stanton Lacy, C.—North wall of nave and north transept, good pilaster strips.  
 Wroxeter, B or C.—Part of north wall of nave with flat-headed window and horizontal string course; adjacent parts Norman.

#### Somerset.

No surviving examples.

#### Staffordshire.

No examples recognised.

#### Suffolk.

Barham.—Traces of long-and-short work.  
 Claydon.—Fabric of nave, long-and-short quoins.  
 Darsham.—North door of Saxon character.  
 Debenham, C<sup>2</sup>.—Western tower with pre-Conquest detail.  
 Gosbeck.—Long-and-short quoins to nave.  
 Hemington.—Fragments of long-and-short work.  
 Herringfleet, C<sup>2</sup>.—Round western tower with Saxon detail.  
 Surray.  
 Godalming.—Traces of Saxon work almost obliterated, north door of early style.  
 Guildford, C.—Axial tower with pilaster strips embedded in later additions.  
 Stoke d'Abernon, B or C.—South wall of nave retains Saxon indications.

#### Sussex.

Arlington, C<sup>1</sup>.—A fine Saxon nave and perhaps chancel, with later additions.  
 Bishopstone, B.—The best existing Saxon south porch. Sundial. Western end of nave also Saxon.  
 Bolney.—Enriched archivolt to south door. Main fabric perhaps Saxon.  
 St. Botolph, C<sup>2</sup>.—Chancel arch of advanced style, similar to Saxon tower arch at Sompington.  
 Bosham, C<sup>2</sup>.—Complete Saxon church with western tower, nave, and chancel (extended later). Fine chancel arch.  
 Clayton, C<sup>2</sup>.—Chancel arch of Late Saxon type.  
 West Hamnett.—Chancel. Chancel arch, now modernised, had Saxon character.  
 Lewes, St. John sub Castro.—Enriched doorway at south-east of church, a surviving fragment.  
 Singleton, C.—Double splayed lights in western tower.  
 Sompington, C<sup>2</sup>.—Western tower, with original termination, by German "Helm." Corbel caps in belfry openings. Enriched tower arch of late style.  
 Stopham, C<sup>2</sup>.—Enriched north and south doors; possibly other parts of the fabric.  
 Woolbeding, C.—Pilaster strips on wall of nave.  
 Worth, C.—Complete cruciform church without tower; fine chancel arch.

#### Warwickshire.

Wootton Wawen, C.—Tower apparently intended to be central; Saxon arched openings on all the four faces.

#### Westmorland.

No examples.

#### Wiltshire.

Avebury, B.—Saxon nave with windows in two tiers.  
 Bradford-on-Avon, C<sup>1</sup>.—Complete (restored) small nave and chancel church with lateral porch; narrow openings, external arcading.  
 Bremhill.—Long-and-short work at quoins of nave.  
 Britford, C<sup>1</sup>.—Nave, with north and south openings to former transeptal chapels; interesting details.  
 North Burcombe.—Long-and-short quoins east of chancel.  
 [Netheravon.—The plan and arrangement of the western tower appear to belong to the Pre-Conquest period, but the work looks Norman rather than Saxon.]  
 Somerset Keynes, B.—A characteristic narrow doorway, with enrichment, in north wall of nave.

#### Worcestershire.

No examples recognised.

#### Yorkshire.

Appleton-le-Street, C<sup>2</sup>.—Western tower.  
 Bardsey, B.—Western tower, perhaps raised on earlier porch, western end of nave; work of early character.  
 Hackness.—Chancel arch may be Pre-Conquest.  
 [Hornby (by Bedale).—An example of a western tower with double belfry openings and mid-wall shafts that is certainly of Norman times.]  
 Kirk Hammerton, C<sup>2</sup>.—Western tower, nave, and chancel with later additions; characteristic doorways and chancel arch.  
 Kirby Hill, C<sup>2</sup>.—Parts of main fabric.  
 Kirkdale, C<sup>2</sup>.—Nave of c. 1060, with later additions; good western door; interesting sun-dial with inscriptions over south door.  
 Laughton-en-le-Morthen, C.—North door and portion of walling at north-west corner of present church.  
 [Leathly, western tower, with doorway in place of tower arch. No special pre-Conquest signs.]  
 Ledsham, C<sup>2</sup>.—Large and fairly complete late Saxon church.  
 Middleton-by-Pickering, C<sup>2</sup>.—Western tower.  
 Monk Fryton, C<sup>2</sup>.—Western tower.  
 Ripon, A.—Crypt of Wilfrid similar to that at Hexham.  
 Skipwith, C.—Interesting western tower with good tower arch and openings; curious recess in ringing-chamber.  
 Wharram-le-Street, C<sup>2</sup>.—Western tower.  
 York, St. Mary Bishophill Junior, C<sup>2</sup>.—Western tower with recessed tower arch.

### THE DECORATIVE ART OF THE JAPANESE.—V.

#### TEMPLE DECORATION.—GRILLES OR LATTICE WORK.

I COME now to a very highly-developed form of decoration, which is used to a large extent in the Temples, but which I have not found a trace of elsewhere.\* It is not symbolic; it has little affinity with what has already been considered; it would hardly be called Japanese at first sight, though, perhaps, in their individuality of conception and ingenuity of construction, they possess two at least of the characteristics of Japanese art.

We must imagine that the decorative artist while not abandoning his brush and chisel, has taken saw and plane as his chief tools; further, that his imagination is exercised by the decoration, not of a flat surface, but of an open space, such a space, for example, as the sides of a temple gateway, which in form are not unlike an English lych-gate. He fills it, not with solid woodwork, but with a lattice or grille. So, too, the walls which surround the courtyards are solid only for about half their height; the upper half is usually constructed of latticework panels. I propose to devote this article to this work which I believe to be unique, the principles on which it is constructed have, so far as I know, not yet been studied; and I speak without other book of reference than Owen Jones's "Grammar of Ornament," though open work both in wood and stone was often resorted to in the architecture of other countries, nothing approaching these Japanese lattices is to be found elsewhere.

Occasionally the designs overlap those of the diapers, as was, indeed, inevitable, for they are to a certain extent open-work diapers; but as a whole the designs stand apart, having no relation to any other form of ornament. The new conditions of work seem to have inspired the artists to invent a decoration, not merely specially adapted to, but solely to be used in this instance.

Now, the artist-designer, having taken to himself his saw and plane, has given himself new elements out of which to weave new devices. One of the most important of these is thickness of wood, which, being visible to the beholder, enable him to produce effects of lightness and solidity, and these effects are heightened by the use of pieces of varying thickness in the same design. But even more important still is the substitution of actual bright light (or of course darkness) for the spaces of his diapers, and it is this feature which has given the essential character to the lattice-work. For the sunlight passing through

\* This may be accounted for by the fact that the domestic architecture of the Japanese is so rigidly simple that it would not admit of the use of such decoration; and as there were few if any public buildings, there was practically no place where it could be used. The modern buildings of Japan, alas, are hardly suitable for the perpetuation of the old style of ornamentation.



the interstices of the woodwork emphasises the shape of the space, attracts the eye to it much more than to the surrounding design which makes the shape, and to a much greater extent than the shadows of high-relief carving, and this the Japanese artist, with that love of everything novel which characterises the nation, has seized upon. In many cases the woodwork is entirely subordinated to the space-shapes, the eye taking these to be the design.

I shall endeavour to treat the designs on the method of continuous growth or natural development. This "natural order" may not be true in art as it is in Nature. A most complicated design may, of course, be invented straight off without being developed from more simple ones; but, at least, when a "natural order" is discoverable it is useful to note it, if only for the purposes of study.

The simple designs are merely of crossed lines, of which I have selected an effective example (fig. 1, see lithograph). I need hardly say that it is not made on the crossed lath principle of garden trellis-work: the pieces of wood join in the same plane, and do not overlap. Even with poor materials the common-place repetition produced by cross lines at regular intervals is avoided. From this we pass at once into the region of ingenious and obscure construction. The design given in fig. 2, made of crossed zigzag lines, is very prevalent all over Japan. I think (though I speak under correction) that it is purely Japanese. It will already have been noticed among some of the diaper designs given in previous articles, but I have postponed consideration of it because it has always seemed to me to be essentially the product of lattice-work. Whether the lighting suggested it, or whether it was worked out merely in playful fancy, I cannot determine, but the effect is very striking and somewhat curious. There is, moreover, something rather irritating to the eye in having to follow these troublesome zigzaggy lines: it does not travel smoothly along them, it is perpetually being jolted off the rails, so to speak; it cannot even follow one line continuously and peacefully, but is perpetually being attracted by some notch in the crossing line. Undoubtedly the design sets up cerebral fidgets and inevitable reflections as to how on earth it was drawn; and if there be among my readers an architect who is vexed by a troublesome apprentice, let me suggest that he should be set to work to draw the design in fig. 2—that in fig. 3 would, indeed, be better—worrying out the method of construction for himself. He will give no more trouble. But the eye curiously enough does not follow the lines at all, but rests on the spaces that lie between—which are in the figure A. The lines seem, indeed, so subordinate to the figure that you might imagine the order of things reversed, the spaces filled by solid wood, and the woodwork left blank. The predominance of the space effect on the brain I may further illustrate by my own impressions, for whenever I look at the design I always feel so



thankful that after all the spaces are not all anyhow, but fall regularly and properly under one another. The space-shape is, perhaps, somewhat bizarre; but it is not displeasing, and it is a recognised device in Japanese heraldry. In the crest of one family it appears in twin form, as at B.

Fig. 3 is an amplification of the same design with triple zigzags, most dazzling and bewildering, and again rather irritating to the eye until it comes to rest on the figures of two spaces. The constructive principle is, of course, the fall of one unit at each break in the line, and as this occurs in both lines at the same horizontal, the spaces fall naturally one under the other. It should be noted that the fall in fig. 2 is of one-fourth of the breadth of the line, but in fig. 3 it is of its whole breadth. The design will also be seen with two zigzags, and in one of the illustrations in Article 2 (*Builder*, February 7) there are no less than seven. Many variations are also produced by change of angle and wood thickness; beautiful effects are also made by using two colours, or gold and colour; one for the surface of the wood and the other

for its thickness. A combination very often seen is a gold lattice with its under surfaces crimson. A glance at the illustrations will show how the wood-thickness comes into play, and becomes an elemental feature of the design itself. It takes the place, of course, of shadow in relief work, but the effect is heightened by the light coming through the other parts of the design, sharpening the edges of the wood. When very thick wood is used the effect is massive in the extreme.

The designing of an ornament for the lozenge-spaces would naturally be the next step on our artist's upward path of excellence; and also naturally he would have recourse to some of the standard four-petalled floral forms. That one especially with the indented petal, seeming, indeed, to have been created on purpose for the zigzag lozenge, so beautifully does it fit into the crannies of it. This is shown in fig. 4, which is a very massive piece of work, the wood being 1½ in. thick. The ornament and bars are flush; it is gold throughout and exceedingly handsome. Fig. 5 is also a simple lattice of triple bars, made of thick wood and gold throughout; the lozenges are filled with a deeply-cut ornamental figure. In spite of the thick wood used, this lattice is lighter in effect than fig. 4, which in some measure, I think, is due to the more acute angle of intersection of the bars. In fig. 6 a light effect is produced with thick bars, which are black, the gracefully fantastic ornaments being in gold. I need hardly say that these designs are typical of a hundred others; it is, indeed, literally true to say that, although my studies extended through all the many buildings and courtyards of the Nikko and Shiba Temples, I never came across the same design twice.

The next idea which came, I imagine, into the fertile brain of our artist, after he had been satisfied with the results of ornamenting the lozenge, was the modification of the lozenge form, regarding the iteration of it, quite apart from its ornamentation, as wearisome. He has done this, as we see in fig. 7, by the introduction of small slips of wood glued on to the inner surfaces of the cross-bars. They practically obliterate the lozenge, and produce a novel internal shape instead, which may have been suggested by a curvilinear modification of the zigzag lozenge. By making these slips of thinner wood than the bars the effect of shadow is introduced in addition to that of wood-thickness. Colour effect also is not ignored, for the inner pattern is gold and the bars black. The slips are centred on the bars, so that the same effect is seen on both sides.

This method of producing subordinate designs by internal slips of wood was not likely to rest with such a simple, though graceful, result. More elaborate designs would inevitably have quickly followed, a typical example of which is given in fig. 8.

Apart from the intrinsic evidence, I think that the great number which are found of this class also shows that it is not very high up in the scale of development. They require no very great ingenuity to invent, and poor examples are frequently seen in Parsee temples. It is, in fact, the common form of the lattice we are about to examine. The one figured has merit, and considerable grace of curve, and is one of the best I have seen. The bars are black, and the inner ornament grey, the effect being heightened by a background of crimson, which emphasises the space-shape.

The course of development continues clearly traced. Right angles, though frequently used, are not in highest favour in Japan. The favourite angle of grace is somewhere about 30 deg. from the horizontal line, now rather more, now slightly less. In fig. 8 it will have been noticed that all the internal wood-slips are of the same shape. At first when the angle of inclination of the bars was lessened it was not unnatural that the slips should still be of the same shape; and inevitable for the idea which the designer had in his mind is to produce a space-shape which shall be pleasant in its iteration, and not monotonous to the lozenge, or bizarre, and troublesome like the zigzag lozenge. The shape of the slips in fig. 9 is based on the same main form as those in fig. 8; and the resultant space-shape is also the same form but elongated horizontally. But the eye cannot fail at once to detect a curious lack of symmetry in the arrangement of the internal slips of wood. This exists also in fig. 7, but as their shape is not pronounced it is not very noticeable. But with an ornate design like that in fig. 9

this unsymmetry becomes very marked. You see at once that the pattern does not match somewhere; face to face the slips are even, but back to back they are all askew. What has happened is that in order to make the central design uniform the pieces have been glued on right-side-up and up-side down alternately. This design is in grey with black bars.

Now, I think that both figs. 8 and 9 show what great importance the artist attached to his internal or space-shape. The actual lattice with its scroll-ornament is certainly graceful, but it seems to be an adjunct rather than a principal. It seems to be the result rather than the cause of the very graceful space-figure which impresses itself, from the background either of crimson or bright sunshine on the retina. It strikes the eye with as much force as the solid ornament in fig. 6; and this, as I have already indicated, is the keynote of a very large class of lattice work. Fig. 10 is another design of this class; the inner work being of very bold scrolls; they are gold inserted in a heavy black zig-zag frame.

Yet another stage in development. I do not know if "optical effect" expresses exactly the difference produced by a lattice and that by a diaper, but I think it indicates what I want to convey. Now, if you examine figs. 7, 8, 9, and 10 you will see that there is something else which has not yet been noted beyond the ornamented bars and the space-shape. Although the woodwork seems to vanish in the overpowering effect of the space, yet the eye sometimes does ignore the space-shapes, and rests on the woodwork in another way altogether. It constructs a solid design in the woodwork at the junction of the bars, which is composed of the four crossing sides from four contiguous lozenges with their ornaments. Although it does not force itself prominently forward, the eye can readily detect it making a central ornament to a large lozenge made up of four smaller ones. It is in the form of a highly ornate St. Andrew's cross, the larger but secondary pattern which exists in all lattice work. These designs in rectilinear arrangement work out side by side, but in diagonal arrangement each figure borrows one limb from each of its neighbours. In fig. 11 this secondary figure becomes the chief figure, and thus marks this stage of development. The inner design is worked out on four lattice squares (for a reason to be presently explained this class is always rectilinear), and it will be seen that the borrowing process just alluded to is discarded, the foliated cross-designs being arranged independently both in horizontal and diagonal arrangement. In this class the wood design predominates over the space-shape. It was coloured blue, with black bars, with the thickness both of slips and bars red. Fig. 12 is another very striking example of this class; it was painted entirely of that vivid oxide green which is one of the most prevalent colours in the temple; the boldness of its curves requiring no adventitious aid to enhance their beauty, the shadow lines very slight, as the slips are nearly flush with the bars.

An optical effect is the origin of the next development. If you look carefully at fig. 11, you will notice a secondary solid design, another cross-form composed of the limbs of the main design used inversely; this form also arranged itself independently, both horizontally and diagonally; and then, curiously enough—so manifold are the optical effects produced by their lattice work—a space form suddenly predominates, also composed of four lattice spaces; the St. Andrew's cross made by the diagonals of a square. So this optical effect is utilised in the next development. The secondary solid design, instead of depending for its limbs on the main design, becomes itself an independent primary design, and, as shown in fig. 13, there are now two foliated cross-forms coming alternately in diagonal arrangement, but each having a horizontal line of its own. The bars are of thick wood, with thin slips for the designs, giving deep shadow effects; the two designs, as might be expected, are emphasised by different colours; they are of dark-blue and vivid green; the lattice bars are gold, and all the wood thicknesses red. The result is effective in the extreme.

With fig. 14 we come to the last stage of the developing process as it appears to my eyes. Two things about it are noticeable at the first glance: the adoption of the angle of grace, and a reversion to the predominance of the space-shape, a second glance showing two different sets of space-shapes. The second



effect is the result of the first. The space-shapes seem to have been lost sight of in figs. 11, 12, and 13, except as already indicated; but there will be seen to be two sets, subordinate, as I have already pointed out, to the wood-work, not having been, as in other cases, specially designed; they are the results merely of the woodwork. I must ask the reader to remember the peculiar want of symmetry in the arrangement of the internal slips, which was noticed in fig. 9 and 10, and which was caused by the departure from the right-angled arrangement of the lattice-bars. The same wood-slip was used throughout the design, but it had to be inverted in order to get the same space-shape in each lozenge. Now in fig. 14 that second glance which revealed two different sets of space-shapes will have revealed also two different sets of wood-slips. In the natural order of arrangement, fig. 14 might have been placed after fig. 10; but I think it should come after figs. 11, 12, and 13, because in those figures the double set of space-shapes, which is the characteristic feature of fig. 14, was first developed. The lack of symmetry in the pairs of wood ornaments in figs. 9 and 10 in the back-to-back arrangement is avoided in fig. 14 by a modification of the design of the wood slip; the two being made as symmetrical as possible by varying the curve lengths of each of its parts. Symmetry was, of course, not obtainable, for one is worked in an angle of 60 deg., the other in an angle of 30 deg.; thus the length of the stem in the second form is manifestly shorter than that in the first; but the two combined make a leaf-like form which is symmetrical in appearance though not in actual drawing. The lattice is, like so many others, in grey with black bars.

This exhausts the process of development, and indeed it is difficult to see how it can go further. I add, however, a few designs which are noteworthy, some of which lie outside the natural order which has been adopted for the purposes of study.

Fig. 15 is of the same order as fig. 13, except that the same design is used throughout for the inner ornaments. Each row is, however, coloured differently, the alteration being intensely bright blue and vivid oxide green. (This does not sound attractive to Western eyes, but there is a mysterious affinity between these colours in Japan which makes them harmonise.) The lattice bars are reduced to a minimum of breadth, and are also bright blue. The design is singularly effective, the artist having abandoned pure line ornament for his inner slips in favour of the quatrefoil. The structural or drawing principle of this design is worth noticing, partly because it is so simple and partly also because in it East and West meet in a most unexpected manner.

In fig. 16 there is a central design repeated in horizontal and diagonal lines. But the conception is much more elaborately worked out, and both wood design and space designs are merged in the general effect, which is that of a net of interlaced lacquer lines.

Figs. 17 and 18 are in another style, but do not require special notice, except as to their colouring. In fig. 17 the lattice bars are black and very massive; the circles are deep blue, and the floral ornament light blue, with red wood thicknesses throughout. In fig. 18 the circles are gold and the ornament crimson, picked out with pink. Fig. 19 is an elaborate chainwork design, which, though exceedingly clever, I do not put in the first rank, though the triple central ornament is worth noticing: this is in blue and red, alternating in other sections of the design with green and red. The chainwork is gold. The last, fig. 20, comes from the panel of an elaborate gateway. The design in the hexagons is somewhat weak, but they do not force themselves on the notice, the eye being attracted more by the general effect of massive red lacquer network which is a setting for the crest of the Tokugawa Shoguns which form the central ornament.

F. T. P.

PORTSMOUTH MASTER BUILDERS.—The annual dinner of the Portsmouth Master Builders' Association was held at the "Sussex" Hotel, recently, the President, Mr. W. W. Evans, in the chair. The municipal toast was submitted by Mr. Crockerell. The mayor replied. The toast of the evening was entrusted to Sir John Baker, who alluded to the inevitable antiquity of the craft, which had proved itself to be one of the noblest in the world's history. The Chairman responded. He said the master builders had not sought combination as a weapon to fight the men, but to secure unanimity of action, avoid disastrous strikes, and promote amicable settlements.

#### THE NEW GALLERY.

THE exhibition at the New Gallery can hardly be said to be a very strong one, but it contains some very interesting pictures, among which may be counted foremost the three landscapes by Mr. Watts. Of these, "The Two Paths" (88) and "The End of the Day" (92) are small landscapes singularly rich in colour and in a very grand style. The large landscape on the opposite wall, "Green Summer" (139), hardly answers to its title; it is not agreeable in colour, and its colour is not the green of summer; as a composition, however, it is fine; the eye is led up by the tall tree which rises above the rest into a fine sky, and there is a great style about the whole. Mr. Watt's figure subject (if it can be called so), "The Sower of the Systems" (89) is one of the allegorical pictures to which he has been rather too much given of late years; as a combination of colour it is fine, but it is difficult to make anything out of it in regard to form except some drapery and two wings; where the head of the figure has gone one cannot make out.

Of the other pictures (portraits excepted) in which figures form the principal element there can hardly be said to be any of the first importance. Mr. Walter Crane has a large decorative composition entitled "The Fates" (4), which appears from its texture to be an experiment with Mr. Raffaelli's new colours; it is a very pleasing composition pictorially, but as a conception of the Fates it is far too anecdotal in feeling. Mr. John Collier has a clever and graceful picture of "Mignon" (4), executing a dance blindfold among eggs placed on the floor. Mr. Spencer Watson's "The Nymph" (210), a nude figure reclining among rich silks which partially hide her, is a good and conscientious study quite devoid of sentiment. Mr. Boughton's "Doubts and Fears" (220) is not open to this criticism; it is a very graceful figure of a young girl about to bathe, and hesitating on account of the sounds caused by two swans, which are visible to the spectator but not to her; an old and well-worn painter's subject, but treated in a new manner, and justified by the real grace and prettiness of the figure. Mr. Austen Brown's large picture "A Peasant Idyll" (284) looks more like an inlay in various coloured woods than a painting; as colour it is interesting, but the profile face of the woman looks as if it was cut out of a flat substance. Mr. Austen Brown is a painter who begun by a great promise of originality shown in some fine works; but both this and his picture of last year at the same gallery are mistakes, the present one especially, and are disappointing to those who noted the promise of his former works. Mr. Wetherbee should be included among the painters of figure subjects, for though the figure may occupy but a small proportion of the canvas in comparison with the landscape, it is always the centre and the prevalent element of the picture. In "A Wave from the Dawn" (10) he gives us one of those ideal nude figures which seem to express the spirit of the landscape, or in this instance the sea; in the foreground is a wave just about to break, on the crest of which rides a joyous nymph, while behind her is seen the light of dawn on the horizon; there is a combination of genuine freshness of effect with poetic conception which gives a great charm to the whole. "A Strayed Princess" (264) is a landscape where we are on a high down overlooking a dark sea; the single figure is seated with her back to the spectator looking over the sea; here again the figure, though it occupies but a small portion of the scene, is the real element of interest in the picture.

Among the portraits there are several fine works, though perhaps none of quite the first order. Mr. Shannon's full length of "The Baroness de Meyer" (19) is a portrait that is very decorative and even one may say architectural in style and composition; the lady stands erect in the centre of the picture, making a vertical line, opposed by two strongly marked horizontal bands of ornament, in two materials, which cross the top of the picture behind her; the whole composition making the general form of a T; rather formal perhaps, but not without its effect. Mr. Collier's "Miss Joyce Collier" (196) is a composition of an opposite class, in which all the lines are curves; the lady, seated sideways to the spectator, reclines in a long rocking chair; a very graceful portrait and a highly finished and firmly painted head. Mr. Lavery's "Spring" (263)

may count among the portraits, as it practically is one; this is one of the large sketches in thin colouring in which Mr. Lavery excels; it represents a young lady in white, depicted with a charming ease and grace of manner, and holding a large branch of hawthorne blossom. M. Boldini's scare-crow portrait of Mr. Whistler (271) represents at its strongest (we will not say "best") the particular talent of this Italian-French artist, whose chief aim appears to be to make a sensation with a portrait, by a kind of over-acted intensity of realism and energy, combined generally speaking with very harsh texture and inharmonious colour, all which qualities are here present in *extremis*. We cannot understand the favour with which this picture seems to have been received in the Press; its cleverness we do not deny, but it is cleverness of a vulgar type, having little in it of real art. Sir Geo. Reid's portraits of men are as good solid work as they always are, but we rather sympathise with the critic who asked whether this talented painter might not spend his gifts better than by painting so many stolid and uninteresting looking people. A portrait head of the late Mr. Bentley the architect, by M. l'Hopital, should be noticed in these columns on account of its subject; it is not remarkable as a painting.

Among the landscapes there is a good deal to be looked at, some of the best being among the smaller and less conspicuous works. The New Gallery is generally more or less the scene of experiments in landscape effect. Thus in the North Room we have Mr. Peppercorn's "Evening" (193), a coast scene in which landscape-painting seems to have been reduced to its least materialised form; the dark foreground, the dark coast line opposite, and the water, are all almost absolutely without detail; they represent the elements of the scene only; and yet the sentiment of the scene seems to be complete, though we should not like all landscape-painting to be stripped down to this level, nor can one avoid the reflection that to leave out so much is making the art rather easy. Mr. Coutts Michie, in "Autumn Shadows" (209) gives a charming landscape sketch, in which detail is almost as much at a discount as in No. 193, but there is a fine and delicate feeling for colour in it. Mr. Thorne Waite's "At the Foot of the Downs" (239), with the downs in a silvery haze of distance, is a refined landscape partaking more of the character of water-colour than oil. We do not quite make out in what Mr. Adrian Stokes is aiming at in his "Mountain Meadows" (94); it is a work not in his usual style, and rather hard and cut-out in the middle distance; the foreground is brilliantly painted, but it is not quite as satisfying a picture as we are accustomed to from this artist. Mr. Withers's "A Breton Mill" (95), just over it, is a powerful work in the rather loaded style which he has adopted. Mr. East's "The Miller's Meadow" (114), one of the larger landscapes, though a very pleasing picture, is on the other hand deficient in power, and somehow does not impress one as real, although it belongs to the type of realistic landscape art. Among the smaller landscapes which are worth attention for their special quality are Mr. Wyllie's "The Edge of the Marsh" (127), Mr. Hill's "A Passing Shower" (109), Mr. Padgett's "The Marshes, Winchester" (47) and Mr. Draper's gloomy little picture "Burley Lawn, New Forest" (90), which has a character of its own.

Of the sculpture there is really little that is worth special comment. Mr. Taubmann's small-scale group of "Paolo and Francesca," which we think we have seen before, is an original conception. Among the miscellaneous exhibits are two decorative panels "St. Cecilia" (439) and a subject from Spenser (451), the one by Mr. F. Marriot, the other by Messrs. F. and P. Marriot; these are executed in an inlay of gesso and mother-of-pearl, and are effective and cleverly designed and executed. There are some good exhibits among the jewellery, a form of art which gets more attention here than at the Academy. The Rane of Sarawak sends some good work in case 462, especially the necklace numbered 5; Mr. and Mrs. Arthur Gaskin and Mr. H. Wilson each exhibit cases of jewellery in which there is much to admire. Among other silversmiths' work in the Central Hall we may praise also Mr. Derwent Wood's small silver mess trophy for the 20th Hussars—an in *memoriam* work, very pleasing in composition, and Mr. A. Fisher's triptych in enamel, set in chiselled



brass inlaid with silver," in which, as the subjects are concerned with St. Patrick, the Celtic form of metal ornament which this artist seems to prefer is in this case appropriate. The case of "Works by Nelson and Edith Dawson," consisting principally of caskets in silver and enamel work, is well worth attention, and is in fact one of the best exhibits in the Gallery. Among these we may specially mention the long box-like casket (471) presented to the King by Reading College, and that presented to Earl Roberts by the inhabitants of Cape Colony and Cape Town (479). This latter, we learn from the catalogue, was the prize design in a competition thrown open to the colony, and gained by Miss Edith Struben, whose design Mr. and Mrs. Dawson carried out. This casket is distinguished by flowing lines, but still in a severe and restrained style; and these two works certainly offer a refreshing contrast to the tawdry and pretentious shop designs which are still too commonly characteristic of caskets for official addresses, though one is glad to see signs at last of a disposition to employ artists to make these things—a disposition which is likely, we may hope, to extend farther. We may notice also in the same case the casket with the title "Spring-time," with panels adorned by enamel foliage.

Though our brief review of the contents of the New Gallery thus winds up with a notice of some works which are quite admirable in their own way, one cannot but feel that, taking the exhibition as a whole, the great days of the New Gallery are over. The sculpture there indeed, was seldom of importance, but in the days of Burne-Jones people could see among the pictures what they could see nowhere else; and, whether or not we join with the most devout worshippers of Burne-Jones's art (as in fact we do not), we must admit that he has had no successor at the New Gallery.

#### LETTER FROM PARIS.

THE Fêtes of the Centenary of the Académie Française at the Villa Medici at Rome, took place on the 18th ult., and were brilliantly attended. The ceremony of opening the fêtes took place in the afternoon in the presence of the King and Queen of Italy, M. Chaumié, the French Minister of Public Instruction, and a number of members of the Institut of old winners of the Prix de Rome. Of the founding of the French School at Rome a hundred years ago, commemorated by the recent fêtes, it may be interesting to recall with a few particulars. The official teaching of architecture was commenced in 1671, the year of the foundation in France of the Académie Royale d'Architecture. The regulations concerning the Académie and the official teaching were promulgated in 1717 by statutes and letters patent delivered by the Regent Duc d'Orléans. The rules for the admission of students to the School were at that time sufficiently simple: the intending student was required to know how to read and write, be acquainted with the four rules of mathematics, possess a free hand in architectural sketching, know a little of figure drawing, a little geometry, and to be a Catholic. Three years later the Prix de Rome was instituted, and until 1728 Antoine Desgodets was the Professor of Architecture, and the courses comprised the study of the orders of Architecture, the construction of domes, churches, and palaces, the decoration of buildings, and the measuring of buildings. The Revolution of 1793 had the effect of suppressing the Académies for a time, but they were re-established in 1796 under the title of Institut National, to become later on in 1807 the Ecole Impériale et Spéciale des Beaux-Arts. Since that time the programme of the school teaching has often been modified and usefully enlarged without, however, admitting the introduction of a sufficiently practical or scientific teaching. The Prix de Rome has always been the supreme goal and reward of the industrious and talented French student.

The Villa Medici became the property of the French Government in May, 1803. This fine palace was built in 1540 by Annibale Lippi for the Cardinal Montepulciano; the building is one of the finest and most harmonious specimens of Italian Renaissance in the precincts of the city. The library is decorated with the busts of the various directors of the Villa, and contains a fine statue of Louis XIV. The studios for the students are placed in the gardens, and consist of small isolated

pavilions arranged so as to facilitate as much as possible the studies of the young artists. The gardens are considered to be amongst the finest at Rome. Since 1803 there have been thirteen Directors of the Académie Française at Rome: M.M. Suvée, painter; Paris, architect; Lethière, Thévenin, Guérin, Horace Vernet, Ingres, Alaux, Schnetz, Robert-Fleury, Cabat, Hébert, all painters, and the present director, M. Eugène Guillaume, sculptor. The first director, the painter Suvée, was the first to carry off the Grand Prix de Rome in 1771, and was received at the Académie Royale in 1780. He was a warm partisan of Classic art, and became an adversary of the painter David, who was all-powerful as dictator of the arts during the Revolutionary period. Suvée was condemned as a suspect, was imprisoned at St. Lazare, and was to have been guillotined on the very day on which the fall of Robespierre broke up the Revolution. He was appointed Director of the Académie Française at Rome, and entered on his appointment there in 1801 at the Palais de Nevers, the building then possessed by the Académie. The great desire of Suvée was to exchange this palace against that of Monte Pincio, called the Palais Medici, which he esteemed to be far more fit for the establishment of the French Académie, and he realised this end in 1805 by an exchange of the Nevers palace for that of the Medici. He died at the latter place in 1807. The present director, M. Eugène Guillaume, sculptor, carried off the Prix de Rome in 1845. His work has had a tendency towards more modern and rational teaching, whilst respecting the old traditions of the school, and his influence has had a considerable effect on the teaching of architecture.

The duration of the studies of a winner of the Prix de Rome at the Villa is four years, and during this time he is supposed to give his full attention to his special art; the architects have so to arrange their studies as to be able during their fourth year to produce satisfactory drawings of their ideas for the restoration of some of the ancient classic monuments, and show their technical abilities. The student is at liberty to pursue his studies by means of journeys in Italy and Greece. The Prix de Rome student is entitled to living rooms at the Villa, and a monthly sum of about 121. for living purposes at or outside the Villa. A sum for incidental expenses, amounting to 121., is given him for each of the first two years, and 321. for the third year, for the journey through Greece. A sum of 481. is retained on his scholarship by the administration, to be given up to him at the end of the fourth year if he has fulfilled the conditions concerning his sending in satisfactory drawings of the restoration of ancient monuments.

The British Embassy building, where the King will take up his quarters in Paris, is, as is well known, a fine hôtel in the Faubourg St. Honoré, near the Palace of the Elysée, with a garden extending to the Champs Elysées and along the Avenue Gabriel. It is a historic mansion, built from the designs of Mazin, "Ingénieur du Roi," for the Duc de Charost. It was here that Franklin, then Ambassador of the United States, fitted up the first lightning-conductor which was known in France; an innovation which inspired Turgot with a Latin verse—

"Eripuit cælo fulmen, sceptrumque tyrannis."

Under the First Empire the Hôtel de Charost became the Hôtel Borghese, and was occupied by Pauline Bonaparte, Princess Borghese, the sister of Napoléon. It was in 1850 that the English Government acquired the place for the Embassy. The decoration of the interior is chiefly Louis XVI., with a certain amount of Empire style; nearly all the furniture and a very large quantity of magnificent bronzes are of pure Empire style. The ground floor, besides the large entrance and vestibule, and the grand staircase, with its fine decorative balustrade, consists of a series of three large salons, contained in the central portion, with wings comprising a ground floor only, containing on the right a magnificent ballroom and the throneroom, and to the left a very large state dining-room. All these rooms look out on the gardens at the back of the building. On the first floor, besides the suites devoted to the Ambassador and his private offices, is a suite of three large salons, plainly decorated, and a dining-room. The state bedroom, which will be occupied by the King, and which was occupied by the

late Queen when she visited Paris about fifty years ago, adjoins this suite. The bedroom is entirely furnished in the Empire style, and the fine lofty room has been renovated, and additions made of new fittings in the style of the Empire. The state bed is a very fine object of pure Empire style, and is the original Borghese bed decorated with the ornaments well-known to this style. The Director of the Grand Meuble Français, M. Locoquet, has been kind enough to lend a number of superb pieces of furniture and objects of art of the Empire epoch, some splendid silken hangings of the same style for the windows and bed, together with a magnificent Gobelins tapestry, which occupies the whole of one side of the large room. The valuable Empire bronze lustre which hangs from the centre of the room, together with the furniture as now arranged, forms a bedchamber unique in regal magnificence. The official architect to the Embassy is Mr. Arthur Vye-Parminier, an English architect established at Paris.

Measures have been taken to prevent the Royal and Presidential procession from being incommode, on its return from the review at Vincennes on the 2nd, by the work for the metropolitan railway, the hoardings for which at present occupy a great part of the Place de l'Opéra. The works below ground are being pushed actively forward. In the process of the work they have laid bare the roadway of the ancient Rue Bassé du Rempart. The Place de l'Opéra will contain five entrances and five exits to and from the railway, and twenty-four covered passages at six different levels, for giving access to the different lines and platforms underground.

The works at the Bourse are being pushed on by M. Cavel, the architect. The colonnade of the two new wings, to right and left, is terminated. It is hoped that the whole exterior portion of these annexes will be completed towards the end of October, and we shall then have, after the removal of the scaffolding, an idea of the general effect of the building as enlarged. The interior arrangements will however still occupy a long time, and it is not expected that the building will be ready for occupation before the end of 1904.

The Government, on its part, is occupied with the enlargement of two educational establishments which have long been too limited for their purpose—the Palace of the Trocadero and Jardin des Plantes. In the first, the galleries devoted to the museum of comparative architecture and to the Khmer museum are to be enlarged considerably by the addition of the glazed galleries looking on the park, which have not been utilised since the great Exhibition. In the Jardin des Plantes it is proposed to effect a complete transformation of the menagerie, and to create, in the centre of the gardens, a large zoological establishment, including a winter garden with a circular pavilion for the animals. M. Blavette, the architect commissioned by the Government to carry out the work, has been requested to make a study of the principal similar establishments in other countries before presenting his scheme, the cost of which is estimated at a million and a half of francs.

The exhibition of Mahomedan art at the Musée des Arts Décoratifs has now been open to the public for some days. It contains collections of glass, enamels, ceramic ware, and metal work, of great value, besides books, bindings, and textiles. Part of the objects are lent by the Union Centrale, the others are from private collections. All are in such an excellent state of preservation as to render this a great opportunity for study.

A minute analysis of the now too-celebrated tiara of Saitapharnes has led M. Clermont-Ganneau to the conclusion that it is a spurious work. According to him, the lower circle of the tiara, which contains the *motifs* taken from Scythian life, is a complete forgery. The second circle, decorated with antique subjects, has probably been made by the Russian sculptor Rouchoumosski, after an antique fragment; and the third circle offers significant traces of working up. The Russian artist, who has come to Paris, is however to give some technical evidence under the eye of M. Clermont-Ganneau, which will enable the latter to formulate a definite and final opinion.

The municipal authorities are preparing a scheme for the re-organisation of the Paris museums, which will be submitted to the General Municipal Council during its next session. Among these establishments the Hôtel Lauzun is the only one which has not



as yet received its proper utilisation. It is proposed to form there a museum of furniture of the seventeenth and eighteenth centuries. As the financial resources of the Council will not permit of the immediate purchase of the very costly genuine articles necessary to such a restoration, the Hôtel Lauzun will for the present be treated as a kind of adjunct to the engravings department of the Carnavalet Museum, where at present a mass of interesting engravings are buried and unknown for want of space to exhibit them.

The Ecole des Beaux-Arts will shortly be enriched by a collection of mouldings from Classic fragments found in the excavations carried out by the French School at Athens.

The Académie Française has awarded the Prix Gobert, which is the highest prize it has to offer, to M. Pierre de Nolhac, the distinguished Curator of the Château de Versailles, in recognition of his fine work, "La Création de Versailles."

A Society, the programme of which had been drawn up by the late M. Eugene Mintz, Curator of the Ecole des Beaux-Arts, has been formed, under the title of "Société Internationale des Etudes Iconographiques." It proposes to do for Christian, Mediæval, and Renaissance antiquity, that which has already been done for Classic antiquity: that is to say, to establish a repertoire of illustrations in painting, drawing, engraving, sculpture, of works of piety, of history, poetry, romance, and writings of all kinds, and to promote the formation of a "thesaurus iconographicus" carried out on the system adopted by Bartsch in his "Peinture Graveur"; also to publish an illustrated periodical or bulletin. The Secretary General of the Society is M. de Mandach, of Oberhofen, Lake of Thun.

We have to record the death of M. Achille Hermant, a well-known City architect of Paris, who carried out, among other works, the Caserne in the Rue Mouffetard, and the Maison de Repression at Nanterre, to which the *Builder* at the time devoted a special article. M. Hermant, who was one of the most active members of the Société Centrale, was a pupil of Blouet. He obtained a medal of the first class at the Great Exhibition of 1878, and a gold medal in that of 1889. His son, M. Jacques Hermant, is the architect of the new Caserne in the Boulevard Henri IV.

We have to announce also the death, at the age of 86, of M. L. Prosper, the painter, a former pupil of Delaroche. He produced a considerable amount of work in the domain of decorative painting. We may mention especially twenty-four compositions for the church of St. Madeleine at Rouen, and the decoration of a chapel in the church at Dourdan.

#### VENTILATION OF SEWERS AND DRAINS.\*

THE views expressed in this short paper are based entirely upon experience gained in a modern residential suburban district, having a majority of its sewers constructed with small stoneware pipes, and where the residents are naturally very sensitive in regard to matters interfering with the amenities of their existence. . . The question as to whether the ventilation of sewers is necessary or not is often argued, and as sewer air at a considerable majority of times travels with the current of sewage, the outfall of each system of sewers appears to be the proper place for extracting it. This means, however, a danger of the sewers becoming full of foul air, which is liable to be forced into the house drains, and great difficulty must be caused in storm time by the want of proper ventilation. One or two towns which have provided no ventilation to sewers have afterwards rectified this want, notably Dundee, the sewerage scheme of which town had no provision for ventilation, which has, however, since been provided by surface ventilation, owing, the author is informed, to bad smells being complained of—at the rear of houses, he presumes—and the system adopted gives considerably greater satisfaction. Though mechanical means of ventilating sewers are not generally successful, it will be both interesting and valuable to have the results of a practical trial of the method recently designed, of drawing fresh air through properly designed

openings, through the sewers, by means of a fan, and discharging the sewer air at suitable points.

More attention appears to be given in many cases to the methods of the ventilation of sewers by elaborate and expensive means, to prevent complaints, than to means for modifying to a considerable extent the causes which render such methods necessary. That these causes can be almost eliminated in many pipe sewers, which are well laid, with good gradients, is capable of practical demonstration, providing such sewers have their air currents disconnected from sewers from which the causes of the foul air are not easily removable; and it is not reasonable that foul air from a particular sewer should be permitted to spread throughout the system of sewers. Those sewers with a reasonable amount of sewage running through them, may, with good flushing and periodical inspection and cleansing, be kept in such a condition that surface ventilation may be adopted, improving further the conditions of such sewers, without vitiating the atmosphere so as to be a nuisance or a danger. For such sewers further ventilating arrangements are unnecessary, and there seems to be no system of ventilation which has so many practical advantages. It is also efficient at nearly all times, and it is rare indeed that observations can be taken in a sewer so dealt with without finding that some ventilation is proceeding, and in storm time such ventilation is particularly valuable, as it relieves the air pressure more effectually than any other system.

Care in designing the sewers so that there shall be the least possible amount of disturbance to the flow in the sewer, at the junctions with other sewers, and the entire avoidance of splashing, is of importance, in preventing nuisance at the surface ventilators.

Some sewers, belonging to a system, in which a large quantity of sewer gas is evolved in consequence of insufficient flow, or to a large area of the inner periphery of the sewer becoming coated with slime, by the rise and fall of the sewage, which cannot be readily prevented, however well constructed such sewers may be, create too much nuisance if ventilated by surface ventilation only. The alternative method to surface ventilation most generally adopted is the closing of the surface grids and the erection of high ventilating shafts, which take the smells further away and relieve air pressure to some extent; but in storm time they do not do so sufficiently, and, further, the most active means of ventilation in the summer months, caused by the variation in the flow of the sewage itself, is rendered almost inoperative.

There is always a great difficulty, especially in suburban districts, in obtaining assent to the erection of large ventilating shafts against buildings from the sewer, and shafts erected against the kerbstone, if many in number, are both unsightly and obtrusive. The author has found that a judicious combination of surface and shaft ventilation has been the best solution of these difficulties, the shaft, as far as possible, being placed at junctions of sewers and the lower ends of gradients and other suitable points, and the surface ventilators at higher points, in order to act as inlets with the shafts acting as outlets; and though there are no general laws regulating the currents of air in sewers, they being subject to so many influences, they are found to act in that manner, generally speaking, there being more movement in the air at the top of the shafts to induce an upward current, while the surface ventilation is the readiest means for the admission of fresh air. At times, of course, they act in a directly contrary manner; yet, if there are sufficient of both ventilators, there are, as a rule, not many complaints, while the sewer gets satisfactorily ventilated. The deodorising of the sewer air at particular manholes has been tried by the author, and when a strong disinfectant was used, complaints were made as much about the smell from them as from the sewer, and some of the devices for that purpose appear to retard ventilation. Good gas-lamp ventilators are undoubtedly useful for fixing at isolated points where it is difficult or undesirable to erect a shaft.

The abolition of the intercepting-trap on house drains would be of the greatest and most necessary assistance to the ventilation of sewers, and would keep the sewage quite fresh instead of being fouled by continual half-decomposed discharges from private

drains. Its abolition would, however, only be warranted upon thoroughly well constructed and otherwise amply well ventilated sewers, owing to the difficulty of discharging foul sewer air at a safe point at the rear of most houses, in consequence of the position of windows and chimneys, but, in any case, until the laws are altered upon this matter, the intercepting trap has to be reckoned with. The author's . . . conclusions point to the fact that with small sewers, instead of elaborate and expensive arrangements for the removal of foul air from them without nuisance, the cost is more satisfactorily spent in doing away with the necessity of such arrangements by reconstructing bad foul sewers and in improved methods of cleansing and flushing sewers, and thus enabling simple ventilation to be adopted.

#### ARCHITECTURAL SOCIETIES.

**SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS.**—The annual meeting of the Sheffield Society of Architects and Surveyors was held on the 23rd ult. in the Lecture Hall of the Literary and Philosophical Society, Leopold-street, Mr. T. Winder in the chair. Messrs. R. Wilson and F. A. Winder were elected Associates of the Society. The annual Report of the Council was presented, showing a membership of 109. After recounting the work of the past winter session, it was stated that Mr. Holmes's lecture on "Local Taxation," and Mr. R. E. Leader's lecture on "Architects and Surveyors of the Past," had been printed for the use of the members and others. With regard to the draft building-by-laws, which had been reported upon last year, no further action had as yet been taken by the Corporation. The Report also referred to the proposed competition for the Corporation's building scheme at Wincobank, and regretted that the conditions issued by the Health Committee were not satisfactory. The question of architectural education at the School of Art and Sheffield University College was also reported upon, and satisfaction was expressed that provision would be made in these public institutions for that purpose. The Report concluded with a reference to the fact that three of the members, Messrs. E. M. Gibbs, T. Swaffield Brown, and W. C. Fenton (hon. Secretary) were appointed managers of the School of Art in connexion with the new Education Committee. A ballot was taken, and the following gentlemen were elected:—President, Mr. T. Winder; Vice-President, Mr. E. Holmes; Treasurer, Mr. F. Fowler; hon. Secretary, Mr. W. C. Fenton. Council:—Fellows: Messrs. P. Marshall, J. Smith, H. L. Paterson, R. W. Fowler, W. J. Hale, J. R. Wigfull, and J. B. Mitchell Withers. Associates: Messrs. G. B. Flockton, C. M. Hadfield, and C. F. Innocent. The conditions proposed by the Health Committee in connexion with the Wincobank housing scheme competition were discussed at considerable length, and the following resolution was unanimously agreed to, viz.:—"Inasmuch as the conditions of competition for artisans' dwellings at Wincobank require a partnership between architects and builders, which is unprecedented and undesirable in the interests of all parties, this meeting recommends members of this Society to unanimously abstain from competing, unless that and other unsatisfactory conditions are altered, so as to meet with the approval of the Council of this Society."

**EDINBURGH ARCHITECTURAL ASSOCIATION.**—The annual general meeting in connexion with the Edinburgh Architectural Association was held on the 22nd ult. in the Rooms, 117, George-street, Edinburgh, Mr. A. Hunter Crawford, President, in the chair. The treasurer's report showed that there had been exceptional expenditure, but that up to date there was a small credit balance. Among the office-bearers appointed were the following:—President, A. Hunter Crawford, F.R.I.B.A.; Past-President, Henry F. Kerr, A.R.I.B.A.; Vice-Presidents, H. O. Tarbolton, J. Stuart Syme; Hon. Secretaries, William M. Page, Colin B. Cownie; Hon. Treasurer, W. Glassford Walker, C.A. In his closing address, the President said that the membership, which now reached the total of 358, was the largest attained in the history of the Association. He alluded to the proposed registration of architects, and moved that it be remitted to the Council of the Association to consider what reply should be sent to the Royal Institute on the subject. This was agreed to, and it was

\* Part of a short paper by Mr. Herbert H. Humphries, Engineer and Surveyor to the Urban District Council of Erdington, read before the meeting at Birmingham on January 31, of the Incorporated Association of Municipal and County Engineers.



also arranged that the Associates' section of the Association should communicate their views on the subject to the Council. The meeting thereafter separated.

**LEICESTER SOCIETY OF ARCHITECTS.**—The annual meeting of this Society was held at the Permanent Library, on the 27th ult. Mr. A. Wakerley was re-elected President, while Mr. Stockdale Harrison (hon. treasurer) and Mr. Howard S. Thomson (hon. secretary) were also reappointed. It was stated that in the forthcoming report there would be several illustrations by local gentlemen, one of them being of the old eighteenth-century house belonging to Mrs. Benfield, in Friar-lane, the artist being Mr. G. Mott. A picture of the old Huntington Tower, in High-street, by Mr. A. Herbert, would also be reproduced, the object being, by adding to the collection yearly, to get together an interesting series of pictures of old Leicester and Leicestershire. On the motion of Mr. Pick, seconded by Mr. Thomson, a vote of thanks was passed to the President, Mr. Wakerley briefly responding. Votes of thanks were also accorded to the hon. treasurer and hon. secretary, and also to the retiring council and committees, who were re-elected.

#### COMPETITIONS.

**FREE LIBRARY BUILDINGS, MONTROSE.**—The successful design in this competition was that sent in by Mr. J. Lindsay Grant, of No. 2, St. Peter's-square, Manchester.

**SCHOOL AT GILDERSOME, NEAR MORLEY.**—In the competition for a new Wesleyan Sunday school at Gildersome the designs by Messrs. Garside & Pennington, architects, Pontefract and Castleford, have been accepted. The plans provide for a school to accommodate 250, with four classrooms and other conveniences.

**FREE LIBRARY, CASTLEFORD.**—It is proposed to erect a new Free Library at Castleford, Yorks, for the Urban District Council, and a competition for the building has just taken place. The assessor, Mr. Butler Wilson, F.R.I.B.A., has made his award as follows:—First premium to Design No. 16, submitted by Mr. Geo. H. Vernon Cale, of 60, Newhall-street, Birmingham; second premium to Design No. 110, submitted by Mr. William Bakewell, F.R.I.B.A., of 38, Park-square, Leeds. The assessor has placed the following six designs next in order of merit, viz., No. 32, Mr. H. V. Ashley, 50, Berners-street, London; No. 113, Mr. Frank L. Heslop, East-parade, Leeds; No. 28, Mr. James Carter, 64, Hinkie-street, Darwen; No. 18, Mr. Arthur McKewan, 3, Newhall-street, Birmingham; No. 71, Mr. Henry T. Hodges, 7, First-avenue, Heaton, Newcastle; No. 60, Mr. A. F. McMilligan, Central Chambers, Castle-street, Liverpool. One hundred and twenty-four designs were received.

**MUNICIPAL BUILDINGS ON GEORGE'S DOCK SITE, LIVERPOOL.**—A meeting of the representatives appointed by the Estate, Baths, and Tramways Committees of the Liverpool Corporation as to the proposed buildings to be erected on the George's Dock site was held on the 27th ult. The Committee arrived at the following conclusions:—(1) Approve Sir Wm. Emerson's Report, and pay the premiums; (2) that none of the schemes be proceeded with; (3) that it be left to the Baths Committee to submit their own scheme for the erection of baths at the George's Dock or elsewhere; and (4) that it be left to the Tramways Committee to submit their own scheme for the erection of offices at the George's Dock or elsewhere.

#### Illustrations.

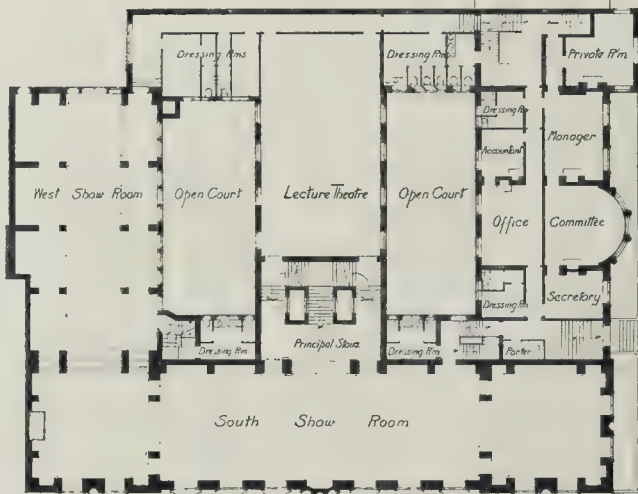
##### NEW BUILDINGS, VICTORIA AND ALBERT MUSEUM.

**B**y the kindness of Mr. Aston Webb we are enabled to give a reproduction this week of the large perspective drawing of the new front of the Victoria and Albert Museum, known to fame as the South Kensington Museum, which, with the elevation, forms the most important exhibit in the architectural room at the Royal Academy. The building is now at last in progress under Mr. Webb's direction.

The design is referred to in our first article this week, on "Architecture at the Royal Academy," and as the building was pretty fully described in our columns only a few weeks ago, in the report of a visit paid to it by the



SECOND FLOOR PLAN.



School of Art Needlework. Plans.

Architectural Association (see *Builder*, February 14, p. 162), we need not go into further description at present. When the building is in a more advanced stage we may return to the subject.

##### THE ROYAL SCHOOL OF ART NEEDLEWORK.

THE new building at the corner of Exhibition-road and Imperial Institute-road, erected for the Royal School of Art Needlework, and into which it has just moved, almost adjoins its old quarters in Exhibition-road, which formed the Australian annexe of the Exhibition of 1862, and which the School has occupied for nearly thirty years.

Large rooms and plenty of daylight were objects of the first importance in the new building. The accompanying first and second floor plans give the principal showrooms and workrooms. The third floor contains dining-rooms, kitchen and offices, and more work-rooms with top light. The workrooms in

the east wing of this floor are leased to the School of Wood Carving. The mezzanine floor in the east and north wings and a large part of the basement floor have been taken for a term of years by the Technical College, the next neighbour to the Royal School of Art Needlework.

The building is comparatively low, but the object has been to get a broad effect by continuity of horizontal arrangement both architecturally and by colour treatment in order that the building might, perhaps, not seem overpowered by its more lofty neighbours.

The materials used are:—Roof, Westmorland green slates; walls, top story, Portland stone; middle story, Bracknell 2 in. red bricks; basement story, Portland stone banded with blue Pennant stone.

Messrs. G. H. & A. Bywaters & Sons were the contractors. Mr. Henry McCarthy, carver; and Messrs. G. Hobbs & Sons carried out hot-water heating, wrought-ironwork, grates, &c. Messrs. F. Thornton & Co., of East Croydon, carried out the roof slating, domes, and dor-





THE VICTORIA AND ALBERT MUSEUM, SOUTH KENSINGTON. THE NEW BUILDINGS IN COURSE OF ERECTION.  
MR. ASTON WEBB, A.R.A., PRESIDENT R.I.B.A., ARCHITECT.









GENERAL VIEW.



DETAIL OF MAIN ENTRANCE.

NEW BUILDING, ROYAL SCHOOL OF ART NEEDLEWORK, EXHIBITION ROAD.—MR. F. B. WADE, F.R.I.B.A., ARCHITECT.









Fig. 1

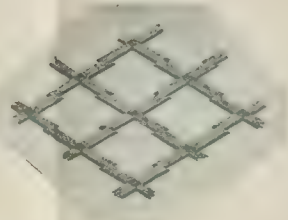


Fig. 2.

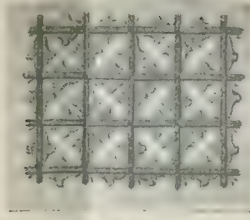


Fig. 11.



Fig. 12

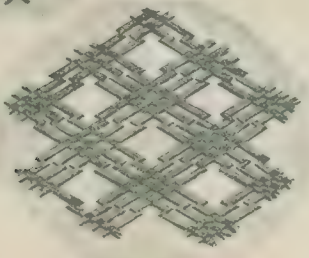


Fig. 3.

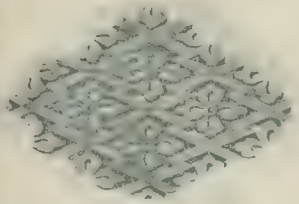


Fig. 4.

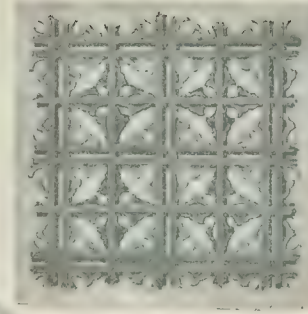


Fig. 13

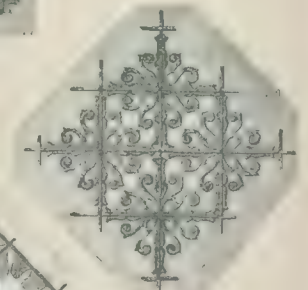


Fig. 16.

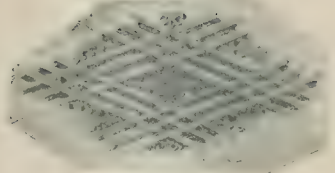


Fig. 5.

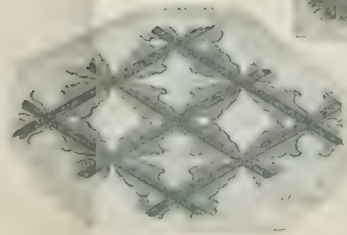


Fig. 14

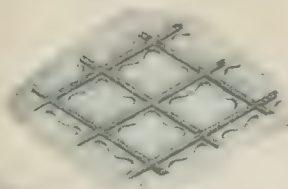


Fig. 7.

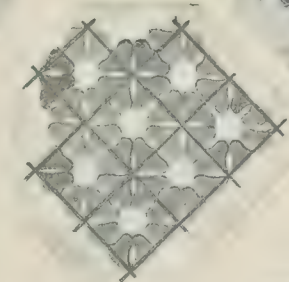


Fig. 15.

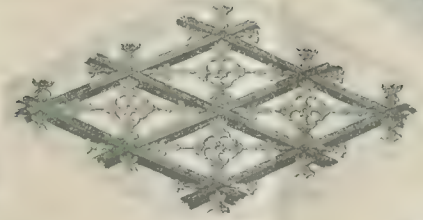


Fig. 6.

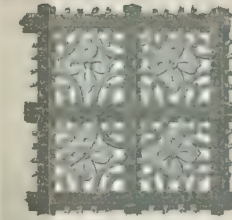


Fig. 17.



Fig. 18

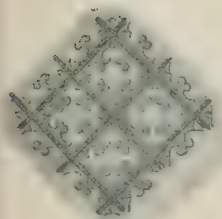


Fig. 8

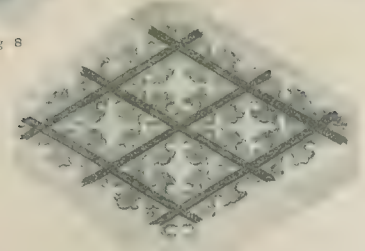


Fig. 9.

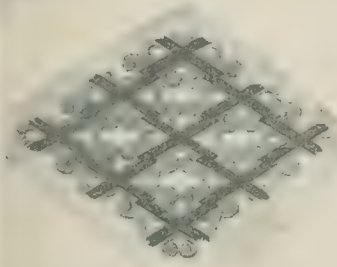


Fig. 10

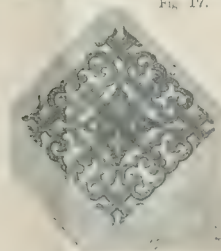


Fig. 19.

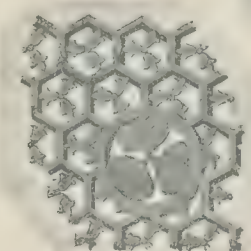


Fig. 20.









GROUND FLOOR PLAN  
Near Buildings, Victoria and Albert Museum. Plan.



mers: Messrs. B. Finch & Co., the sanitary work, fittings, and water services; Messrs. G. Aston & Son, the constructional steel and ironwork; the Westminster Patent Flooring Co., the wood block floors; Messrs. Martin, the marble staircase and the marble floor in the entrance hall; Messrs. J. W. Keys & Co., the electric lighting, bells, &c.; Messrs. W. E. Copping & Co., the window and door furniture.

The building is from the designs of Mr. Fairfax B. Wade, under whom Mr. J. Cornish acted as clerk of works.

#### JAPANESE ORNAMENT.—PLATE VI.

These illustrations are all referred to and described in the article on the subject by "F. T. P.," on another page of this issue.

#### THE HULL SCHOOL OF ART.

We give this week the plans of this building, for which we were not able to find space last week, when we published an illustration of the exterior of the building.

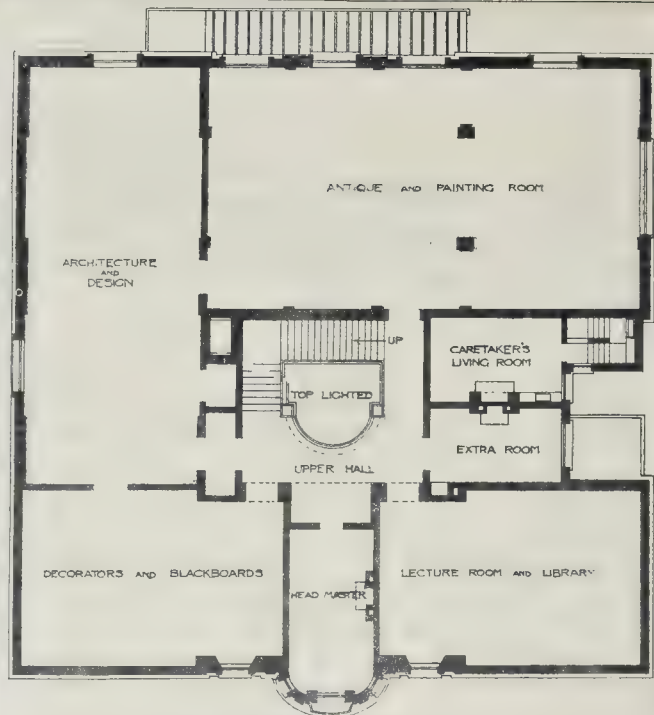
#### THE ADDISCOMBE MEMORIAL.

A COMMITTEE has been formed for raising a memorial of the Military College at Addiscombe, which was established there nearly one hundred years ago by the Honourable East India Company, who purchased the house and grounds situated by the road from Croydon to West Wickham. In the sixteenth century Addiscombe, or Edgcomb, belonged to the Heron family, and, having subsequently passed to Sir John Tonstall, Esquire of the Body to Queen Anne of Denmark, and to Sir Purbeck Temple, was devised in 1700 by the widow of the latter to her nephew, William Draper, who had married John Evelyn's daughter Susanna in 1693. Evelyn records in his diary visits he made to Addiscombe. On July 11, 1703, he writes:—

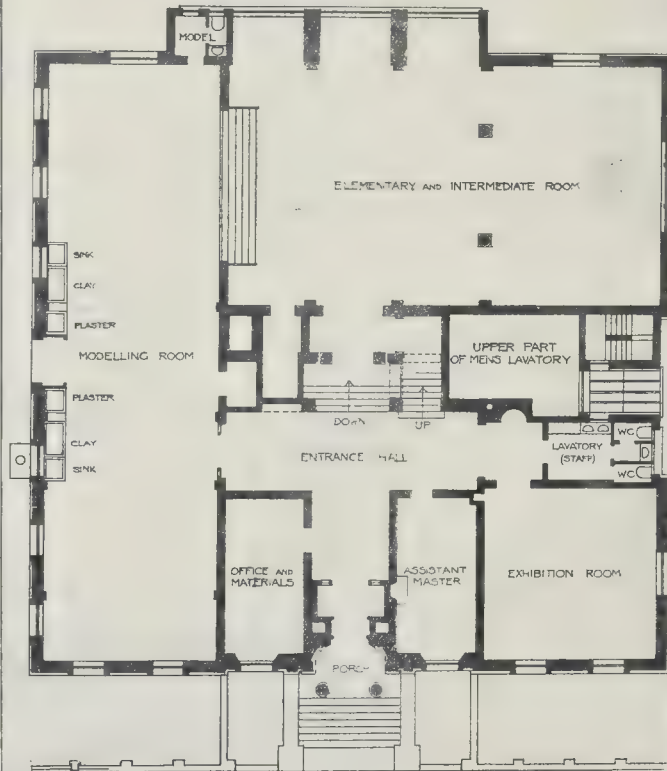
"I went to Addiscombe, 16 miles from Wotton, to see my son-in-law's new house [begun in 1702], the outside, to the coveing, being such excellent brick work, bas'd with Portland stone, with the pilasters, windows, and within, that I pronounc'd it in all the points of good and solid architecture to be one of the very best gentleman's houses in Surrey, when finish'd."

Vanbrugh designed the house for Draper. Thornhill painted the walls and ceiling of the inner hall and principal staircase; for the circular compartment of the ceiling he painted the Feast of Bacchus. The house, since taken for the commandant's residence, consisted of basement, two floors, and attic story. A flight of steps on the east front ascended to the entrance. On the west, or garden, front were a handsome loggia and portico. The east front bore the inscription: *Non faciam vltio culpave minorem*. The estate, having been occupied by Lord Chancellor Talbot, who died there in 1737, Lord Grantham, and Charles Jenkinson, first Lord Liverpool (obit 1808), was sold in 1809 to the East India Company by Emilius H. Delmé-Radcliffe, whose wife had inherited it from the Drapers. W. Wilkins designed the cadets' dinner-hall, in the Classic style, for the Company, who added other buildings for purposes of the college and the staff. Upon the transfer of the government of India to the Crown, in 1858, Addiscombe became the Royal Military College for the East Indian army. On the amalgamation of the two services, in 1862, the cadets were transferred to Woolwich. In the following year the property was sold, and Vanbrugh's mansion-house was pulled down. The roads laid out over the grounds bear honoured names, such as Clyde, Outram, Grant, Havelock, Hastings, Elgin, and Canning. A hall and lecture-room in Havelock-road are, we believe, the only remaining portion of the old college buildings. The Memorial Committee includes Field-Marshal Lord Roberts, who was at the college as a cadet, and Major Hamilton Geary, R.A., honorary secretary of the Memorial Fund.

A MEMORIAL TO DR. WOODHOUSE, PUTNEY.—In the assembly-room of the Royal Hospital for Incurables at Putney a tablet has just been placed to the memory of Dr. Thomas James Woodhouse, who was closely associated with the institution for a great many years. The tablet, which bears a portrait of Dr. Woodhouse, is in Castelfino marble, and is the work of Mr. Harry Hems, of Exeter.



Plan of Upper Floor.



Hull School of Art. Plans.

(For view of building see last week's issue.)



## ENGINEERING SOCIETIES.

THE INSTITUTION OF CIVIL ENGINEERS.—The Council have made the following awards for papers read and discussed before the Institution during the past session:—A Telford Gold Medal to Mr. Maurice Fitzmaurice, C.M.G.; a Watt Gold Medal to Mr. Bertram Hopkinson; and a George Stephenson Gold Medal to Mr. Percy John Cowan; Telford Premiums to Messrs. Charles Hopkinson, B.Sc., Ernest Talbot, Frederick Wilfrid Scott Stokes, Percy John Cowan, James Tayler Milton, and William James Larke. The presentation of these awards, together with those for paper which have not been subject to discussion and will be announced later, will take place at the inaugural meeting of next session.

At the Annual General Meeting of the Institution held on Tuesday evening, Mr. J. C. Hawkshaw, President, in the chair, the result of the ballot for the election of Members of Council, for the sessional year 1903-4, was declared as follows:—President, Sir William H. White, K.C.B., D.Sc., LL.D., F.R.S.; Vice-Presidents, Mr. Francis William Webb, Sir Guildford L. Molesworth, K.C.I.E., Sir Alexander R. Binnie and Dr. Alex. B. W. Kennedy, F.R.S.; other members of Council, Mr. Cuthbert A. Brereton, Mr. John Brown, C.M.G. (Cape Town), Mr. R. Elliott Cooper, Lieut.-Col. R. E. B. Crompton, C.B., Mr. W. J. Cadworth (York), Mr. C. W. Darley, Mr. G. F. Deacon, Dr. Francis Elgar, F.R.S., Mr. W. R. Galbraith, Mr. G. H. Hill, Mr. J. C. Inglis, Mr. G. R. Jebb (Birmingham), Mr. T. C. Keefer, C.M.G. (Ottawa, Canada), Mr. J. A. McDonald (Derby), Mr. W. Matthews, C.M.G., the Hon. C. A. Parsons, F.R.S. (Wylam-on-Tyne), Mr. A. Ross, Mr. W. Shelford, C.M.G., Mr. Alexander Siemens, Mr. H. C. Stanley (Brisbane, Queensland), Mr. John Strain (Glasgow), Sir John I. Thornycroft, LL.D., F.R.S., Prof. W. C. Unwin, B.Sc., Mr. F. R. Upcott, C.S.I., Sir Leader Williams (Manchester), and Mr. A. F. Yarrow.

THE JUNIOR INSTITUTION OF ENGINEERS.—At the meeting of this Institution held at the Westminster Palace Hotel on April 24, the Chairman, Mr. Kenneth Gray presiding, the paper read was "The Effect of Design on Methods of Construction from a Contractor's Point of View," by Mr. R. W. Newman, Vice-Chairman of the Institution. The subject was dealt with in a very practical manner, and an animated discussion ensued. As the author was sailing on the following day for South Africa to take up a Colonial Government appointment as Engineer on the construction of the Tebus Irrigation Works, Cape Colony, the meeting closed with cordial valedictory wishes for his success there, as also to Mr. H. Cartwright Reid, Member of the Council of the Institution, who would be shortly leaving for Malta as Superintending Civil Engineer in the construction of the Harbour Works.

## Books.

**Quantities.** A Text-Book in Tabulated Form for the Use of Architects, Surveyors, and Builders. By the late Professor BANISTER FLETCHER, F.R.I.B.A., &c. Seventh Edition, Revised and Enlarged by H. PHILLIPS FLETCHER, F.R.I.B.A., F.S.I., &c. London: B. T. Batsford. 1903.

TIME was—and that not so long ago—when Banister Fletcher's "Quantities" was practically the only text-book upon the subject. Since the earlier editions, which bore no comparison in size and completeness with the present, sundry other books have appeared, but although this work does not hold the isolated position it did in its earlier days, such improvements have been made in the later editions that it takes a good position in relation to the works by other authors. One of the features of this edition, and an important one, is the complete set of drawings of a lodge, with the "taking off" given in detail, and abstracts and bills, but unfortunately the "quantity" portion is not carried out so well as the "architectural." There may be some differences of opinion as to the methods of working. To name some: The chimney stacks on p. 371, the labours on stone on pp. 374 and 375, and the extra labours to lead on p. 384, which are

rather amateurish, and would certainly not commend themselves to the experienced surveyor. The carpenters' and joiners' bill is anything but a good example. Some of the items look as if they must be misprints. In fact, we turned up a few of them, and found items that had been measured as "supers" billed as "runs," e.g., linings; one item taken as a "run" billed as a "number," i.e., "ramps." However, in the latter case the bill is right. We have by no means exhausted the examples of these errors. Again, in the "taking off" the descriptions are very crude, and, in the abstracting, the omission of the words "cube," "super," and "run" at the heads of the columns would lead to such errors in practice as those above mentioned. On p. 121 labour to "running out" holes is taken; on p. 122 this appears as "priming out." "Rhymering" is evidently the word intended; "priming" is a word we have not heard used in this connexion before. We, however, may be at fault here.

These slips are very unfortunate, as what should be the most useful portion of the work is rendered almost valueless. The authors would do well to note the various errors and insert a sheet of "errata." The book then would be more useful; but, even allowing for differences of opinion, we cannot think that "cubing" door frames, for instance, with all their labours, is fair to the builder. We should also like to see the descriptions amplified, as they can be when a definite example is given such as that contained in this book. As it is, they savour too much of architects' quantities, or those prepared by builders for their own use. The former, with all due respect for the opinion of the late Professor, are not in general looked upon by builders as models of what should be, though there are exceptions.

**Chemical Technology.** Vol. IV. Edited by W. J. DIBBIN, F.I.C., F.C.S. *Electric Lighting.* By A. G. COOKE, M.A., A.M.I.E.E. *Photometry.* By W. J. DIBBIN. London: J. & A. Churchill. 1903.

THE first 277 pages of this volume cover practically the whole ground of electrical technology. The work has been carefully done, and although there are a few misprints and slips, we were not able to detect any serious error. The matter, however, is not very interesting, being for the most part a *réchauffé* of the standard papers on electro-dynamics. We think that very few mathematicians really understand what is meant by a "line integral of magnetic force," and we do not agree with the statement that the general theorem can be easily proved.

In giving the theory of the dynamo the somewhat antiquated papers of the brothers Hopkinson are followed a little too closely, and the formulae for eddy currents which are given, although due to Professors J. J. Thomson and Fleming, are only true in very special cases. The formulae given on p. 192 can be deduced at once from a formula in Clerk Maxwell's electricity, and are only true in the very special case when the current is an harmonic function of the time. To use these formulae to calculate tables for the skin effect in wires is, in our opinion, quite unjustifiable, and hence the tables that are quoted have to be used with great caution.

Many accurate formulae connected with the measurement of power in alternating current circuits, spherical candle-power, &c., might have been given with advantage. The chapter on glow-lamps contains some very ancient data. We had forgotten Professor Perry's formula for the maximum efficiency of glow-lamps, and Dr. Fleming's correction may be of historic interest, but it has no practical value.

The last hundred pages of the book are by Mr. Dibbin, and discuss the various kinds of photometers that are in use, and the various standards of light. This part of the book will be useful for reference. In the preface Mr. Dibbin points out the importance of taking the quality as well as the quantity of the light coming from a lamp into account. For example, comparisons of Welsbach mantles with glow-lamps or Nernst lamps are of little value unless an estimate is made of the quality of the light given out. The drawbacks in connexion with the use of flame standards are stated, and impartial descriptions are given of the various lamps which are in every-day use as standards of light.

**The Modern Carpenter, Joiner, and Cabinet-Maker.** Vol. III. London: The Gresham Publishing Co.

IF this work is to supply a really existing want, it will be in virtue of those sections, yet to be published, from which it derives its title; and to which, after this long prelude of subsidiary matter, we look forward with much interest. The volume last issued, which treats of the subjects "drawing and practical geometry," considered merely on its own merits, must, we regret to say, be consigned to the category of superfluous books. There are already a large number of text-books upon these subjects, and though as regards "practical geometry," at all events, there is room for a better one than has yet appeared, we do not find it in the volume before us. The type and the illustrations are better than those of the ordinary text-book; the binding is more pretentious; but that is all we can say.

In the section upon geometry, the author, rightly or wrongly, decides to forego the laborious processes of demonstration, perhaps rightly, in a work of this character, since it is no more unreasonable that a man should bisect an angle or construct an elliptic curve without understanding what he is about, than that he should eat his dinner without a knowledge of the laws of physiology and chemistry—perhaps less so. But then why, upon page 267 is devoted a page of text, with an elaborate figure, devoted to proving the almost self-evident proposition that "parallel planes have their traces upon any plane of projection, parallel and conversely," or, as our author prefers to state it, "all planes parallel to each other have their projections (*sic*) parallel and reciprocally (*sic*). If a demonstration is anywhere to be dispensed with it could well be dispensed with here; and if it is to be given, a more rigorous demonstration could be given in three lines and without a figure. For if the traces of two parallel planes are not parallel they must intersect. But this would imply a point common to the two parallel planes, which is impossible.

A book for practical men, in which the virtue of academic thoroughness is consciously foregone, should have at all events those of brevity and consistency. But in this volume there is much that is superfluous, and that, unfortunately, not only in the way of demonstration.

What, for instance, is gained, after showing our would-be joiners and cabinetmakers the correct methods of constructing an ellipse, by teaching them to draw a figure consisting of four circular arcs, and telling them that it "resembles an ellipse"? This is merely to pervert the most valuable faculty, the sense of form, of men who should be artists in their own way, and to encourage those indolent and inaccurate habits which are only too natural to the British workman. On the other hand, the general problem of drawing, by means of the compasses, a continuous curve through any series of points, does not seem to be given. This volume is, in fact, the weakest of those that have yet appeared, and we hope, in the Miltonic selection, that it will be the weakest of its successors.

**Facts on Fire Prevention. The Results of Fire Tests conducted by the British Fire Prevention Committee.** Edited by EDWIN O. SACHS. London: B. T. Batsford. 1902.

THESE two volumes consist of the reports of the British Fire Prevention Committee upon the behaviour of various building materials when subjected to the action of flame and intense heat, and contain numerous photographs and drawings showing the method of testing and the effects of fire upon the materials tested. As we have from time to time commented upon the useful work accomplished by this Committee, and recorded the general results of the various tests in this journal, it is unnecessary now to do more than draw attention to the fact that these reports have recently been issued in book form, and should, therefore, be found in the office of every architect and builder.

No attempt has been made by the Committee to comment upon, or recommend, any individual building material or method; architects, district surveyors, and others being left to form their own opinions as to the value of the different materials from the recorded results of the test. Vol. I. describes the tests made with floors, ceilings, and partitions of various kinds, and Vol. II. the tests made with



doors, fire-resisting curtains, and glazed casements and skylights.

The Committee was incorporated about four years ago (1899), and within the first three years of its existence expended over 6,000l. in carrying out most of the investigations which form the subject of these volumes. It is greatly to the credit of Mr. E. O. Sachs and his collaborators that London has now taken its proper position as "the recognised testing centre of the world as far as unprejudiced, systematic, and trustworthy reports of fire-resisting materials are concerned."

*Standard Methods of Testing Cement.* Hull: G. & T. Earle. 1901.

ALTHOUGH published by a firm of cement manufacturers, the volume to which we now direct attention is essentially a scientific treatise, thoroughly entitled to a place in the technical library of the architect, engineer, and analytical chemist. Practically all the standard machines used for the testing of cement are illustrated and described, and the manner in which such apparatus should be employed is discussed in full detail. This admirable handbook also records methods for the chemical determination of various materials coming under the notice of the chemist in a cement works laboratory. The enumeration given below will show conclusively how comprehensive is the scope of the volume in question. Among tests described we observe the following:—Adhesion, boiling and oven, compression, fineness, flexion, penetration, percolation, setting, sifting, soundness, specific gravity, and transverse tests; and among analytical processes we notice those relating to cement, chalk, clay, coal, and limestone analyses. Much valuable information is also given upon subjects such as briquette and cube-making, pitfalls in testing, sampling, and water for gauging; and useful tables are included of atomic weights and factors, compression tests, the fineness of slurry, tensile equivalents, thermometric comparison, and wire gauges. The book is excellently printed, and copiously illustrated with photographic views and sectional drawings of apparatus from the smallest hand appliance to the 200-ton Amsler testing machine. To all who desire the acquisition of knowledge on the subject of cement testing, we commend this treatise as a thoroughly reliable guide.

*English Timber and its Economical Conversion: a Handbook for Home Timber Merchants, Manufacturers, Groovers, and others.* By "ACORN." London: William Rider & Son.

THIS is a small elementary treatise describing the industrial uses of the various descriptions of English timber, and the methods of measuring and valuing it, either when standing or after it has been felled. Methods for the measurement of "round" timber, practical hints to timber buyers, and notes on labour charges, and methods of bark peeling, form the subject-matter of the first few chapters. Then follows a chapter on the saws and other appliances required in a saw-mill, and, finally, the methods of economically converting the different trees into various marketable forms of timber, and the characteristics and particular industrial uses of each variety of wood are described.

Referring to oak timber, the author says that although, generally speaking, foreign oak is inferior to English oak, yet English oak, when grown on sandy or rocky soil is almost invariably found to be shaky, and that the best timber is always produced on deep, stiff, clayey soil. Attention is also drawn to the fact that the supply of English oak has been rapidly diminishing during recent years, owing to the failure of growers to plant new trees to replace those cut down.

The book is interestingly written, by an author who is evidently practically familiar with the industrial and financial aspects of the timber trade. Although a large proportion of the timber used by builders now comes from abroad, it is still necessary for students of building construction to acquire a knowledge of the characteristics of our indigenous timbers. As this book is essentially "practical," and not a work of science, it should meet the requirements of that large class of readers who shun professors of botany, and are weary of the dissertations on monocotyledons and dicotyledons commonly found in books on timber.

*Proceedings of the Incorporated Association of Municipal and County Engineers.* 1901-1902. London: E. & F. N. Spon. 1902.

If proof were required of the advance made in municipal engineering practice, it would be abundantly furnished by the annual volume recently issued by the Association of Municipal and County Engineers. There is much practical matter in this book, and the usefulness of the various papers is considerably augmented by the large number of drawings reproduced as illustrations. A paper read by Mr. F. C. Cook, of Hinckley, on "The Position of Local Authorities in regard to Building By-laws" should be of general interest to our readers. In this communication the peculiarities of the Local Government Board are justly criticised. It might be thought that as this department pays such close attention to various minute points of detail, some legislation would have been introduced compelling the adoption of by-laws by Local Authorities, but this is far from being the case. If a Local Authority should desire to make by-laws regulating the height of rooms, the Local Government Board will rigidly insist upon adherence to their "model" clause, but they have not the slightest objection to leave the matter entirely unregulated. The author shows that thirteen towns in the country are still governed by by-laws made before 1877, while many others are controlled by regulations little less ancient. The object of the author appears to have been to elicit discussion rather than to suggest remedies for the present anomalies, but he indicates the general lines on which reform might be conducted. Another valuable contribution was made by Mr. C. F. Wike, M.Inst.C.E., City Surveyor, Sheffield, on "The Wear and Maintenance of Tramways." The author gives several diagrams, including one which shows the amount of wear on different types of points and crossings, and a table indicates the cost of maintenance for different kinds of paving employed in Sheffield.

A discussion, opened by Mr. E. Manville, M.I.E.E., on the use of "Motor Vehicles for Borough and County Work," elicited various expressions of opinion, generally favourable to the use of such vehicles for facilitating the work of surveyors and other officials and decreasing the cost at present incurred by the employment of horse traction. It is satisfactory to observe that one or two speakers strongly advocated the adoption of motor vehicles for various other municipal purposes. Among other subjects dealt with in the volume are "The Filtration of River Waters," "Corporation Electric Tramways," and the "Analysis of Macadam Road Construction."

*Journal of the Sanitary Institute.* Vol. XXIII., Part IV. London: Sanitary Institute. 1903. This, the fourth part of the *Journal* for the year 1902-3, is almost entirely devoted to the papers read and discussed at the Manchester Congress in September last. These papers are more than seventy in number, and it is obviously impossible for us to do more than mention those which are likely to be of particular interest to our readers. There are three papers on sanatoria for consumptives, the first and most important by Mr. Edwin T. Hall; the second (of which an abstract only is printed) by Mr. W. Cecil Hardisty; and the third by Mr. A. W. S. Cross and Dr. A. G. Welsford. It is a pity that the illustrations referred to in the papers have not been reproduced. There is also a short but useful paper on "Isolation Hospitals" by Mr. Percy Worthington, which also suffers from lack of illustrations, and another by Mr. H. D. Searles-Wood, on "Means of Escape in Case of Fire"; this contains five plates. Pages 463-4, although printed as part of Mr. Searles-Wood's paper, do not appear to belong to it. In "Sanitary House Decoration," Mr. Louis Hanks gives some good suggestions in regard to painting, staining, &c. Other papers deal with typhoid fever, sewage treatment, sewer ventilation, the Public Health Acts, &c. The volume contains a good index, and is an admirable record of the proceedings of an energetic society.

#### BOOKS RECEIVED.

THE EMPLOYERS' LIABILITY ACT, 1880, AND THE WORKMEN'S COMPENSATION ACTS, 1897 AND 1900. By A. H. Rugg K.C. Sixth Edition. (Butterworth & Co.)

THE WORKMEN'S COMPENSATION ACTS, 1897 AND 1900. By W. Addington Willis, L.L.B. (Butterworth & Co., and Shaw & Sons).

## Correspondence.

### THE VENTILATION OF SCHOOLS.

SIR,—The point raised by your correspondent, A. H., as to whether heating air to 70 deg. Fahr. deprives the air of its oxygen is a very interesting one, and, with many others, one would like to know if this really is so.

It is quite easy to understand that, bulk for bulk, there is less oxygen in heated air than in cold air caused by the expansion of the latter, but the statement that heat deprives the air of its oxygen suggests that a chemical change has occurred.

Is there any chemical change in air when heated to, say, 400 deg. Fahr., or is the loss of oxygen in the bulk simply due to expansion? Perhaps one of your numerous readers may be able to help.

JAMES FARLEY.

Hertford.

SIR,—In answer to part of Mr. Felix Clay's letter in your issue of March 21, it can be said that he gives no evidence to show that the heating of air reduces its oxygen. Chemists tell us that it can only be removed by enabling it to combine with some other element. If the heating surface be so hot as to cause any dust that may settle on it, or be brought against it floating in the air, to combine rapidly with the oxygen—i.e., to be charred or burnt—some, but very little, of the oxygen is removed, although all the air may be tainted with the fumes. In Turkish and Russian baths the air is heated to treble and double the amount needed for warming and ventilating, but we never hear that breathing air of this temperature is harmful to lungs. All that is said is that the change from the high temperature to that of the ordinary air at that hour may chill the skin, and be bad for muscles and joints.

If Mr. Clay can find a medical colleague, and study the question with him, he may find that the temperature is the factor that has the least effect on the amount of oxygen inhaled. The amount of moisture in the air is at least as important, and heating a foggy atmosphere expands the air in it less than the moisture. Hence a net gain of oxygen per inhalation can be had by warming the chill, damp air of autumn and early winter.

It is now generally recognised that all methods of warming must warm the air if the users are to be satisfied; that air is not warmed by the heat rays that traverse it, and the efficiency and economy of any method depends on the directness with which the fuel's heat is supplied to the air. Whether this air be that within the building, i.e., stale air, or whether it be fresh air that ventilates the building, does not alter the fact that the air is heated.

On examining the various ways by which ventilating air is warmed before it enters the apartments, one sees that, compared with Nature's methods, they all fall in one respect, viz., the air is not warmed *in light*. In this important detail all methods and systems are equally artificial. This is because the surface of the building, the surface of ordinary pipes and radiators used to warm the air within a room. Light can be obtained by placing a radiator in the middle of a room and leading the fresh air to it by a duct in the floor, a method quite impracticable in most buildings; it is also obtained by some types of down-draught hospital stoves, an appliance native to the United Kingdom. No other nation has, so far as I have been able to discover, yet succeeded in warming *in light* the air needed for ventilation. The only other method that has occurred to the writer is to use glass bricks for the air chambers of ventilating firegrates, when these are in gable walls.

On weighing these two points of warming the room's air in light and warming fresh air in darkness, one sees that the latter has the advantage. The appliances used for the former are only half in light when they really warm the air, for ordinary radiating fires do not even take the chill off the air in a room during frosty weather. Warming a constant stream of fresh air secures all the point, and is thus a closer copy of natural methods.

Leeds.

OSWALD WHEELER.

### AMERICAN AND ENGLISH RAILWAY PRACTICE.

SIR,—Your very able article of last week on American v. English railway practice is of great interest, and it is satisfactory to note your comments upon the advocacy by a section of the Press of American methods in Great Britain, neither of which systems, it is possible, the average journalist has any practical acquaintance with.

Referring to the "train order" system, may I point out that the former method of telegraphic "crossing orders" adopted with great success by the G.W.R. and other lines was entirely different from the American "disabling" plan of to-day, and was only abandoned in favour of "block" and "staff" working combined; which is now again superseded by the "electric" staff.

Hornsey Station, G.N.R.

W. E. EDWARDS.



## LEAD JOINTS TO STONEMWORK.

SIR,—In constructing a series of wide flights of square York stone steps (in the open) my employer insists on the jointed ends being run with lead, and is desirous that the joints of Portland stone paving should also be made with lead.

His idea is that horizontal joints made in cement are soon washed out by the action of rain, but as I have never heard of such a thing as he proposes doing, and have my own ideas on the subject, I shall be glad if your readers will give me their experience and views.

C. O. W.

## THE LONDON BUILDING ACT:

## TRIBUNAL OF APPEAL CASE.

THE Tribunal of Appeal under the London Building Act, 1894, sat at the Surveyors' Institution on Tuesday to hear an appeal by Messrs. J. King & Co., under Section 13 (3) of the London Building Act, 1894, against the determination of the London County Council by their resolution of March 17 last, as follows:—"That the Council in the exercise of its powers under Section 13 of the London Building Act, 1894, do not consent to the erection of a warehouse on the site of Nos. 74 and 76, De Beauvois-terrace, Kingsland, with the external walls at less than the prescribed distance from the centre of the roadway of Hertford-road as shown upon the plan submitted with the application of Mr. G. H. Lovegrove on behalf of Messrs. J. King & Co., as, in the absence of any proposal to widen Hertford-road at this part, it is considered undesirable to consent to the erection of the warehouse as proposed."

The members of the Tribunal sitting were Messrs. J. W. Penfold (Chairman), Hudson, and Gruning.

Mr. Washington, solicitor (Hicklin, Washington, & Pasmore), appeared on behalf of the appellants, while the respondents were represented by Mr. Andrews, from the Solicitor's Department of the London County Council.

Before Mr. Washington opened his case, Mr. Andrews called the attention of the Tribunal to the fact that this appeal raised the same point as that upon which it gave a decision recently—namely, that there could be no appeal from the County Council's refusal under Section 13. The question was, he reminded the Tribunal, argued at great length by Mr. Daldy and Mr. Dickens, K.C., with the result that the Tribunal upheld Mr. Daldy's contention. This case was upon all fours with that upon which the Tribunal decided that it had no jurisdiction.

Mr. Washington: The argument Mr. Daldy raised was that the Council may consent, if they please, to an owner coming within the prescribed distance, provided that in doing so he did not interfere with the rights of an adjoining owner. If that consent was given there was a power of appeal; but there was no such power in the event of a refusal. We held that an appeal against a refusal did not come within our jurisdiction.

Mr. Washington submitted that the decision was wrong. The section laid down that there was a right of appeal against a "determination" of the Council, and a "determination," he contended, included refusal.

Mr. Hudson said he did not know how far the Tribunal was bound by its decisions. For himself, he thought the Tribunal should stand by them and give the present appellant an opportunity to apply for a mandamus to compel the Tribunal to hear the appeal.

Mr. Andrews said Mr. Daldy admitted that if the Council refused an application on conditions there was power of appeal to the Tribunal against the conditions, but if there was a refusal point blank no such appeal could be heard.

Mr. Washington said it was impossible for his client to go to the expense of obtaining a mandamus.

Mr. Hudson suggested as a possible way out of the difficulty, that the Tribunal should arrange a conciliation—that is, come to a decision on a "give and take" line by consent.

Mr. Washington said this would lead them into a difficulty with the freeholder.

Mr. Andrews remarked that he did not think he could go so far as to consent to a "give and take" line. The fact was he represented the Local Authority as well as the London County Council, and he had no means of knowing what the views of the former would be. Moreover, the question of jurisdiction might be raised hereafter. The safer jurisdiction might be raised hereafter. The safer would be for the Tribunal to order an adjournment, and in the meantime the London County Council and the Local Authority be asked to consent to a "give and take" line. He felt that there would be no difficulty in that respect.

After further discussion, the Tribunal intimated that, in the absence of a ruling of the High Courts, they were bound by their decision in the appeal of the Lancashire and Yorkshire Railway Co. v. The London County Council heard last August. To the London County Council heard last August, if he chose to do so, they adjourned the further hearing sine die.

## OBITUARY.

MR. CHURCHILL.—We have to announce the death on April 15, in his sixty-first year, of Mr. Reginald Churchill, of St. Paul's-square, Burton-on-Trent, architect and surveyor. Mr. Churchill held the appointment of architect to the School Board for the Burton-on-Trent United District, and in that capacity planned and designed several schools and school buildings for the Board in the town and district. Of his other work were the mission-room and Church Institute for St. Paul's parish, with the Sunday schools, at the charges some years ago of Lord Burton; the recent additions to the mission-room school, Stapenhill, and, as we gather, the market hotel, St. Margaret's Church, and the Burton Club-house in the High-street. In November, 1891, Lord Burton presented to the town the buildings in St. Paul's-street which had been erected ten years previously at a cost of 45,000, by the late Mr. M. T. Bass for uses of the Literary Club and the St. Paul's Institute. Mr. Churchill was employed as architect for the conversion of those buildings into municipal offices, and the addition of a new wing to contain the council chamber. Mr. Churchill also remodelled for purposes of the Public Library, in 1897, the former Burton-on-Trent Institute erected in Union-street in 1879, and adapted the upper rooms for the Schools of Science and Art.

MR. YOUNG BOLTON.—We have to record the death of Mr. Young Bolton, architect, of 4 Queen-street-place, E.C. Mr. Young was elected an Associate of the Institute of Architects in 1882. He was architect, among other things, of St. Catherine's Hall, Telegraph Hill, Hatcham; St. Mary's Catholic Church, Howson-road, and of the Lady Chapel, &c., in Comerford-road, Brockley.

MR. E. BIRCHALL.—We have also to announce the death of Mr. E. Birchall, of the firm of Kelly & Birchall, architects. Mr. Birchall was elected an Associate of the Institute of Architects 1865, and a Fellow in 1871. The firm were architects of the Catholic Church in Soho-square (1891-2), and of the Church of St. Luke, Kingston-on-Thames.

## GENERAL BUILDING NEWS.

CHURCH, RADYR, GLAMORGANSHIRE.—A new church is being erected in the central part of Radyr parish. The architect is Mr. G. E. Halliday, and the contractor Mr. A. W. Cadwalader.

ST. HILDA'S CHURCH, OLD TRAFFORD.—The laying of the corner-stone of this new church took place on the 25th ult. For financial reasons only the chancel, vestry, and a little more than half the nave are at present being proceeded with. The church, when completed, will consist of a nave and aisles and a chancel, on the south of which will be the vestries and on the north a small morning chapel. There will be no chancel arch; but, to mark the division between the chancel and nave, there will be a pier larger than those of the nave arcade, above which will be double principals in the roof. The columns and arches of the nave arcade are of Runcorn flecked red sandstone. The portion now being built gives accommodation for 450, and the completed church will accommodate rather more than 650. The architect is Mr. Frank P. Oakley, of Manchester, whose design was selected in competition.

SHERBOURNE ABBEY.—A report made by Mr. Batchelor, the architect for the proposed renovation of the abbey church, sets forth that the roof should be repaired (cost of about 430), and that other necessary work would include the restoration of the south transept, so as to bring it into character with the rest of the building, the taking up and relaying of the nave, and the reinstatement of the bells.

CHURCH INSTITUTE, STOKES-ON-TRENT.—A new Church Institute has been erected in Church-street, Stoke-on-Trent. The building is to be known as the Victoria Institute, as a memorial of the late Queen. The Institute has been erected by Mr. T. R. Yorall from the designs of Messrs. Lynam, Beckett, & Lynam. On the Church-street side is a restaurant, also a lock-up shop, and between them the entrance to the parish room, gymnasium, &c. In connexion with the restaurant, dining-rooms and kitchens are provided. Part of the first floor is occupied by a tea-room and billiard-room. The second floor is taken up by accommodation for the Girls' Friendly Society.

THE BALTC EXCHANGE.—Mr. Gilbert Seale asks us to mention that he executed the sculpture in the pediment, and the other stone carving in this building, described in our last issue (p. 441 and).

Y.M.C.A. BUILDINGS, BLACKBURN.—The Building Committee of the Blackburn Young Men's Christian Association intend to erect, at a cost of about 7,000, new Association buildings near Sudell Cross. Mr. F. J. Parkinson, architect, Blackburn, has been instructed to prepare plans for the buildings.

WORKMEN'S DWELLINGS, WESTMINSTER.—The Prince of Wales, accompanied by the Princess, laid the foundation-stone on Monday, of the new workmen's dwellings which the Westminster City Council is erecting in Regency-street. The site selected for the purpose has a frontage of 305 ft. to Regency-street, and of 228 ft. to Vincent-street, and comprises about one and a half acres formerly occupied by a mean class of property. It was

owned by the Ecclesiastical Commissioners, and has been sold to the Council for 35,000, or 10s. per foot super, on condition that it is used only for this purpose. The buildings will be in blocks to be named after the three Mayors of Westminster, "Norfolk," "Probyn," and "Jessel." In general arrangement they will resemble those erected by the Guinness Trust at Hammersmith, with improvements which experience has suggested. Notice has, for instance, been taken of the Queen's suggestion at Millbank with regard to cupboards, and these will be provided in every tenement. There are to be 793 rooms, divided into 344 tenements, accommodating over 2,000 people. There will be forty-five of one room each, 161 of two, 126 of three, and twelve of four; the rents ranging from 3s. to 12s. per week. These include blinds, baths, hot-water supply, chimney cleaning, the use of the laundries, and other necessities. The total cost is estimated, including the site, at 95,000, and the contractors are Messrs. Mowlem. The elevations will be of hard-pressed Leicester bricks. Messrs. Joseph, Son, & Smith are the architects.

WATERWORKS, EASINGWOLD, YORKSHIRE.—The Easingwold District Council have carried out a scheme for supplying the villages of Carlton Huthwaite, Raskelf, Flawith, Thotton, Alne, Aldwark, Tollerton, Huby, and Sutton-on-Forest with water. The reservoir is situated just beyond Kilburn, at the foot of the Hambleton Hills. Messrs. Fairbank & Son, C.E., of York, were the engineers.

SCHOOL, BARGOE.—The new infants' school erected by the Gelligaer School Board at Bargoe, was opened on Monday last week. The new school provides accommodation for 500 infants. There are eight classrooms opening on to a central hall, 92 ft. by 16 ft. long; two large cloakrooms, fitted up with teachers' rooms over, and two separate entrances and exits. The heating is by open fire-places, and the ventilation by means of fresh-air tubes and extract-ventilators and trunks between ceiling and ridges of roof, while the external walls are faced with blue Llancaul stone, relieved with Ruabon bricks and Carlisle stone dressings. The site covers an area of about three-fourths of an acre, being enclosed with boundary walls and wrought-iron railings and entrance gates. The buildings have been built by Messrs. Lattey & Co., Ltd., of Cardiff, at a cost of 6,800. The plans were prepared by the Board's architects, Messrs. James & Morgan, Cardiff. Mr. Thomas Jones was clerk of the works, Hengoed.

BOARD SCHOOL, BRYNMAWR.—A new Board school for boys was opened at Brynmawr on Monday last week. The school comprises a central hall, 54 ft. long by 28 ft. wide, approached from each end by a corridor 7 ft. wide and an entrance lobby. On the north side of the central hall are four classrooms, and at each end is also a classroom, six in all, giving accommodation for 420 boys. Communicating with each entrance lobby is a cloakroom and lavatory for 210 boys situated on the north side, while opposite are arranged a headmaster's room, and accommodation for the caretaker at the east end. The whole of the floors are of wood blocks, except in the caretaker's rooms and corridors, which are of granite concrete. The school is warmed by a system of high-pressure hot-water pipes and coils. Mr. John Morgan, of Blaenavon, is the contractor, not only for the new school, but for the alterations to the old buildings. Mr. F. Baldwin, of Abergavenny, was the architect, while the duties of clerk of works have been carried out by Mr. T. M. Jenkins, of Brynmawr.

HOSPITAL FOR THE PARALYSED, QUEEN-SQUARE, LONDON.—An inspection of the reconstructed National Hospital for the Paralyzed and Epileptic, Queen-square, took place on the 17th ult. The buildings consist of three blocks, the west, next Queen-square, the east, next Powis-place, and the Westminster wing, which lies on the north side, near Guildford-street. The hospital also owns No. 51, Guildford-street, used as a home for male nurses. No. 5, Powis-place, now being fitted up for night nurses, and two houses in Queen-square which are nurse, and the east and west blocks were erected in 1885. They contain nine wards, with 160 beds in all. The vacant sites in Queen-square would provide space for the necessary enlargements. The improvements effected by the present Board, under the advice of their architect, Mr. R. Langdon Cole, have been brought up to date; the electric light has been installed throughout, every bed having a light of its own and connexions for electrical treatment; a telephone system has been installed, giving inter-communication between the wards and all other portions of the buildings; and the house in Powis-place has been altered and put in order as a home for the night nurses, thus setting free rooms for isolation wards.

SCHOOL BUILDINGS, PLYMOUTH.—The buildings in Salisbury-road, for the Plymouth School Board, consist of two separate blocks, and comprise two distinct schools. The smaller block on the eastern side was opened in January last. The larger block at the western end of the site is an ordinary school of three departments, and provides places for 1,422 children, but this will not be completed for several months. The smaller block, known as the special block, is arranged for



three distinct mixed departments, and separate entrances and separate staircases are, therefore, provided for males and females. There are six distinct entrances and four distinct staircases, and there are four separate playgrounds for the boys and girls of the children's departments, and separate yards and conveniences for all the departments. The accommodation is arranged generally as follows:—The whole of the ground floor of the building, except that portion required for staircases and entrances, is appropriated to the children of the Special Instruction School, for whom are provided an assembly hall, 53 ft. by 24 ft.; two classrooms for girls, each 22 ft. by 22 ft.; and two for boys, of similar dimensions. These accommodate a total of ninety-six children in the classrooms, without counting the assembly hall, which will not be generally used for teaching. The deaf and dumb children are accommodated at the eastern end of the first floor, where are provided an assembly hall 26 ft. by 24 ft., and three classrooms, each 23 ft. by 16 ft., but these are capable of being converted into one large room, about 46 ft. by 23 ft., by folding shutters. The accommodation in this department is for about fifty, exclusive of the assembly hall. In addition to the above accommodation there are six small rooms for the masters and mistresses belonging to the different departments. The whole of the buildings will be warmed by hot water. The staircases and corridors throughout the buildings are of fireproof construction, consisting of steel joists embedded in concrete. The pupil-teachers' department consists of concrete lecture-room and two large classrooms, and separate entrances for male and female teachers. Externally the walls are faced with grey limestone, with square joints and rough unwrought faces. The jambs and arches of the door and window openings and the pilasters are of red brick. The window sills are of Portland cement. The two blocks of buildings have been erected by Messrs. Blake & Son, of Plymouth, for the sum of £2,447—i.e., special block, 7,427, and the main block, 15,024. The buildings have been designed by Mr. H. J. Snell, of Plymouth.

NEW "OLYMPIA," LIVERPOOL.—Messrs. Empires, Ltd., have recently acquired a site in West Derby-road, Liverpool, for the purpose of erecting a new Olympia. It will be designed by Mr. Frank Matcham, and will provide seating accommodation for 4,000 people.

RAILWAY OFFICES, MIDDLESBROUGH.—In our account of the North-Eastern Railway new offices at Middlesbrough, in our last issue, we mentioned that the general contractor was Mr. H. Barry, of Scarborough. It should have been Mr. T. P. Barry, of York.

PUBLIC BUILDINGS, BRIERLEY HILL.—The foundation stone has just been laid of the new technical school and free library at Brierley Hill. It was decided to erect the two institutions under one roof, the technical school fronting Moor-street for a length of 95 ft., and the free library facing Bell-street, with a line of 54 ft. The building, which is being erected from plans by Mr. J. L. Harper, Town Surveyor, will be of red brick, with terra-cotta decorations. In the technical school the accommodation will comprise a laboratory 41 ft. by 25 ft., an art room of the same dimensions, and two other art rooms 30 ft. by 25 ft., with the necessary lecture, committee, and master's rooms. The free library has four rooms, each 30 ft. by 25 ft. Mr. C. A. Horton is the builder.

FLATS, MARYLEBONE.—Sir Thomas Brooke-Hitching laid the corner-stone on the 25th ult. of a block of flats in Marylebone-road, known as the Manor House. The block, which contains over fifty suites, is situated close to the Great Central Railway Station (Marylebone-road). The architects are Messrs. Gordon & Guntion, of Bloomsfield-street. The builder was Mr. Carmichael.

INSURANCE BUILDINGS, EDINBURGH.—New premises for the North British and Mercantile Insurance Co. have been erected in Princes-street, Edinburgh. Messrs. Peddie & Washington Brown were the architects.

BAPTIST CHURCH HOUSE, LONDON.—The new Baptist Church House, Holborn, which has been built out of a portion of the Twentieth Century Fund, and will replace the old Hospital Mission House in Furnival-street, was opened on the 28th ult. The building was illustrated and described in our issue for December 7, 1901. Mr. Arthur Keen was the architect, and Messrs. Higgs & Hill the builders.

WESLEYAN CHAPEL, SUNDERLAND.—A new Wesleyan chapel at Grangetown, Sunderland, was opened on the 22nd ult. The chapel will accommodate 150 persons, and in the adjoining school-room there is room for 100. The plans were by Messrs. W. & T. R. Milburn, and the contract has been carried out by Messrs. D. & J. Ranken.

#### FOREIGN.

UNITED STATES.—The Mayor of Boston is considering the appointment of a professional architect as Commissioner of Buildings in that city. The law requires that the incumbent of that office shall be either an architect, engineer, or builder. The general opinion amongst American architects is that engineers ought not to be eligible for the post.—

The *American Architect*, dealing with the question of the height to which buildings ought to be permitted to be erected, remarks:—"It is too late now to pull down the 'sky-scrapers' by public authority, although we are disposed of them voluntarily. The generation will see many Engineers voluntarily reduced in height by their owners." There is a probability of the whole subject as to height of buildings being relegated to a Commission.—Respecting this question, it may be observed that an amendment of the New York building law has been prepared limiting the height of buildings to 150 ft. At the present time there are forty-nine buildings in process of construction in New York City, ranging from nine to twenty-four stories in height, thirty-eight of which are eleven stories high or over.

#### MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENT.—Mr. E. Shield's new address which was given as "5, Maddox-street" in our last, should have read "51, Maddox-street."

DISASTROUS FIRE, SOUTHEAST-ON-SEA.—Damage estimated at 20,000, was caused by fire on the 21st ult. in Alexander-street, Southend. The outbreak originated, it is stated, in the paint store of the South-end Building Co.

PUBLIC IMPROVEMENTS, BRISTOL.—On the 21st ult., Colonel A. G. Durnford, R.E., held an inquiry at the Council House concerning the application of the Corporation of Bristol to borrow 7,800, for sewerage works near Knowle, and 27,200, for street improvements. The City Engineer, Mr. Yabbi-comb, explained the details of the proposed sewerage works.

DISCHARGE OF SEWAGE.—The Port Sanitary Committee of the City has recently made some inspections of the manner of the discharge of sewage in the port, and has come to the decision that the disposal of the sludge as at present carried out is detrimental to the public health. It appears to be the usual rule to discharge the sludge in the Barrow Deep, about five to eight miles beyond the minimum limit and between the Sunk Sand and the Barrow Sands. At about half ebb tide it is carried in the direction of the North Sea; but it is conceivable that the sludge, if discharged just over the boundary line, and especially if done at low water, would be carried, on a flood tide, in the direction of the Maplin Sands and up the Thames estuary. The committee recommend that a communication should be sent to the London County Council suggesting that, pending the adoption of some more satisfactory system of sewage disposal, the western limit of the discharging line should be extended to a point at least ten miles further out in the Barrow Deep, and that the sludge should invariably be discharged as soon as possible after high water. They further suggest that they should be authorised by the Corporation to seek a Conference with the Main Drainage Committee of the London County Council on the subject. Two samples of "sludge" taken teemed with bacilli and impurities.—*Times*.

QUEEN VICTORIA STATUE, NEWCASTLE-ON-TYNE.—The bronze statue of the late Queen Victoria, which has been placed in St. Nicholas-square, Newcastle, at the expense of the Mayor (Alderman Sir W. H. Stephenson), in commemoration of the five hundredth anniversary of the Shrievalty of the city, has just been unveiled. The statue was designed by Mr. Alfred Gilbert, who made all the models, and the statue was cast by the Continental Bronzes in Belgium. It stands upon a foundation of Peterhead granite, in two steps. Upon this is an octagonal polished base, 4 ft. high, with inscriptions. Above this is a bronze pedestal, moulded and ornamented, and upon this the statue rests. The whole erection is 18 ft. 6 in. high. The Queen is represented seated in a throne, with the sceptre in one hand and the orb in the other. The figure faces towards Collingwood-street, having the cathedral on the left hand and the municipal buildings on the right. A canopy covers the figure. The granite base and steps for the statue were supplied by Mr. Beall. Mr. Beall also erected the bronze monument.

LONDON STREET IMPROVEMENTS.—The adjourned meeting of the conference of representatives of the Metropolitan Borough Councils, convened by the Camberwell Borough Council, to consider the different treatment of the Metropolitan Borough Councils by the London County Council in fixing the amounts of the local and county contributions towards the cost of street improvements, was held last week at the Guildwell Town Hall. Mr. C. Goddard Clarke, Mayor of Camberwell, presided. The conference adopted the committee's recommendation that the principle of treating London as a whole and of systematically selecting improvements best calculated to provide relief to the main thoroughfares, as advocated by a Select Committee of Parliament in 1871, should at once be formulated by the London County Council in a definite and comprehensive scheme for all future county improvements, and upon which London should equally contribute upon rateable value. As to tramway improvements, the conference altered the wording of the committee's recommendation as follows:—"That in all thoroughfares in which tramways are or may be constructed a width of not less than 54 ft. should

be provided and the total cost of widening borne by the London County Council either out of the tramways account or the county rate." With respect to local improvements, the committee recommended that contributions to local authorities for local improvements should be, as far as possible, on a uniform basis. This recommendation gave rise to a considerable discussion, but it was eventually adopted. Mr. J. R. Tomkins (Camberwell) proposed that a deputation should be appointed to wait upon the Improvements Committee of the London County Council and to submit the resolutions adopted by the conference to them. After some debate that motion was withdrawn, and it was resolved to send copies of the resolutions passed by the conference to the various Metropolitan Borough Councils for their consideration and observations. The conference then adjourned.

METROPOLITAN WATER BOARD.—The second meeting of the new Metropolitan Water Board was held on the 23rd ult. at the Caxton Hall, Westminster, Sir J. T. Ritchie presiding. A committee was appointed at the first meeting to consider various preliminary steps, and they now reported that they had decided to use the Caxton Hall as headquarters for the present; that they should advertise for a clerk at 1,500, a year; that three committees—law and Parliamentary, finance, and general purposes—should be sufficient to run the Board; and that 5,000, should be borrowed for present needs. These items were confirmed. The Board next considered the question of whether any salaries should be assigned to the offices of chairman and vice-chairman. After discussion, it was decided not to pay the chairman by thirty-four votes to twenty-three.

NEW OPEN SPACE, BROMFIELD PARK.—The Urban District Council have secured Bromfield Park as an open space, and on Saturday last the ground was opened. The area of the estate is 54 acres, of which 30 acres are parkland, 9 acres are devoted to cricket and football ground, while three lakes between them cover nearly 14 acres. The house itself stands on the site of what was once a conventual establishment, on the verge of which was the Middlesex Forest, and, while it is believed that Queen Elizabeth visited it, it is certain that James I. used it as a hunting lodge. The building has at some remote period been refronted, but the interior shows many signs of antiquity. There is a fine oak staircase, the walls and ceiling of which are decorated with oil paintings on plaster, the work of Thornhill, who assisted in the decoration of the dome of St. Paul's. It is intended, if possible, to use the house for technical classes and reading rooms, but the park will, as far as possible, be left as it is. The price paid by the Urban District Council is 25,000, and the costs have been 2501.—*Morning Post*.

SALES OF PROPERTY.—At the Mart, on May 14, St. Dunstan's House, Fetter-lane, covering an area of about 5,320 sq. ft. superficial, with a principal frontage of 81 ft., and built of Portland stone and Wilcox's ivory-white bricks by Messrs. Patman & Wilcox's, Fotheringham, after plans and designs by the late W. Seckham Witherington, in 1866-7, for Messrs. Sampson, Low, Marston, Searle, & Rivington, the well-known publishers, and predecessors of the present tenants, who are the vendors. The rental value of the premises, which we illustrated in our number of February 12, 1887, is estimated at 2,000, per annum, the existing lease, at a ground-rent of 260, per annum, will expire in July, 1906.—On May 26, by order of the Ecclesiastical Commissioners, the freehold site and the fabric of the church of St. George, Dorset, which was, in 1861, built for the united parishes of St. Botolph and St. George in 1672-4, at a cost of 4,510, after Wren's designs. Though it presents no very remarkable architectural features, the church is a typical example of Wren's minor City churches; the tower rises directly from the ground, the solid unbroken basement story gives an appearance of stability to the entire edifice, and the tower is finished with a cornice and a blocked parapet having urns on the angle-piers; the east end has a deep angle pediment; the interior, lighted through round-headed windows in the ceiling, the aisles, and the east end, is divided by Corinthian columns, two on each side, into a nave and two aisles; the dimensions are 54 ft. by 36 ft., and height 36 ft.; a small plate altar to the sword-iron commemorates Alderman William Beckford, *obit* June 21, 1770, the patriotic Lord Mayor of London; the rectory of the parish belonged to the Abbot and convent of St. Saviour, Bermondsey, until the suppression when it became vested in the Crown.—It is stated that Mr. William W. Astor has purchased for 47,000, Heyer Castle, near Severn, the home of the Boleyns, and the birthplace, reputedly, of Anne Boleyn. The castle is a well-preserved specimen of fourteenth-century military architecture in England. In the parish church is the monument of Sir Thomas Boleyn, Earl of Wiltshire, wearing his robes as a Knight of the Garter.—On May 19, at the Mart, the Hendon Park estate, near Mill Hill, extending over nearly 280 acres, divided into ten lots, which include 24 acres of Highwood Hill, and the home of Samuel Wilberforce, whose house adjoined that of his contemporary, Sir Stamford Raffles. Wilberforce removed from Highwood Hill to Cadogan-place, Chelsea, in 1831, two years before his death. Sir Stamford Raffles died in 1826 at Highwood Hill, where Peter Collinson,



F.R.S., the celebrated botanist, formed during the latter half of the eighteenth century a garden in which Linnaeus planted several trees.—On May 14 the Crown leases of Nos. 246 and 248, Regent-street, at the corner (north) of Little Argyl-street; the lease for a term of eighty-six years from April 5, 1832, at an annual ground rent of 150s. and 6d. in lieu of land-tax is subject to an under lease, granted upon a premium for seven years from December 25, 1896, at a rent of 710s. per annum. The corner house, No. 246, having a return frontage of 50 ft. to Little Argyl-street, forms the remaining portion of the (old) Argyl-rooms, or Harmonic Institution, rebuilt in 1818, after Nash's designs and destroyed for the greater part by fire on February 6, 1850, after which time the Philharmonic Society migrated for a short period to the concert-room of the Opera House in the Haymarket and thence in 1833 to the Haover-square Rooms, lately rebuilt. It was in the Argyl Rooms, Regent-street, that Mendelssohn first appeared before an audience in London, as conductor, on May 25, 1829, of his symphony in C minor, and there, on midsummer night of June, 1829, he produced for the first time in England his overture to "A Midsummer Night's Dream." No. 246 has been shorn of the cupola that rose from within the parapet, and Nos. 248 and 250 have replaced the former concert-room built for Welsh and Hawes, which had a balcony along the front carried upon eight termini, of which the female heads were by J. G. Bubb—see the print by Shepherd.

ROMAN REMAINS AT CAERWENT.—The exploration at Caerwent, which has been continued during the winter, has resulted in further discoveries. A small building with an apsidal end, which it is thought may have been a Christian church, has been unearthed at the north gate, where Lord Cardigan is conducting the search. Near the gate, in an adjacent field, have been discovered the remains of an amphitheatre about 150 ft. in diameter. The consent of the Parish Council was obtained to excavate on the village green, and here, it appears, was the centre of the Roman town. One of the most important discoveries yet made at Caerwent was here. It consisted of a memorial stone, mutilated, but still standing upright on a broad stone base. The stone, which is 3 ft. in height, has panelled sides, and on one bears an inscription showing that the citizens of Silurum erected the stone in honour of an officer.

THE EXPORT OF BUILDING MATERIAL.—In his annual report on the trade of Constantinople, Mr. Vaughn, his Majesty's Vice-consul, comments on the export of British materials in looking after business abroad, and quotes the following instance:—"The British Seamen's Hospital here is being rebuilt, and some 10,000l. is being spent on building material ordered from home and the Continent. The natural desire of the committee is to give the preference to firms at home. In one instance a London firm was asked to tender. They replied that they were sending their catalogue. Four weeks later their catalogue arrived by parcel post via Liverpool, whereas it would have arrived here in four days at the cost of 4d. by book post. In the meantime the order had been given to another firm. In another case a catalogue arrived as a letter with a surcharge of 10s. No trouble is taken to study the postal regulations. The British post-office here makes about 200l. a year by surcharges on letters posted with a penny stamp. These irritating blunders are not made by Austro-Hungarian and German firms. The hospital committee has been besieged by representatives of foreign firms only too anxious to get orders. In my informant's own words, 'People at home are hopeless, and their slipshod way of doing business and their extravagant prices leave them no chance.' There is no need to seek further explanation for the falling off of British trade in ironware, machinery, and a thousand and one small articles."

THE CAMPANILE OF ST. MARK.—The Venice correspondent of the *Times* writes to that journal:—"Venetians are promised their new tower in three years' time. They and their foreign friends have subscribed 600,000l. towards the expense, and the Government have voted a further sum. The foundations of the old tower have been found to be in excellent condition, and it is on them that the new Campanile will be raised. Signor Beltrami, of Milan, is the architect, Signor Boni, who had been at first appointed, having elected to remain in Rome in charge of the excavations in the Forum. Elaborate works are now out for securing the stability of the Procuratie Vecchie and the south corner of the Ducal Palace, which has been in great danger of falling, has by timely energy been saved. The flagstaffs in front of St. Mark's have been removed, and the bronze horse on the porch of the church, which had been taken down for repair, is again in position."

BRITISH FIRE PREVENTION COMMITTEE.—The International Fire Exhibition at Earl's Court, which has been organised under the auspices of the British Fire Prevention Committee, will be opened by the Duke of Cambridge on May 6, noon. The Committee's testing operations will re-commence at their private testing-station on June 1, and will this year comprise several tests with floors and partitions. The International Fire Prevention Congress, convened by the Committee, will be opened by the

Lord Mayor on July 7. The Association of the Chief Officers of Professional Fire Brigades will hold their annual meeting in London at the invitation of the British Fire Prevention Committee on July 9. The National Fire Brigades Union will arrange its annual competitions in connexion with the International Fire Prevention Congress, to commence on July 10. The International Fire Brigades Council will meet, at the invitation of the Committee, in London on July 11.

MEMORIAL TO ROYAL MARINES, ST. JAMES'S PARK.—The Prince of Wales, accompanied by the Princess, drove on Saturday last week to St. James's Park to unveil, in the Cambridge Enclosure, a Memorial which has there been erected to the Royal Marines who fell at Graspan, South Africa, and during the defence of the British Legation at Pekin. The design for the bronze figure, panels, and sculptured work was entrusted to Captain Adrian Jones, of Chelsea, and Mr. T. G. Jackson, R.A., prepared the design for the pedestal.

### CAPITAL AND LABOUR.

THE JOINERS' DISPUTE, ST. HELENS.—The dispute in the joinery trade of St. Helens over the "ready-made" fittings, and which had resulted in the stoppage of sixty or seventy men, has been settled. At Manchester recently the St. Helens Master Builders' Association met the emergency committee of the Builders' Federation, and Mr. Matkin, general secretary of the General Union of Carpenters and Joiners, and Mr. Croft, secretary of the Amalgamated Union of Carpenters and Joiners, also interviewed the committee. As a result of the conference it was agreed that the St. Helens joiners had acted on their own initiative, and it was decided that the men should return to work at once, and the dispute considered settled. If the men desired any alteration of rules, it was understood that six months' notice would be given in accordance with Board of Trade recommendations.

WALSALL BUILDING TRADE DISPUTE.—At a meeting in connexion with the Walsall and District Building Trades Federation on the 27th ult. in the Central Hall, Walsall, it was stated that the various sections of workmen in the building trades were rendering support to the bricklayers and labourers who are on strike, although the Federation was not in a position to give strike pay. A dispute between the carpenters and joiners and their employers had been referred to arbitration, and the Board of Trade had appointed an arbitrator.

SOUTHPORT PAINTERS' STRIKE.—On the 25th ult. the members of the Birkdale and Southport Operative House Painters' and Decorators' Association, to which the majority of the painters on strike in Southport belong, communicated to the employers their refusal to submit the points in dispute to arbitration.

SUNDERLAND JOINERS.—The Sunderland joiners have decided, it is stated, to ask for an increase of wages, both in the shipbuilding and the house trade. Enquiries made among the men point to the demand made being for 2s. in the shipyard, making 39s. and 3d. an hour in the house trade, making 10d. an hour.

### LEGAL.

#### THE WORKMEN'S COMPENSATION ACT,

1897.

PRESTON v. WADE AND CO.

THIS case came before the Court of Appeal composed of the Master of the Rolls and Lords Justices Stirling and Matthew, on the 23rd ult., on the appeal of the respondents from an award made by the County Court Judge of Birmingham sitting as arbitrator under the Workmen's Compensation Act, 1897. The question raised by the case was whether the respondents were the "undertakers" within the meaning of the statute.

It appeared that Messrs. Mullingers & Co., a firm of engineers, were altering for their own use a building at Coventry into an engineering shop. The work in all matters relating to building they performed themselves. But they required that a travelling crane should be fitted, and for this purpose gantry rails had to be put up leading from one end of the building to the other. They accordingly gave the work to the respondents, Messrs. Wade & Co., in the course of their work of alteration, Messrs. Mullingers used scaffolding, but the rails were put into position by the respondents without such assistance. The rails having been placed on the walls, Messrs. Mullingers' men filled in the brickwork. In the course of putting the rails into position the plaintiff, who was in the employ of Messrs. Wade & Co., sustained the injuries in respect of which the claim for compensation was made. It was admitted that the man at the time of the accident was employed "on, in, or about a building over 30 ft. high which was being constructed by means of scaffolding," and he was thus brought within the first provisions of the Act, but the question was whether he could sue the respondents as the "undertakers" of the work. The County Court Judge held that Messrs. Wade & Co.

were the "undertakers" within the meaning of the statute and awarded the applicant compensation. Mr. Arthur Powell, K.C., and Mr. Shakspeare appeared for the appellants, and Mr. Fritchett for the applicant.

At the conclusion of the arguments of counsel the Master of the Rolls, without calling upon the counsel for the applicant, in giving judgment said he quite agreed with the finding of the learned County Court Judge and the reasoning on which that decision was based. He was clearly of opinion that the respondents were "undertakers" within the meaning of the Act.

The Lords Justices concurred, and the appeal was accordingly dismissed with costs.

#### DISPUTE AS TO LIABILITY FOR PAVING EXPENSES.

THE case of Lumby v. Faupel came before a Divisional Court of King's Bench, composed of the Lord Chief Justice, Mr. Justice Wills, and Mr. Justice Channell, on the 21st ult. This was the defendant's appeal from a decision of Judge Russell, sitting at the Kingston County Court, in favour of the plaintiff.

The action was brought by the plaintiff against the defendant for 25l. 18s. 11d., the amount of expenses incurred under Section 150 of the Public Health Act, 1875, in paving the road in front of a house known as No. 46, the Broadway, Wimbledon, of which the plaintiff was the owner, and the defendant formerly the lessee by assignment from one Gordon, to whom the plaintiff by a lease dated October 2, 1879, let the premises for a term of twenty-one years. The assignment by Gordon to defendant was dated May 29, 1893. On November 2, 1890, defendant surrendered his lease to the plaintiff, and was granted a new lease for twenty-one years as from September 29 of that year. This lease contained a covenant that the lessee would pay "all rates, taxes, and assessments whatsoever which now are, or during the said term shall be imposed, or assessed upon the said premises or on the landlord or tenant in respect thereof by authority of parliament or otherwise." The work in question was completed in January, 1897, notices of apportionment given on January 2, 1902, and demand for payment made on May 3, 1902. The County Court Judge gave judgment for the plaintiff against the defendant for the sum claimed. Hence the present appeal of the defendant, on whose behalf it was contended that the covenant in the lease was not sufficiently wide in its terms to impose liability on the defendant. On behalf of the respondent (the plaintiff) it was contended that the words of the covenant were wide enough to make the defendant liable, and that as the expenses incurred were an assessment imposed on the landlord in respect of the premises, the decision of the learned County Court Judge was right and should be affirmed.

In the result their lordships held that the words of the covenant were not sufficiently wide to impose a liability on the tenant, and allowed the appeal with costs.

Mr. J. S. Green appeared for the appellant, and Mr. W. O. Hodges for the respondent.

#### SURVEYOR'S ACTION AS TO COSTS OF AN ARBITRATION.

THE case of Biggs v. Matthews & Mackenzie came before Mr. Justice Channell in the King's Bench Division on the 25th ult. It was an action brought by the plaintiff, Mr. W. T. Woodbridge Biggs, a surveyor, of 10, Clifford's-lane, Fleet-street, E.C., to recover from the defendants the amount of the costs of an arbitration and award, viz. 15s. 11s. The plaintiff took out 24s. from this amount, making the amount in dispute 13s. 11s.

Mr. W. Sanderson was counsel for the plaintiff, and Mr. Mears represented the defendants.

The plaintiff in his evidence stated that he attended the Law Courts as an arbitrator eight days, and then went down to Byfleet to view.

His Lordship: So you had not been on the property until after the arbitration commenced.

The plaintiff: No, my lord.

Continuing, the plaintiff said he took his assistant with him to do the measuring. During the arbitration he also employed a shorthand writer, who assisted him in drawing up his award. He did not consult the other side about it.

His Lordship said it was usual to consult all parties concerned when a shorthand note was in question.

Plaintiff said that if he had not employed a shorthand writer, the arbitration would have taken several days longer than it did.

Mr. Sanderson: How long were you occupied in drawing up the award?

The plaintiff replied that in going through the claim and counterclaim and making up the award, he was engaged forty-one hours. Plaintiff was going through the account in detail when his Lordship interrupted, saying it came to eight guineas a day for sitting at the Law Courts, ten guineas for inspection at Byfleet, and seven guineas a day for the days during which the plaintiff was making up his Report.

Plaintiff said he based his charges on Johnson's book "On Costs of Arbitrations."

In cross-examination, the plaintiff admitted that



he did not reply to a letter sent to him suggesting that the bill should be taken before a master of taxation.

Mr. Mears: Do you say that to draw up this award took you the whole of forty-one hours?

Plaintiff replied that that was so.

Mr. Mears said that that came to 18s. an hour.

Plaintiff replied that that was the value of his labours.

Mr. F. T. W. Miller, of 9, Queen Anne's Gate, Westminster, a surveyor, said he had acted as an arbitrator on several occasions. He thought that a professional man of the plaintiff's position, providing he could do the work in his office, which would allow him to do his ordinary business, would be entitled to charge at the rate of 5s. 5s. a day.

Mr. Mears said he did not dispute that 8s. 8s. and 5s. 5s. a day were unusual.

This was the plaintiff's case.

Mr. Mears, for the defence, said he did not propose to call any evidence as to what were fair charges. He complained that the plaintiff should have employed a shorthand writer, and submitted that the charge on that head should be struck out. There was not the slightest suggestion that the plaintiff had not done his work admirably, but he should not have employed a shorthand writer. He thought if the plaintiff had relied on his own notes, as would be expected of an arbitrator, it would have been very much better. He could have taken the material points which struck him, and the result would have been that instead of forty-one hours to draw up the award, which plaintiff stated it occupied, it would have taken very much less time, perhaps six hours.

His Lordship, in giving judgment, said the difficulty in this case was that the plaintiff himself had made out a bill for 158l. 11s., and had himself taken off 24l. from that, and asked only for 134l. 11s. He should have thought that in a case like this that the arbitrator would have viewed the property at once, instead of waiting until the arbitration had been going on for eight days. The result was that he could not say that 134l. 11s. was excessive. If the 158l. had been insisted upon he should have taken off something similar to what plaintiff had done. Under the circumstances he could not possibly say that 134l. was too much, and he gave judgment for that amount with costs.

It was directed that the 50l. paid into Court should be paid out to the plaintiff.

## PATENTS OF THE WEEK:

### APPLICATIONS FOR PATENTS.

12,097 of 1902.—T. B. JACOBSEN: Means for Attaching the Handles of Door Locks to their Spindles.

Means for securing the handles of doors to their spindles, consisting of a spindle, the ends of which are formed with ratchet teeth upon two opposite faces, and a pair of springs secured to the inside of the handle and adapted to engage with the teeth of the ratchet on the spindle.

12,140 of 1902.—W. BELL: Attachments of Knobs, Handles, and the Like.

A fitting provided with a base in which an aperture is formed to receive a spindle, the base being provided with a transverse guide for the reception of a spring-actuated locking bolt provided with an operating finger and formed with an aperture through which the spindle is free to pass, together with means for retaining the bolt within the recess the bolt being adapted to engage with a notch in the spindle.

9,494 of 1902.—C. GRINER: Window Sashes and Frames.

In window frames and sashes, the pivoting of the sashes to blocks free to move up and down in grooves or recesses in the sides of the frame, and connected with the sash lines.

12,485 of 1902.—J. ELWELL: Vertical Bar Fencing and Standards for Fencing.

Vertical bar fencing and standards for fencing, which are rolled and formed of cruciform section.

27,789 of 1902.—W. LIVINGSTONE and S. P. PORTER: Furniture and Like Casters.

A built-up wheel in which there is combined with a wheel tread a single supporting sheet-metal web centrally located with respect to the tread and secured thereto, and having struck up radially extending corrugations embodying ridges alternating first on one side of the web and then on the other, each ridge increasing in height radially outward of the web and terminating close to the adjacent edge of the tread, whereby the line of contact between the tread and the web extends across the entire width of the tread.

27,790 of 1902.—W. LIVINGSTONE and S. P. PORTER: Furniture and Like Casters.

A blank for forming a pintle, the blank comprising a substantially rectangular body portion from one edge of which and between the sides of the blank metal has been removed to permit the remaining metal to form a pintle end of reduced diameter for the attachment of a separate caster appliance.

\* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

27,791 of 1902.—W. LIVINGSTONE and S. P. PORTER: Casters and the Sockets Thereof.

A rectangular blank for forming a one base caster socket, said blank being provided with corrugations in that edge portion which is to form a track plate of the socket, and with a tenon member struck up from metal lying wholly within the boundary lines of the body portion of the blank.

10,887 of 1902.—G. HELMER, JUN.: Apparatus for Heating the Air of Rooms.

An apparatus for heating the air of rooms, comprising a vertical closed pipe divided into two communicating compartments into which the heating gases and smoke from the fire enter, a second vertical closed pipe communicating with the said pipe and conducting to the chimney, and an air pipe passing through the centre of the pipe and exposed to the heating action of the smoke and gases in the latter, whereby the air passing through the pipe becomes warmed.

7,891 of 1902.—C. PRYCE: Brick Presses.

A brick press or machine for forming a panel or panels in the brick, comprising one or a pair of knives mounted on a suitable shaft or shafts, slidable brackets surrounding the shaft or shafts and capable of being engaged by eccentrics on the latter, plates attached to the said slidable brackets and means for rotating the knife shafts.

17,198 of 1902.—J. JACKSON: Methods and Means of Fixing Traps for Baths and other Sanitary Appliances.

The method of fixing a detachable trap-bend to a bath or such-like vessel by suspending it upon screws fitted through slots contained in a flange upon the jam-nut (which connects the screw-threaded waste nozzle to the vessel), and open-ended slots contained in a flange upon the said trap-bend and screwed nuts which are fitted and screwed tightly upon the said bolts where they protrude beneath the aforesaid trap-flange.

7,495 of 1902.—G. S. BAKER: Refuse Destructors and the Like.

In a destructor in which the material to be burned passes on its way to the furnace over the slant surface of an arch, or roof, of the furnace-chamber, one or more flues leading from the furnace through the body of the arch.

7,806 of 1902.—R. BRIERLEY: Drain Pipes.

Drain pipes provided with lips or knuckles, or recesses or hollows, so arranged and adapted that when such pipes are arranged to form a drain, the lip, or knuckle, of one pipe will engage the recess, or hollow, of the adjacent pipe in such manner as to prevent all tacking at the joint being washed away.

2,706 of 1901.—J. HODKINSON: Means for Allowing of the Laying of Hose Pipes across Public Thoroughfares without Interruption of Traffic.

This invention has for its object to provide facilities whereby in the event of a fire, and the water supply required to be conveyed across a public thoroughfare, the hose pipes may be laid across the roadway without interrupting the traffic. As applied to means for enabling fire-engines to pass over the pipes this invention consists of a set of auxiliary rails of any suitable length, but preferably about 12 ft., and adapted to lie upon the ordinary rails at the point where the hose pipes require to pass. At the centre the said rails are each a few inches high, and for a few feet are level with the roadway, while the other portions slope up to the side edges. Through the said centre parts holes are formed for the passage of special pipes to which the hose pipes are coupled. As placed in position, the auxiliary rails allow a tramcar to continue its journey without interfering with the conveyance of the water across the roadway. As applied to means for enabling other vehicles to pass, two or more rails or supports of similar construction are used to those aforesaid, and are covered with boarding, or the like, to form a surface for ordinary vehicles to pass over and a cover for the pipes.

7,917 of 1902.—J. T. DICKER: Apparatus for Covering Flexible Conduits or Pipes with Rubber or Similar Material.

This consists of a coating pan consisting of a vessel supported by standards, a guide roller journaled to arms secured to a rod extending across said vessel, which has one side extending perforated, and a hollow cylinder, partially conical, partially straight, provided with slots or eyes secured over said perforated side.

1,176 of 1901.—V. JETLEY: Lifts or Elevators.

A lift, or elevator, comprising a rigid platform or framework, a movable platform or cage, a number of screws adapted to slide within each other telescopically, each of which screws is fixed to a movable frame or to the movable platform, and means for effecting the raising and lowering of the said screws, and consequently of the said movable platform or cage.

1,404 of 1903.—B. J. B. MILLS (Thomas Alva Edison): Portland Cement.

Apparatus for burning a cement mixture for the production of Portland cement, comprising the combination of a long rotary kiln of such an abnormal length as to present a passage beyond the combustion zone sufficient to permit of a con-

siderable cooling of the escaping gases by contact with incoming ambient material as compared to existing structures; devices for introducing into the kiln at its upper end a load of material greatly in excess of those now employed, and in quantity sufficient to result in a relative cooling of the escaping gases as well as to effect such a compression of the plastic or fused mass as to coat the lining of the kiln with a protecting layer, and a nozzle or nozzles, for projecting into the kiln at its lower end a sufficient quantity of pulverised fuel to produce a combustion zone of such a temperature and length as to result in the complete nitrification of material passing through it, whereby economies in the operation are effected, increased output of clinker is secured, and corrosion of the kiln lining is overcome.

1,434 of 1903.—J. O. RANDALL: Heating and Ventilating Systems.

The combination with the cylinder having double walls spaced apart and a pipe arranged within said space, and having its upper end extending into the space enclosed by said cylinders of an inclined head at the lower end of said cylinder, and provided with grooves in its upper surface and perforations in its periphery; the outer head spaced from the said inner head, a drip-pipe attached to said outer head and in communication with the space between the heads, and a pipe connected to said drip-pipe and adapted to supply air thereto.

834 of 1903.—C. H. GILBY: Siphons.

A sleeve upon and adapted to be moved up and down the long leg of a siphon, said sleeve providing an annular space around the siphon leg so that when a spout upon the sleeve is moved to a point below the level of the contents of the receptacle, the liquid therein shall flow down the siphon leg, and up the annular space until it overflows through the spout.

2,507 of 1903.—J. FOWLER: Fire Grates.

A fire-grate, consisting of a rake so combined therewith as to be capable of motion to and fro for the purpose of cleaning the fire.

2,075 of 1903.—G. S. BAKER and J. BAKER & SONS, LTD.: Bakers' Ovens.

Bakers' ovens intended to be heated by use of Perkin's tubes and by flash heat, consisting in the arrangement of flues, comprising a flue for heating the Perkin's tubes and leading thereafter directly into the interior of the oven, a damper controlled flue from the interior of the oven to a chamber whence a damper controlled flue leads to the chimney, and another damper controlled flue for the return of furnace gases leading to the furnace.

## MEETINGS.

### FRIDAY, MAY 1.

Architectural Association.—Mr. A. Needham Wilson on "Architecture and the Public." 7.30 p.m.

Institute of Engineers.—Mr. R. W. Newman on "The Effect of Design on Methods of Construction, from a Contractor's Point of View." 8 p.m.

### SATURDAY, MAY 2.

Royal Institution.—Professor Langton Douglas, M.A., on "The Early Art of Siena." 11. 3 p.m.

British Institute of Certified Carpenters (Carpenters' Hall).—Business meeting, 8 p.m.

Edinburgh Architectural Association.—Visit to Wemyss Castle.

Sanitary Inspectors' Association.—Visit to works of Stuart's Granolithic Stone Co., Ltd., Millwall, E.

### MONDAY, MAY 4.

Royal Institute of British Architects.—Annual general meeting, (1) to receive and consider the annual report; (2) to elect scrutineers for the annual election of the Council and Standing Committees; (3) to nominate candidates as Auditors for the ensuing year of office; (4) to appoint the Statutory Board of Examiners under the London Building Act, 1894, and other Acts of Parliament, for the ensuing year of office. 8 p.m.

Society of Engineers.—Mr. D. B. Butler on "Certain Vexatious and Fallacious Cement Tests Now in Vogue." 7.30 p.m.

Society of Arts (Cantor Lectures).—Mr. W. Worby Beaumont on "Mechanical Road Carriages." 11. 8 p.m.

### TUESDAY, MAY 5.

Glasgow Architectural Association.—Mr. J. A. T. Houston on "Bath and its Architecture." 8 p.m.

Institute of Builders.—Council meeting. 4 p.m.

### WEDNESDAY, MAY 6.

Royal Archaeological Institute.—(1) Professor W. Boyd Dawkins, D.Sc., F.R.S., F.S.A., on "The Pre-Roman and Roman Roads of South-Eastern England." (2) Mr. Talfourd Ely, F.S.A., on "A Roman Lighthouse." 4 p.m.

Society of Arts.—Mr. G. J. Morrison on "The Construction of Maps and Charts." 8 p.m.

Edinburgh Architectural Association.—Mr. A. Hunter Crawford on "The Building of a House." VI. 8 p.m.

Builders' Foremen and Clerks of Works' Institution.—Ordinary meeting of the members. 8 p.m.

### THURSDAY, MAY 7.

Royal Institution.—Professor Dewar, M.A., on "Hydrogen: Gaseous, Liquid, and Solid." 11. 5 p.m.

Institution of Engineers.—(1) Mr. A. D. Williamson on "Applications of Electricity in Engineering and Shipbuilding Works." (2) Mr. A. B. Chatwood on "Electric Driving in Machine Shops." 8 p.m.

Narragansett Institution.—Country meeting. Lord Ardilaun, K.P., will hold a reception in the Lecture Theatre, Leinster House (by permission of the Royal







(For some Contracts, &c., still open, but not included in this List, see previous issues.)

## CONTRACTS.

## PUBLIC APPOINTMENTS.

Those marked with an asterisk (\*) are advertised in this Number. Competitions, iv. Contracts, iv, vi. viii. & x. Public Appointments, xx & xxi.







LONDON.—For repairs to the Wheatsheaf, Rotherhithe, for Messrs. Gerald Hall & Co., Alton. Mr. Henry Hall, architect, 10, Doughty-street, W.C.—  
Pritchard & Renwick..... £271

LONDON.—Structural alterations to bakery, &c., No. 3, Spring-street, Paddington, for Messrs. Spiking, Messrs. Blangy & Van Baars, architects, 19, Old-square, Lincoln's Inn, W.C.:—  
William Whiteley .... £258 Hailes & Son\*..... £178  
Lole & Lightfoot .... £258

LONDON.—For shop-front and fittings for dairy at Fropal Parade, Hampstead, N.W. (exclusive of marble work), for Messrs. J. Richards, Ltd. Mr. T. Wilson, architect, 34, New Bridge-street, E.C.:—  
Williams\* ..... £403 Pugh\* ..... £355  
Wall & Co. .... 357

NEWPORT (Mon.).—For the erection of shops, &c., Llanarth-street, for the Co-operative Society, Messrs. Swash & Bain, architects, Midland Bank Chambers, Newport:—  
Jerrett & Fisher, Melton-street, Newport\* £2,649

PONTYPOOL (Mon.).—For the erection of a Congregational Church. Messrs. Swash & Bain, architects, Newport:—  
Leadbetter Bros., Crindau, Newport\*..... £4,197

PORTSMOUTH.—For the erection of workshops and offices, Gladys-avenue, North End, for the Corporation. Mr. E. Rutter, Engineer, Pearl Buildings, Portsmouth. Quantities by Mr. C. W. Bevis, Southsea:—  
H. Sweetland .... £10,800 W. T. Dugan ..... £9,151  
John Hunt..... 10,568 Samuel Salter ..... 9,089  
W. W. Evans ..... 9,900 James Crockerell ..... 8,999  
J. W. Perkins .... 9,797 M. Coltherup, Portsmouth\* ..... 8,150  
Smith & Sons, Ltd. 9,739  
P. H. Dowdell ..... 9,425

ROWLEY REGIS.—For the erection of school buildings, Siviter-lane, for the School Board. Messrs. Meredith & Pritchard, architects, Bank Buildings, Kidderminster:—  
G. H. Eastwood .. £11,600 Willeits & Sons .... £9,271  
F. L. Jones ..... 10,850 J. F. Bloomer ..... 9,250  
J. A. Meredith .. 12,352 C. Griffiths ..... 9,157  
J. T. Beach .... 10,004 Oakley & Coulson .. 9,137  
H. Smith ..... 9,551 Hadley & Sons ..... 9,088  
C. A. Horton ..... 9,760 T. Vale ..... 8,975  
J. Bridgewater .. 9,647 J. Dallow ..... 8,725  
J. Herbert ..... 9,590 Dorre & Co., Cradley Heath\* ..... 8,371  
Guest & Son ..... 9,470  
R. Thompson ..... 9,400

SHEFFIELD.—For rebuilding the Red Lion Hotel, Duke-street, Park, for Messrs. the Directors of Thos. Rawson & Co., Ltd. Messrs. Hall & Fenton, architects and surveyors, 14, St. James-row, Sheffield. Quantities by the architects:—  
J. W. Dickens £1,400 4 5 Jas. Masson.. £1,351 12 0  
T. Margitt ..... 1,400 0 0 R. H. Roberts 1,349 0 0  
" " " " " Hy. White .. 1,347 10 0  
Geo. Allen .. 1,380 0 0 M. Hancock, 75, Rotherham-road\* ..... 1,168 0 0  
Martini & Hughes .. 1,264 0 0  
J. H. Lilleker 1,251 15 9

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J. Moron .....	£3,403	0	1	Martin & Son,			
Dyson & Son .....	3,390	0	0	Cavendish-			
Hollingsworth				street* .....	£3,009	0	0
& Bedford .....	3,212	13	5	Chandler &			
Vasey & Son .....	3,188	0	0	Co. ....	3,056	0	0
Jas. Masson .....	3,180	0	0	Wilkinson &			
White & Son .....	3,154	0	0	& Son .....	3,007	10	0
Powell & Son .....	3,146	0	0	M. Hancock ..	2,933	0	0
A. Bradbury .....	3,109	0	0	M. A. Earl .....	2,915	0	0

SLOUGH.—For the erection of school buildings, Queen's-road, for the School Board. Messrs. Lee & Farr, architects, Slough:—  
G. Tucker ..... £4,335 J. & D. Bowyer .... £3,521  
A. Reavell ..... 3,919 Cox & Sons ..... 3,443  
H. Burfoot ..... 3,850 Hunt & Sons ..... 3,377  
Butcher & Hendry.. 3,795 H. Flint ..... 3,229  
E. Chamberlain .... 3,725 G. Eastwood ..... 2,900  
J. H. R. Atkins ..... 3,546 Lane & Sons ..... 2,549  
Cooper & Sons..... 3,642 Ward & Sons, Uxbridge\* ..... 2,500  
Gibson ..... 3,759

WEYMOUTH.—For alterations, new sanitary arrangements, and general repairs to the Wesleyan Soldiers' and Sailors Institute, Portland, for the Trustees. Mr. A. J. Bennett, C.E., 10, Gloucester-terrace, Weymouth:—  
Robt. White ..... £746 10  
John James Patten, Portland\*..... 739 0

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# The Builder.

VOL. LXXXIV.—No. 3144.

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Belgrave Hospital for Children, Kennington.....	Mr. H. P. Adams, F.R.I.B.A., Architect.
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### The Royal Academy Pictures.



THE Academy of this year contains no great painting—none which treats a great subject in the highest style, and which every-one competent to judge would select as the

typical and central work of the year. And when this is the case there is always a certain feeling of disappointment. On the other hand, it must be said that, while there is no work of the highest order, the general level of paintings of the second order is higher than last year, perhaps higher than for some years back; and one cannot say, as an artist (not a painter!) remarked to us last year, "If it were not for Sargent, where would the show be?" That Mr. Sargent does not repeat his triumph of last year is a loss, but the loss does not leave the Academy so commonplace as it would have done in 1902.

One picture may however be named as the most brilliant success of the year, as the Academy seem to have recognised by hanging it in the centre of the second room—the position facing the entering spectators, which is traditionally assigned to "the picture of the year"—only the subject is not of a class to constitute it a great picture in the fullest sense. This is Mr. Hemy's sea-painting (89), perhaps the finest thing he has ever done, showing a small racing cutter closehauling for a run on the port tack, after rounding the buoy before a strong breeze with which her belated competitors are coming up in the rear. The sea is splendidly painted; and one can almost hear the rush and swish of the yacht as she buries her bow in the water. By a happy inspiration, instead of calling it by some such prosaic title as "Rounding the Buoy," the painter has entitled it "Youth," thus connecting the freshness and glory of wind and wave with the healthy enjoyment of the three vigorous young men on the craft, and giving a certain poetic and symbolic touch to the whole. In the painting of sea water the

picture surpasses anything we remember to have seen, and quite converts us to what we called two or three years ago Mr. Hemy's "new manner," which proves to have been an effort after a greater truth of representation, now fully realised.

There is no other picture in the Academy so exciting and spirited, in its own way, as this, though of course a work in which figures are only a secondary element cannot be considered from the most serious point of view. Among those in which figures are the main subject we may distinguish between those which represent pure art, the aim at an ideal beauty in which meaning is a secondary consideration; those which are intended to illustrate a mental condition, a sentiment; and those (despised of the ultra-modern art-critic) which tell a story. Of the pure art pictures the two most important examples, by the President and Sir L. Alma-Tadema, face each other on opposite walls of the large room. Sir E. Poynter's is the completed and larger edition of his "Storm Nymphs" (160), of which it appears that the charming little picture of last year was only a preliminary study. The picture varies little from the study, but we observe that the foremost nymph no longer lies on the red drapery which coloured her side with rather heated reflections, but on the bare sand, and [the change is a gain to the colour effect. The figure is a perfectly splendid piece of drawing and painting, especially considering its difficult position; the whole work is an example of painter's craftsmanship in the drawing of the figure, and as such it will always have its value, though it is not in any sense a poetic work. Sir L. Alma-Tadema, whose picture (in order to provide an effective centre-piece) has been moved from its usual position near the door, is a work of far more beauty of outer aspect—three delicately-draped Greek girls grouped around a marble basin looking at their "Silver Favourites" (203), with the "wine-dark sea" as a background; everything is charming in it—the colour of the draperies, the pose of the figures, even the foreshortened design of the marble seat end on the right; one of the numerous variations this artist has played on the same theme, which nevertheless do not seem to

tire one. It is a more beautiful picture than the President's, more charm for the eye in it; of the two one would prefer to have it on one's wall, perhaps; but it has not the power of "Storm Nymphs," which would be a great picture if only there were a little more of intellectual interest in it.

This is the more apparent if we compare it with "The Sirens" (472) in Gallery VIII., practically the same subject, but in this case treated as a mere commonplace study of nude figures in graceful but conventional attitudes; a prettier picture than the President's, in the ordinary sense of the word, but without the power of drawing and construction which strikes one so much in the "Storm Nymphs." The Sirens is a subject so well worn that one can hardly have patience with it now unless it shows something more than mere academical nude studies such as these. Mr. Waterhouse's classic subjects, which come under the same category of *l'art pour l'art* pictures, fail to take us into the world of classic idealism in that they are mediæval, or perhaps we should say Early Renaissance, in feeling and suggestion. "Echo and Narcissus" (16) and "Psyche" (202)—Echo and Psyche are too obviously from the same model—have the charm both of colour and composition, but they want the great style which should surround classic legend; they are modern fantasies playing around antique themes; they have none of what one may call the remoteness of classic legend, and approach too much to the character of *genre* painting; pleasing always, however, in composition and colour. But the same painter's "Windflowers" (204), a girl walking in a breeze with her hair blown before her, is more truly poetic than his classic legend; it is one of those pictures which require no story, and no catalogue name; it is an artistic thought, whole and complete, making no profession but what it fulfils, and therefore more satisfying to the eye and mind than the painter's classic legends. It is a kind of work very puzzling to the ordinary exhibition-goer, who wants facts in a picture; but it will be a pleasure to all who regard painting as a means of poetic expression. Mr. Hacker's "Leaf Drift" (292) is more distinctly and obviously symbolic; two or three nude figures, half



hidden among blown heaps of fallen leaves; treated with a colouring which removes them from realism—a realistic treatment of the nude would have spoiled the whole thing—they are the symbols of the decayed life of Nature represented in the leaves. The colour is harmonious in effect, and the whole thing a successful fancy, for the suggestion of which, we imagine, the author was partly indebted to "Feuilles Mortes" in a recent Salon, we forget by what painter. We prefer the English picture; the fancy is less forced and the spirit more poetic. Among other works of pure art are Mr. Swan's "Iris" (64), a lightly-draped figure grouped among brightly coloured surroundings—flowers and birds flashing colour in the sunshine—not quite successful in its aim; and the same painter's little work "The Cascade" (115), a grouping of the nude figure with landscape, not with any idealised meaning; just the delight of colour, form, and texture; quite an artist's picture. We should notice also M. Bouguereau's life-size painting "Printemps" (150), a peasant walking with her child in her arms; academical, like all this artist's works; but it is a satisfaction to see the thing so thoroughly well done.

Among paintings which express a sentiment, or one may say a moral, the most prominent is that with which Mr. Wyllie, hitherto mainly known as a painter of sea and shipping, surprises us—"Peace Driving Away the Horrors of War" (55)—a kind of scenic painting with a moral. It is a landscape, one side sunlit and showing in the centre a little bright mediæval city girl with its wall in the midst of surrounding meadows, and arched over by a rainbow, the base of which, as usual, is brought too near to the spectator for truth of effect (painters will not leave their rainbows alone sufficiently), and on the left clouds, and groups of warriors, and in the middle distance—

"The thick black clouds of smoke  
Go up from the conquered town."

If the effect is a trifle theatrical, the intention is evidently sincere, and the scenic setting well managed, and one may congratulate the painter on a success in a new class of subject. Another work which may be classed among those which express a sentiment is the rather striking picture by a painter new to us, Mr. Tom Mostyn, entitled "Unsolved" (383); a young woman who has laid aside the book that has puzzled her soul, and leans against the end of the sofa with a face of rather pathetic (perhaps also rather overcharged) melancholy and perplexity. The colour scheme is effective and broadly treated, and the picture is one that would lead one to expect to hear again of its author.

It may be questioned whether Mr. Collier's large picture, "The Prodigal Daughter" (427), should be grouped among pictures with a moral or pictures with an anecdote; we should say it combines both, though the moral is not one that will generally be apprehended in this country. This is the sort of picture which it is the fashion to say is not artistic; *i.e.*, it is not painted for beauty of line and colour; but it is a criticism of life, and that is one of the functions of painting. It has been said that the picture does not tell its story; we think it tells it very plainly. The "prodigal daughter," a young woman of powerful features and very over-dressed, has been driven to prodigality through the impossibility of enduring any longer such a dull home

and two such terrible old people, and turns with a last defiance before opening the door. There is both humour and a sort of tragedy in the picture; all the accompaniments of a hopelessly middle-class parlour are remorselessly made out; and the mother, who rises to rebuke the daughter, is a perfect type of the respectable, well-meaning, narrow-minded, religious parent of the middle class. Her large shadow cast upon the wall is a part of the symbolism of the composition. It is a very able and striking picture, and certainly one of the best things Mr. Collier has done; more is meant than meets the eye in it. In intellectual significance such a work is on a level far above Mr. Dendy Sadler's clever and brilliantly-painted "The Bride and Bridegroom" (679), which might be a very true representation of a wedding breakfast scene a hundred years ago, except in the fact that all the people, supposed to be gentlemen from their surroundings, are so hopelessly vulgar. One has only to be familiar with Jane Austen to know that the picture is not true; Mr. Sadler has got the costumes but not the personages of the time.

Among what may be called illustrative pictures Mr. Orchardson creates a scene in Sir Joshua's studio (201), with Mrs. Siddons giving a dramatic recitation in the interval of sitting for her portrait, of which the unfinished head is seen on the canvas. It shows the artist's usual mastery of colour and character, but Mrs. Siddons's figure is hardly equal in dignity to the idea given of her by contemporary portraits, and it is not one of Mr. Orchardson's greatest successes. Mr. Dollman may be congratulated on his carefully finished and very clever picture of "Mowgli made the Leader of the Bandar-log"; Mowgli's head is beautiful, and the tribe of monkeys are depicted with great spirit and humour.

There is a class of pictures which may be described as *choses vues*, things painted because they were seen; sometimes realistically, sometimes representing them not so much as they are, but as they impressed the artist. Among the latter a fine example is Mr. La Thangue's principal work, "Mowing Bracken" (324); simply a corner in the fields and a man with a billhook at work, and sunlight upon the ground; not painted with any realism, but interpreted in accordance with the painter's own style and the nature of the impression the scene made on him. Mr. John R. Reid's exceedingly brilliant and effective work "The Home Squadron" (329), in the same room, may be classed with these; it is not a landscape, it has not landscape character or composition, it is merely a view of a (probably) Cornish fishing village and its small harbour, translated into the artist's peculiar and powerful manner and touch; realism in the circumstances of the scene but not realism in texture. "The End of the Parish" (373), by Mr. Macarthur (another new name on the line we believe), is a *chose vue* in the strictest sense; not a landscape but a transfer, entirely realistic in aim, even down to the little incident of the sunlight shining through the cow's thin ear seen against it. Then there is the President's interesting picture of "The Bells of St. Mark's Campanile" (101), with their long wooden clappers, painted up in the bell-chamber; but are not the clappers too long? It would appear that the thickened portion of the clapper ought to strike on the sound-bow of the bell; in one swinging bell it appears to do so, but in the others, if they

were swung, it would not. One can see no meaning in that thickening of the clapper unless that is the striking part; and if so, the representation is not quite accurate. Miss Catherine Wood has made a decided success with her two small still life studies, "A Study Table" (100) and "Stones and Crystals" (113); the latter especially.

Portraits this year are not so strong an element in the exhibition as they have sometimes been. Mr. Sargent does not present us with one of those remarkable portrait groups which have more than once formed the central object of interest at the Academy. He has two fine and energetic portraits of men, Mr. McCorquodale and Lord Cromer (453 and 458), and a very charming three-quarter-length of Lady Evelyn Cavendish (19), in which the accessories are indicated with his usual certainty and brilliancy of touch. In the same room there is a small-scale highly finished portrait of Lady Aird by Mr. Frank Dicksee (51), which deserves special attention as constituting a kind of practical protest against the broad but sometimes too unfinished painting of hands and face which characterises the work of Mr. Sargent and some of his imitators. There is a great amount of subsidiary detail, very carefully and conscientiously painted, perhaps a little too much so to leave full value to the figure, but the noticeable point is the care and delicacy with which the hands are painted. We have lately too often seen hands carelessly and roughly painted in portraits that are otherwise of great force and brilliancy; and the hand is worth more attention than this. In every respect the work is one of the best that Mr. Dicksee has painted. Mr. Ralph Peacock exhibits a very charming three-quarter-length of a young lady (357), a simple and unaffected work of great refinement; and Mr. Brock, a very young artist (the son of the eminent sculptor), gives great promise for the future in his admirable portrait of Mr. Aston Webb (328), an excellent likeness painted in a broad and artistic manner. "Breadth" is perhaps rather overdone in Mr. Herkomer's portrait of General Baden-Powell (491), which strikes one as a huge sketch rather than a picture, but very vigorous and characteristic. Near this is a half-length portrait of a young lady (487) by Mr. Eastman which ought certainly to make a reputation for the artist; he has been fortunate in his subject, a beautiful girl; but the picture is notable not only for the beauty of the countenance but for the fine and individual feeling for colour and style which it presents; it is certainly, from the artistic point of view, one of the most interesting portrait works of the year. We may class among portraits also, though it is not so catalogued, Mr. Furze's large and powerful work "The Return from the Ride" (471), a life-size painting of a man on horseback whose wife has come out to meet him in a sumptuous dress not adapted for a country ramble; but this one must accept—the dress was wanted for pictorial effect, and has its full value in that respect, and the work as a whole is a remarkable one, and justifies its large scale, which is such as one sees more often at the Salon than at the Academy.

Landscape is no more the strong point of the Academy than it generally has been of late years. Mr. David Murray's works are more like "transcripts of nature" than landscape art; they all seem to want "pulling to-



gether," and in entitling one of them "In the Country of Constable" (140) he suggests a comparison hardly to his own advantage. Among the few pictures which really represent what landscape art should be—the treatment of a scene as an artistic whole and with one predominating aim, the most successful works are Mr. Aumonier's "A Herefordshire Common" (413) and Sir E. Waterlow's "Crossing the Heath, Suffolk" (776). Mr. Alfred East seems 'till to be in search of a style in landscape; we notice three pictures of his each with a totally different manner and aim. Of these "Tintern" (249) seems a complete mistake—a landscape cut out rather than painted; "The Turn of the Road" (473) is cold and weak in colour; it is in "The Castle of Cœur de Lion" (761), as rich in colour as the other is weak, that the painter has found his best style, and he would do well to keep to and develop that, for here is a real piece of landscape art. Mr. Joseph Farquharson, though his snow picture "The Shortening Winter's Day" (174) is a little too much the kind of thing of which people say—"Looks as if you could walk into it," is a thorough success from that point of view; but this artist is remarkable in the present exhibition for having painted four landscapes of totally different classes of subject and effect, and succeeded in all of them; the finest is "The Struggling Moonbeam's Misty Light" (772), but all are good works; such an all-round success in landscape is very unusual and must, therefore, strengthen this artist's position materially. In Mr. G. F. Watts's curious work, "A Parasite" (153), most of the canvas is occupied by two vertical trunks of trees, the thicker one ivy-clad (which gives the name to the picture), while between them an undulating landscape contrasts with their straight lines. Though in a sense an odd picture, it is no common one, and is far removed from the naturalistic treatment of landscape; indeed, the ivy looks a little too much like bronze, but it is possible that a more natural treatment might have disturbed the unity of the work, which is a translation rather than a representation.

Mr. Somerscales exhibits another of his fine sea-pictures with a ship in full sail over a dark sea; as successful as most of his previous examples, but one finds a little too much, perhaps, of the same programme repeated. This and Mr. Hemy's splendid work are the only remarkable sea-paintings of the year; two large pictures of this class are hung on the line in Gallery VII., but Mr. Olsson's "The White Squall" (424) is no more than an average work, and the other picture (428) is bad; waves evolved out of the painter's inner consciousness, one would say.

We have only been concerned here with the important works and the general tendency of the picture portion (far too large in proportion) of the Academy exhibition. We may find space afterwards to call attention to less important paintings which are worth recognition, but which we have not space to notice at present.

**SETTLEMENT OF THE SOUTHPORT PAINTERS DISPUTE.**—This dispute has now been settled. The master painters have gained the point which they raised, namely, seven hours' work in winter, as the shops find convenient; while the men are glad to have revived the old half-mile boundary from the Town Hall.

## RADIUM AND ITS PROPERTIES.



WE have already given some account of that remarkable substance radium (*ante*, p. 380), and the great interest attached to its properties tempts us to pursue the matter further. In the first place, we may give some particulars of the ores of uranium, from one of which, at least, radium has been obtained. It is highly probable that the majority of these ores will now be carefully examined with a view to ascertaining the presence of the element.

Commencing with the uranates, which for the most part may be included under one mineral, uraninite, we find that the latter is a uranate of uranyl, lead, usually thorium (or zirconium), often the metals of the lanthanum and yttrium groups; also containing the gases nitrogen, helium, and argon, in varying amounts up to 2.6 per cent. Calcium and water are also present in small quantities, whilst iron is a common impurity. Uraninite occurs either as a primary constituent of granitic rocks, or as a secondary mineral with ores of silver, lead, copper, &c. Under the latter condition it is found at several localities in Saxony, Bohemia, and Hungary. It also occurs in pegmatitic veins in Norway, and is abundant at many localities in the United States, especially in North Carolina, Colorado, and Dakota.

The minerals provisionally included as varieties under the name "uraninite" are as follows:—

Uranianite, in crystals with a high specific gravity of from 9.0 to 9.7, found in granites; thoria is prominent, whilst lanthanum and yttrium are rare.

Broggerite, with a high percentage of oxygen.

Cleveite and nivenite contain still more oxygen, and are characterised by the possession of about 10 per cent. of the yttrium earths.

Pitchblende contains no thoria; the rare earths are also absent. Water is prominent, and the specific gravity (about 6.5) is lower than in the other varieties. This is the kind from which what little radium has yet been obtained has come. It occurs sparingly at three or four localities in Cornwall, also in Saxony, Bohemia, the United States, &c. The mineral is by no means as rare as is commonly supposed, though it is nowhere very abundant. Considering that a ton of pitchblende yields only a few grains of radium, however, large quantities of it, or some other allied ore, will be required even for investigations on a small scale.

Other uranates are gummites, including ytrogummite and thorogummite. Uranosphaerite occurs in half-globular aggregated forms.

In the uranite group of minerals we have torbernite, a hydrous phosphate of uranium and copper, occasionally with arsenic, from a few localities in Cornwall, Saxony, and Bohemia; also zeunerite, which always contains a considerable proportion of arsenic. Another mineral of this group is autunite, or lime uranite with a composition of phosphorus pentoxide 15.5, uranium trioxide 62.7, lime 6.1, water 15.7. It commonly occurs in the same localities as uraninite. There are several other phosphates, arsenates, &c., belonging to this group, but they need not be specified, as all are of minor importance for our present purpose.

Two carbonates may be mentioned, namely, liebigite, a hydrous carbonate of uranium and calcium from Turkey and Saxony; and voglite, a hydrous carbonate of uranium, calcium, and copper, from Saxony.

Examples of niobates are samarskite from the Urals and United States, and annerodite from Norway. An example of a uranium silicate is uranophane, which is found in granite in Silesia.

Finally, we have johannite, a hydrous sulphate of uranium and copper from Bohemia; and uranopilite, the same plus calcium, from Saxony. Other sulphates of uranium, but of uncertain character, occur at Joachimsthal in Bohemia.

Many of these minerals are so uncommon as to be of little use so far as uranium is concerned, but it may be that a few will be found to have a greater content of radium than the pitchblende already operated upon.

Turning to radium itself, we have little to add to the summary of its properties given on a former occasion in these columns.

Dr. Johnstone Stoney wrote a paper on radio-active bodies as long ago as 1893, which was published by the Royal Dublin Society, and some particulars by the same investigator appeared in the *Philosophical Magazine* for April of that year. Sir William Crookes in his Presidential address to the British Association in 1898 also dealt with the subject. Speaking of the radio-active bodies then just discovered by M. and Mme. Curie, he drew attention to the large amount of energy locked up in molecular motions of quiescent air at ordinary pressure and temperature, which according to some calculations by Dr. Stoney amounts to about 140,000 foot pounds in each cubic yard of air. He conjectured that radio-active bodies of high atomic weight might draw upon this store of energy. He believed that it was not difficult so to modify this hypothesis as to reduce it to the level of an inflexible law, and thus bring it within the ken of a philosopher in search of a new tool. The atomic structure of radio-active bodies was such as to enable them to throw off the slow-moving molecules of the air with little exchange of energy, whilst the quick-moving missiles would be arrested, with their energy reduced and that of the target correspondingly increased. The energy thus gained by the radio-active body raises its temperature, whilst the surrounding air gets cooler.

Following up their discovery, M. and Mme. Curie found that the element radium possesses the property of continuously emitting heat, without combustion, without chemical change of any kind, and without any change in its molecular structure. It is doubtful, we think, whether these various findings will stand the light of further investigation without being modified to a considerable extent. Of course, the French scientists mentioned have adopted the latest methods of research, and, so far as our present knowledge goes, they are unquestionably entitled to draw the inferences they have. But when we are dealing with the "infinitely little" we must be very cautious. We ought to think twice before announcing that a substance can be active and yet not waste in any way; and we should be more cautious still before announcing that there can be any manifestation of energy without some molecular change taking place in the body which manifests it.



Even if we admit that radio-active bodies derive their energy from the air, and are thus fed, so to speak, by the atmosphere, it is difficult to believe that the process of assimilation is not accompanied by some change in molecular structure. The fact is that we do not yet know what a molecule is. We cannot see it by any process yet invented; we cannot, therefore, watch its movements; and, truth to tell, we know very little about it, though we speak glibly enough of it. We have a theoretical conception of what it is; we know that we must conjure its existence to account for the vast majority of chemical and physical phenomena around us, but that is about the extent of our knowledge of it. If we knew what caused chemical reactions, and if the microscope could enable us to look more closely into these mysteries, we might find that many of the extraordinary phenomena accredited to radium and its compounds may be explained by what we know is already going on around us on a larger scale.

We have no intention of belittling the discoveries of M. and Mme. Curie, however. It seems clear that radium has come to stay, and that many difficulties at present experienced by the chemist and physicist will disappear when it is better understood. In the meantime it is highly desirable that more of the material should be found, as eager investigators are without the means of carrying out their work in consequence of its rarity.

Radium has excited great interest by its power of throwing off rays, vibrations, emanations, &c., which, when received upon a sensitive screen of barium platinocyanide or zinc sulphide, cause it to glow with a phosphorescent light. As has been well said, we find in radium, apparently, a substance having the power to gather up and convert into heat some form of ambient energy with which we are not yet acquainted. Other substances, mostly of high atomic weight, possess its radiant properties to a less well-marked extent, and research may prove that transparency to the unknown form of energy is merely a question of degree. M. Becquerel gave a powerful initial impulse to the study of this subject by his discovery that uranium continuously emits some kind of rays or emanations capable of affecting sensitive plates. M. and Mme. Curie have estimated that radium is 500,000 times as powerful as uranium.

It is too early to estimate at its true value these discoveries of some of the properties of radium, but it seems quite clear that some forms of energy hitherto unknown to us have now come to light, and in the near future we may expect to find that radio-active bodies, derived not only from uranium compounds, but from other mineral sources, play an important part in many terrestrial phenomena.

#### NOTES.

**Vauxhall Bridge.** The new proposed design for Vauxhall Bridge is certainly an improvement on the dreadful thing hung in the L.C.C. Council Room a few months ago, in that the Brobdingnagian quatrefoils, &c., in the steel-work have been got rid of, and the spandrels are treated in a manner which seems, like some other points in the design, to be a reminiscence of the old bridge, which was a very good model to follow in this respect. The objectionable portions

are, first, the iron projecting convex quadrant section below the balustrade, the meaning and structure of which are not quite comprehensible without a section, but which is just as bad and unarchitectural as the concave quadrant under the balustrade of the Grosvenor-road railway bridge; and secondly, the design of the pylons at one end of the bridge. The introduction of pylons would add to the dignity of the bridge, if they were fine architectural designs; but these are commonplace; and if one thinks of the beautiful pylons to the bridge at Paris, such designs as these can only be regarded as a significant example of the difference between English and French official architecture. The intention to continue the steelwork across the piers, using them merely as sub-structure supports, is questionable in a practical sense; at all events, the vibration which is set up by traffic on Westminster Bridge is no doubt owing to the continuity of the steel structure, by which the vibration in one bay is communicated to the others. Lamp standards (an important point) are not shown in the design. An effort has been made towards a better treatment of steel work, but the London County Council have not within their own body the artistic talent necessary to deal satisfactorily with work of this kind, and public pressure should be brought to bear upon them to do what they ought to have done long ago—to seek the best architectural talent of the day, outside their own official staff. They will not produce anything satisfactory until they do so.

**Blackwell's Island Bridge, New York.** THE East River, separating Manhattan and Long Islands, is very much in evidence at the present time, and the various bridges built, and proposed to be built, across it are apt to be confused by all except those who have found time to keep exact mental records. It may, therefore, be convenient to make the following note:—Bridge No. 1 is the well-known Brooklyn Suspension Bridge; No. 2 is the nearly completed suspension bridge, recently damaged by fire, and officially designated the Williamsburg Bridge; No. 3, another suspension bridge in progress, and situated between No. 1 and No. 2, is named the Manhattan Bridge; and No. 4 is a cantilever structure about to be built across the river at Blackwell's Island. When completed, the Blackwell's Island Bridge will afford greater capacity for traffic than any long span bridge hitherto built, and, with one exception, it will be the longest truss ever constructed. It will have two decks, accommodating one roadway, two footpaths, and six railway tracks. The total length between anchorages is to be 3,714 ft. 6 in., including a span of 1,182 ft. over the main channel, a span of 984 ft. over the east channel, and two shore spans of 459 ft. and 469 ft. 6 in. respectively. Two intermediate piers are to be situated on the island, two more intermediate and two anchorage piers being designed to stand on opposite sides of the river. These piers will rise to a height of 160 ft. above the ground level, and from them, at the level of 110 ft., steel towers, 300 ft. high, will rise to the total elevation of 410 ft. The total weight of steel in the structure is estimated at nearly 360,000 tons, and the cost of the bridge at about 2,500,000l. Plans were commenced in 1898, since when no fewer than eight engineers

have been concerned, in one way or other, with the designs; and it is gratifying to record the fact that the architectural features of the work have been designed by an architect appointed by the Bridge Commission. We have repeatedly urged the necessity for such collaboration in connexion with the design of important bridges in this country. The services of an architect should not in any way tend to hamper the engineer in the development of his scheme, as they would merely be intended to afford needful help with such integral and auxiliary parts as are of purely architectural character, and so to enhance the effect of sound engineering design.

**The Powers of Local Authorities.** In the recent case of *The Attorney-General v. The Mayor, &c., of Barnstaple*, the decision of a point of general importance was frustrated by the technical form of the pleadings. The Corporation had obtained powers under a Provisional Order of the Board of Trade to supply electric light within the borough. Acting, as they alleged, in pursuance of this power, they held themselves out to wire and supply private houses with electrical fittings. The plaintiffs, rate-payers in the borough, suing through the Attorney-General, applied to the Court for a declaration that this action on the part of the Corporation was *ultra vires*, and for an injunction restraining them from expending the rate-payers' money in such undertakings. At the trial the Corporation set up the right to supply private customers under the "general law of the land," but the Court ruled this defence not to be open to them under their pleadings, and the action was settled by the parties on the Corporation stating they did not in future intend to enter into any such contracts. It would appear, however, that when powers are granted to public bodies either by Parliament, or by Provisional Order by the Authority having delegated authority to grant such orders, any such general extension of such powers as that here contended for would be most inadvisable, and that such powers should be clearly defined and strictly construed, or, with the tendency exhibited by Local Authorities to magnify their office, considerable uncertainty will ensue.

**A New Method of Gas Manufacture.** THE number of English towns in which carburetted water-gas is mixed with the coal-gas supplied to the general public is now so large that the practice of supplying a mixture of the two descriptions of gas may be regarded as general. Until recently, however, the carburetted water-gas has always been made by the Lowe process, which consists in passing water-gas hot from the generator into a red-hot carburettor, in which it mixes with vaporised oil, and the mixture then flows into a superheater in which it is converted into the mixture of permanent gases known as carburetted water-gas. At the Cleethorpes gasworks, near Grimsby, carburetted water-gas is now being made by gasifying oil in red-hot retorts (Peebles process) and at the same time passing into the retorts a stream of hot water-gas from a Dellwik generator. The water-gas mixes in the retorts with the oil-gas and produces carburetted water-gas, while a small quantity of coke of excellent quality is drawn from



the retorts at intervals of, say, twelve hours. According to Mr. E. J. Brockway, who has introduced this process, it is possible to accomplish with two gallons of oil the same degree of enrichment as is commonly effected by from 2½ to 3 gallons when the Lowe process is employed. Mr. Brockway also finds that whereas at Cleethorpes the cost of producing 16-candle coal gas is 15½d. per thousand cubic feet, the same volume of 16½-candle carburetted water-gas made with his new plant can be manufactured for less than 9½d.—a reduction of 37 per cent.

ON Monday last Mr. Justice Joyce decided that the gas examiners appointed by the London County Council are entitled to test gas at the official testing-places on Sundays. Several months ago the County Council instructed some of their relieving gas examiners to test the gas on Sundays at the London testing-places, and for some time past tests have been made in the districts supplied by the Gas Light and Coke Co. and the Commercial Gas Co. The South Metropolitan Gas Co., however, refused to allow the gas examiners to test in their district on Sundays, and claimed that the gas may be legally tested on weekdays only. The London County Council accordingly brought an action against the gas company, with the result that a decision in favour of the London County Council has been given. The price charged for gas supplied on Sundays is the same as that charged for weekday gas, and it would be a strange anomaly if the official examiners were not permitted to make the same tests on Sundays as on weekdays. It would be equivalent to refusing to allow inspectors appointed under the Sale of Food and Drugs Act to take samples of milk for analysis on Sundays. The encouragement of Sunday labour is objectionable, but we understand that the Council have no intention of permanently adopting regular Sunday testing, and the gas consumers of South London may therefore congratulate themselves upon the successful issue of the Council's action.

THE paper by Mr. Aitken on "Divided Multiple Switchboards: an Efficient Telephone System for the World's Capitals," which was read to the Institution of Electrical Engineers last week, gives a possible solution of a difficulty which is sure to arise sooner or later in telephony in large cities. Substations cannot be multiplied indefinitely, as the loss of time in making connexion between two subscribers through substations increases, the greater their number. Mr. Aitken gets over the difficulty by making the subscribers do part of the connecting for themselves. He would form one huge central exchange in the city, which would serve an area of some 14 square miles. He would also have subsidiary exchanges at a distance of 3½ miles from the central. Every subscriber would have three keys which would make connexion with different boards in the same exchange depending on what number he wished to ring up. In the subsequent discussion most of the speakers seemed to think that the saving in the exchange plant effected by Mr. Aitken's system would be dearly purchased by the increased cost of the line plant. Mr. Webb

said that the problem had been solved in New York by encouraging private branch exchanges. Every large hotel and practically all the large business houses had a telephone switchboard and a private operator of their own. They found that the improved service more than made up for the slightly increased cost. He thought also that Mr. Aitken had exaggerated the time required to make a connexion through an exchange. In New York the average time of making a direct connexion between two subscribers was twenty-three seconds, whilst through an exchange it only took seven seconds longer. Mr. Gavey welcomed the paper, but thought that it hardly came within the range of practical telephony. A few years ago an exchange of 6,000 was a maximum, now he had one being built with a capacity of 20,000. He considered that it was a retrograde step to leave any of the switching to the subscriber.

FROM recent reports it appears that the ancient ruins at Palenque, in the State of Chiapas, Mexico, are slowly, but surely succumbing to climatic influences, and to the persistent attacks of an overwhelming tropical vegetation. The climate is particularly humid, and, while conducting to the decay of the ruined stonework, it also encourages the rapid growth of vines and creeping plants, which are disintegrating the walls and pavements. The ruins consist of temples, pyramids, aqueducts, and other buildings whose purpose has not been discovered, there being nine distinct structures in all. Chief among the remains is the temple, including courts and balconies, and spacious corridors where numerous tablets in bas-relief are let into the walls. Another important building, generally known as the "palace," is situated on a mound over 300 ft. long, by 250 ft. wide, by 40 ft. high, the building itself being 238 ft. long by 180 ft. wide. The material used in the construction of these buildings was stone, many of the blocks being of enormous size, and all of them jointed with mortar. Various conjectures have been made as to the era to which we owe these remarkable ruins, some suggesting that they were built as recently as the seventh century, while others believe them to have been coeval with the pyramids of Egypt. Up to the present time the key to the hieroglyphics carved on hundreds of tablets remains undiscovered, so the world knows little or nothing of the origin and history of the race by whom the structures were built. Nothing seems to have been done hitherto for the preservation of these interesting monuments of a past and forgotten civilisation, but it is to be hoped that the Mexican Government may be speedily awakened to a sense of their duty to the world.

ON May 12, York House, Twickenham, will be offered for sale at the Mart, by directions of the Duc d'Orléans, who, it seems, has decided not to return to the neighbourhood. The property, formerly known as York Farm, was given, it is said, to Lord Clarendon by Charles II. upon the public announcement of the marriage of the Duke of York and Lady Anne Hyde. The main and older portion of the house, which has three floors, with two slightly projecting

wings and gabled roofs, was a residence of James, Duke of York, and his daughters, Mary and Anne, were born there. It subsequently became the home of Laurence Hyde, Earl of Rochester, and of Dr. Cleaver, Archbishop of Dublin. The Honourable Mrs. Damer, the sculptress, bought York House in 1817, and occupied it until her death in 1828, bequeathing the property to Lady Johnston. The house, having been occupied during many years by the Comte de Paris, passed to Sir Mountstuart Grant-Duff, who sold it for 14,000l. to the Duc d'Aumale. The Duc d'Aumale presented the estate to his son, upon the occasion of the marriage of the latter. The house narrowly escaped from destruction by a fire in October, 1897, occasioned, as was conjectured, by the ignition of an oak beam through the over-heating of a flue from a furnace in the basement, whilst the house was being extensively redecorated and repaired. No material change was then made in the main fabric, but the new works, carried out by Messrs. Leslie & Co., of Kensington, as general contractors, and Messrs. Rawlings Brothers, as engineers and electricians, included entirely new drainage and sanitary arrangements, an installation of electrical light for nearly 500 lamps, with motor fans for ventilation purposes, and fittings after the Louis XIV., XV., and XVI. styles; the ceilings were renewed in the Louis XV. style, with the exception of the early Elizabethan ceiling on the first floor, and the fine contemporary staircase is wholly preserved. The beautiful grounds, covering ten acres, are traversed by the high road which leads to the parish church, and from that spot is obtained one of the prettiest views of that part of the river; a bridge across the road affords access to the slip along the Thames side. Some while ago the Duc d'Orléans expressed his willingness to consent to a diversion of the road so as to form an embankment to the river and render his grounds entire, but the offer was declined by the Local Authorities as involving too great an outlay.

At the Goupil Gallery there is an exhibition of oil-paintings by Mr. J. Campbell Noble, R.S.A., under the title "A Journey through Holland." The Dutch school of painting is generally prominent in the Goupil Gallery exhibitions; and Mr. Noble's paintings, in spite of his name and nationality, are so decisively of the modern Dutch school as to suggest the question, did the artist select Holland on account of an innate tendency towards this school of painting, or did he acquire the style from contact with Dutch influence in regard to nature and art? His works, at all events, have the merits as well as the defects of the Dutch school; they have the grey and dull tone of Maris and other painters of the school, combined with a perception of composition in landscape and a power over broad and striking effects of sky and cloud, in which he has in some instances even surpassed his models. Take as examples "Breezy Weather" (20); "Dordrecht" (27); "Mid-day" (28); "Saw-Mill on the Nord Dyke" (29); all of which are admirable. There is a certain degree of monotony in the subjects and treatment, in the exhibition, taking it as a whole; but it is fine work in a broad and free style, and pervaded by a thoroughly artistic spirit.



At Mr. Van Wisselingh's Gallery, Brook-street, there is a collection of drawings and etchings by M. Legros on view—a rather depressing collection as far as the etchings are concerned. M. Legros, like Mr. Strang, has a leaning towards morbid and repulsive subjects in etching, and in this case it is not sufficient to have a complete series on the subject of the "Triomphe de la Mort," but we must have various repetitions of the most forbidding of these in other "states." The triumph of death may certainly be treated in art so as to convey noble and solemn ideas, but M. Legros gives us only the grotesque and the horrible. Some of the water-colour drawings—pencil sketches washed in monochrome, are fine compositions in a slight manner; such for instance as "Une Ferme" (31); and the portrait heads in pencil are—in the fashionable phrase—"quite good." But the general effect of the exhibition is not exhilarating.

THE collection of sketches made during the recent great Durbar by Mr. L. Raven-Hill and Mr. Ieglis Sheldon-Williams, on view at the Fine Art Society's Gallery, may be said to be the art of the illustrated journal rather than the art-gallery, but as such it is very clever and interesting, and represents a great deal of what may be called almost impromptu work, since only the shortest time for sketches can have been available in most cases. Mr. Sheldon-Williams gives us water-colour sketches of the ceremonial scenes at the Durbar, with the elephants in gorgeous array and silver or gold bangles on their fore-feet; also some polo scenes, of which No. 43, with the horse and rider rushing to the front, foreshortened, is a remarkably successful and spirited representation of momentary action. But Mr. Raven-Hill's pencil sketches of individual types of native life are to our thinking the cleverest and most interesting portion of the collection. We may direct attention especially to the delightful sketch of the "Official Photographer at the Durbar" (41); also the specimen of "A Baluchi" (77), which in itself is enough to explain why frontier tribes are troublesome to deal with.

MESSRS. GILLOWS' have on view in their rooms a set of nineteen water-colours of Knole House by Mr. C. Essenhigh Corke. The interiors, as a whole, are most charming colour studies of well-chosen bits in this delightful old house, marred by an unfortunate weakness in the handling of drapery and furniture. The most successful are the Venetian Bedroom and King James Bedroom. In the former the artist has conveyed all the rich harmony and historical charm of an old tapestried room, but most of the others are so timidly executed and have so missed the subtle elegance of the fine old furniture that it is only their invariable good colour which saves them from failure. The west front is the only exterior of any merit.

A LETTER on this subject in the "Sculpture in England," *Times* a few days ago, signed by "A Lonely Londoner," is a curious example of right feeling in regard to sculpture combined with want of knowledge or recognition of facts. The writer seems

to think that English sculpture is in a very bad way, and attributes this to want of public encouragement and to the niggard space and opportunity given to it by the Academy. As to the English indifference to the art, and the poor character of most of our public sculptural monuments, he is quite right; but the fact remains that, in spite of this, English sculpture has made immense progress during the last twenty years; it is now in a better state than any other of the arts as practised in this country; and in several recent years (we do not say in this one) the sculpture at the Royal Academy has been the strongest part of the exhibition, and has been admitted to be so by some at least of the painters themselves. The statement of "A Lonely Londoner" that foreign critics deny the existence of an English school of sculpture, "while they are the first to recognise a British school of painting," shows little acquaintance with French criticism at all events; for the precise criticism of French writers on art is that while there is "English painting," there is no "English school of painting." The suggestion that the Royal Academy might make an adequate space for the exhibition of sculpture by temporarily roofing the courtyard in front of Burlington House is totally impractical; how are carriages to get to the doors in that case? and he forgets also that the courtyard is the only access to the doors of the various learned societies occupying the same building. What the Academy might do would be to devote the largest gallery to sculpture, instead of the more confined space of the Lecture-Room; but as long as painters are in such a numerical majority at the Academy, this will never be done except by pressure from without. In this respect a letter such as the one we have referred to may do good, by tending to arouse public opinion on the subject; but the writer, with the best intentions, is weak in his facts and impractical in his suggestions.

#### MAGAZINES AND REVIEWS.

THE *Quarterly Review* appears to have fairly embarked on the system of signatures to articles, the present issue containing five signed articles. We think it is a mistake, and is giving up the high position of a *Review* which for so many years has relied on the quality of its articles and not on individual names. The system of signed articles is very well for popular magazines in which the principal interest consists in stories and light articles, but with reviews which deal in an argumentative manner with serious subjects, the inevitable result is that weight of an article is judged of by the bulk of readers, not on its merits but by the degree of importance which they attach to the name at the foot of the article; and another result, which has certainly been apparent enough in the case of more than one of the leading monthly magazines, is that articles are accepted on special subjects from writers who have no real claim to speak on those subjects, but whose names, being for other reasons well known to the public, will assist in selling the magazine. In the case of the important article "Byzantium or Ravenna," in the *Quarterly*, there is no such complaint to be made, since it is signed by Mr. Reginald Blomfield; but the innate evidence of the article would have sufficed to give it weight with architectural readers. The title of the article has reference to the thesis of Signor Rivoira, who, in his work, "Le Origini della Architettura Lombarda," wishes to show that Ravenna was not an outcome of Byzantium, but a step in a direct Italian development with which Byzantine influence was not concerned, and in which the line of derivation can be traced completely, from Classic Roman work, on Italian soil. He seems

to have twisted a good many architectural facts more or less to fit into this theory which we do not think is likely to find acceptance out of Italy. As Mr. Blomfield observes, the remains of Classic Roman architecture were the common property of the heirs of the Roman Empire; "what was not common property was the tradition of constructive skill which the Byzantines alone seem to have preserved;" and it is on account of this constructive skill that we are justified (as well as for other reasons) in attributing to Byzantine influence such buildings as those of which San Vitale is a type. "Signor Rivoira classifies San Vitale as Italian merely because it stands upon Italian soil." In the course of the argument we notice that Mr. Blomfield adheres to what we have always regarded as the true explanation of the Byzantine block on the top of the abacus; not that it was any reminiscence of the Roman slice of architrave above the capital, but that it originated in the necessity for packing up to a uniform springing level the capitals and columns looted from various older buildings, and not agreeing with each other in height. Signor Rivoira's argument from the style of execution of carved capitals, again, as the reviewer observes, is nullified by the fact that, at the period under consideration, nearly all builders in Italy "used any capital they could lay hands on for any column," and many of them may have been imported ready-made from Byzantium. The remainder of the article is occupied by an interesting historical and critical analysis of St. Sophia, accompanied by a plan and section, and a notice of Messrs. Schulz and Barnsley's monograph on the Monastery of St. Luke of Siris. Messrs. Lethaby and Swainson's book is naturally the basis of the review of St. Sophia; and in a passing paragraph Mr. Blomfield disposes, with about the amount of respect it deserves, of the light-hearted theory of the influence of the "Comacine Masters" set up by a recent very amateur writer on architecture.

In the *Art Journal* Mr. Claude Phillips continues his article on "Great Portrait Sculpture Through the Ages." Among the illustrations that of the head of Niccolò da Uzzano, by Donatello, is truly remarkable for its extraordinary and almost startling individuality, typical, as Mr. Phillips says, "of the watchfulness, the unresting intellectuality of Florence": reminding one of the passage in Browning's "Luria"—

"She's a contrivance to supply a type  
Of man, which men's deficiencies refuse."

One can understand how men with this sort of head could have made use of Luria as long as they needed him, and then condemned him to death, on a conventional charge, at the convenient moment.

"The rather violent and realistic colouring, which is not in its entirety that of the original, causes some shock to the beholder on a first acquaintance, and he is thus made to feel how dangerous is too near an approach to nature, how impossible it is to compete with her on her own ground. Were it not for the over-mastering genius of Donatello, that here, in a perilous attempt, achieves victory over self set obstacles, we should be dangerously near the boundary line which divides the human from the monstrous."

"The Later Work of Elihu Vedder," by Mr. Lewis Lusk, deals with and illustrates the work of an artist who we have always thought has been over-rated on account of the poetic significance of his art, which is unquestionable, but is not fortified by high technical power or by the quality of style; it is the work of a gifted amateur rather than of an artist in the fullest acceptance.

In the *Magazine of Art* is an article written and illustrated by Mr. Raiffes Davidson on "The Recent Advance in Architecture." There has been an advance, but whether it is best illustrated by the class of rather over-picturesque houses which Mr. Davidson selects we do not know. We are glad to see, however, that he recognises that "architecture is not the very impersonal affair that some would have us believe," that the architect's individuality will come out, and is an element of value; but individuality should not be forced beyond a certain point. Nearly all the exteriors chosen for illustration are of the picturesque irregular order; and however charming this may be in an ancient house, which has perhaps grown into that form through successive additions, or other accidental causes, the contrived picturesque is a false note! Architecture at its best, even in houses, is a severe and logical art. "An Inquiry into



some Armorial Pieces of Hispano-Romanesque Ware," by Mr. Van de Put of the South Kensington Museum, is a learned article on an interesting chapter in art-ware; not a literary essay, but a valuable summary of information, into which a great deal of study has gone. "Artistic Photography of To-day," considered especially in regard to the means of suggesting effects of colour and texture, is an article by Mr. Horsley Hinton, dealing with the work and method of Mr. F. Hollyer; other photographers of artistic work are to be considered in due course. The frontispiece is a very successful chromo-lithograph of Mr. Talbot Hughes' graceful little picture, "The Miniature."

The most important work illustrated in the *Architektonische Rundschau* is the new Bavarian National Museum at Munich, designed by Professor Gabriel von Seidl of that city. It is built on a rambling but picturesque plan, which lends itself well to architectural effect, and the exterior grouping is effective without being forced or eccentric. The style is a kind of very free Classic, which we do not admire very much in regard to detail, but the general architectural design should be a success, as far as can be judged from the illustrations. The two uncouth nightmare creations in decorative sculpture by Herr Waderé, of which illustrations are given—stunted centaurs of a Teutonic type with disproportionately large hoofs, which appear to be balustrade terminals, are rather sad examples. A short article is devoted to leather cutting decoration. There is nothing else for any special note in the issue, except a singular parti-coloured plate of a house in Kaiserslautern by Professor Halmhuber of Stuttgart, which may appear less funny in reality than it looks in the drawing; and also the fact that for once the *Rundschau* has recognised something beyond the confines of the Continent, by reprinting an illustration of an American house from one of the American architectural papers. That English architecture should be recognised as having any existence seems to be out of the question in this one-sided "round-show."

The *Berliner Architekturmuseum* is entirely occupied with the works of one firm of Berlin architects, MM. Erdmann & Spindler; chiefly villas large and small, and their interior details, which latter are pervaded by a restlessness and eccentricity which must make them exasperating houses to live in, one would think; but we suppose there must be many people in Germany who delight in this kind of thing, or there would not be so much of it turned out. The exteriors, or some of them, are more restful in treatment; the perspective view of the Haus Rüdigsheim makes a very pretty architectural sketch, and its interior details are not given, so we may hope they are in keeping with the exterior.

In the *Antiquary* Mr. Martin continues his essay on "The Law of Treasure-Trove," and Mr. Benjamin Walker, an Associate of the Institute of Architects, contributes a very interesting article on "The Hundreds of Warwickshire at the Time of the Domesday Survey," with a map showing the probable position of the Hundreds in the year 1086. There can be few historical studies more fascinating than thus tracing out the early history of a county and the old names which have often survived through centuries in altered and modernised form, and with their original meaning watered away in orthographical changes. From the "Notes of the Month" we quote the following:—

"A final but futile effort has been made to rescue from destruction the remaining portion of the ruined Basilewerk Abbey at Holywell. Some time ago the Flint County Council had the matter under consideration, but finding that the cost of protecting the ruins from further decay would be heavy, they decided not to move in the matter. Recently the National Trust and the Society for the Preservation of Ancient Buildings took the matter up, and requested the County Council to reconsider their decision, but without effect, the Council deciding finally to move no further in the matter. The result will cause a feeling of regret among Welsh and other antiquaries and archaeologists, as the abbey has a most interesting history. It is supposed to have been built in the twelfth century, and belonged to the Cistercian Order."

In *Knowledge* Mr. Antoniadi's papers on St. Sophia are concluded. He seems to regard himself as having proved the former existence of the cross on the exterior of the dome and of the *Pantokrator* figure on the interior, which is going too far; he showed reasons for their possibility, or perhaps probability, but not

more. The number contains an interesting and learned correspondence on Dr. Wallace's theory as to the place of man in the universe, carried on by three or four astronomers whose arguments require close reasoning to follow, and perhaps do not convince one much either way; but the subject is one that cannot but appeal to every thinking person.

In the *Nineteenth Century* Mr. Alfred Higgins writes an article on "The Monuments in St. Paul's Cathedral," a subject which deserves more attention than it has received, for some of the older monuments, however poor from the point of view of the present day, are creditable and of interest as examples of the sculpture of their time, and Mr. Higgins is right in his remark that they have the merit of suiting the scale of the building; while the monument to Lord Leighton, which looked beautiful in the Lecture-room at the Academy, has not scale and massiveness enough to tell in the spaces and amid the large architecture of the cathedral. The article of course takes in the subject of the completion of the Wellington monument (it is on that account probably that it was written), and the writer of it is in unison with the Dean and Chapter and their little private scheme to get the monument finished by a sculptor of their own choosing, without consulting the public or the Government, whose concern it was, and not the Cathedral Chapter's. No special pleading valid after that fact. Captain Swinton, L.C.C., contributes an important article on "London Congestion and Cross Traffic," in which, while considering some of the existing causes which retard traffic in London he calls attention again to one quite needless drawback—the mixing of slow with fast (or would-be-fast) traffic, so that a whole line of cabs and carriages is tied down to the pace of one slow van; a nuisance that ought to have been policed out of existence long ago. The main object of the article, however, as its title suggests, is to recommend the avoidance of cross-traffic interruption by the introduction of crossings at various levels—sunk streets or raised streets. We must refer the reader to the article for the particular suggestions made, which we have not space to consider in detail; many of them are worth attention. When Captain Swinton, however, says that cabs, &c., when in a hurry, take the Thames Embankment in preference to the Strand because they are not crossed there, he makes a point too much. We have often directed a cabman to go by the Embankment between Westminster and Catherine-street, but it is not because there is no crossing traffic; it is because the road is wider and it is not jammed by a string of omnibuses. It is the omnibuses that stop one in the Strand, not the cross-traffic, which hardly includes any omnibuses. In the same number the Rev. E. Ledger, the Gresham Lecturer on Astronomy, writes an article on the subject "The Canals of Mars—Are they Real?" His sketch of the history of the observations of the Mars "canals" should be interesting to those who have not followed out the subject, but when Mr. Ledger gives his support to the theory (which we have met with before) that these lines on the surface of Mars are illusions of tired eyes trying to see what it is difficult to see, we must say that we think this theory far too sceptical. That the lines are not canals of course we know; but that an appearance which has been seen by so many observers, some seeing more lines than others but many of them being identified by different observers—that all this is to be reduced to an effect in the observer's own eyes, is really going too far. Why do we not see lines in other telescopic objects? Has any one seen canals on the disc of Jupiter—a pretty wide area in a large telescope? Why on Mars only, if there is nothing special in the planet to cause the appearance? The number also contains an article on "Radium and its Position in Nature," a subject which is dealt with in our columns in the present issue.

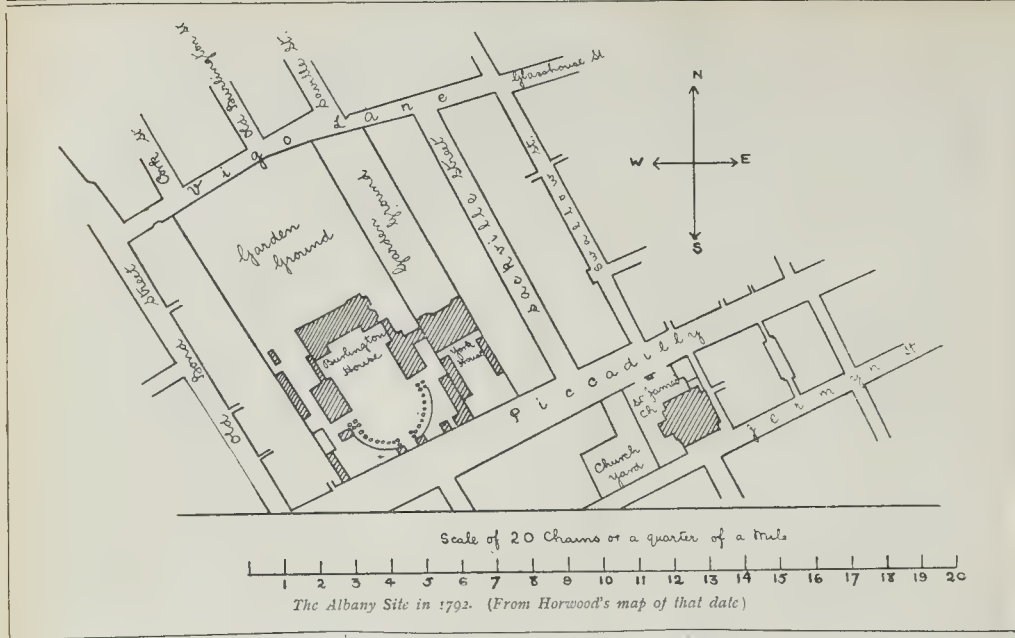
The *Century* devotes a short article, by Mr. Sylvester Baxter, to Mr. Sargent's decorative picture, "Redemption," in the Boston Public Library; a piece of modern Byzantine work, as it may be called. It consists of a semi-circular lunette in the centre of which is the figure of Christ on the Cross, modelled in relief as well as painted; this is the figure exhibited in the lecture-room at last year's Academy, with the figures of Adam and Eve bound, as it were, to the sacred figure by a horizontal band of drapery, and sitting or rather

crouching beneath the arms of the cross and each holding up a cup to catch the blood flowing from the hands of the Redeemer. As we said when it was exhibited, though it is a fine piece of work in design and execution, the idea embodied, or rather the manner in which the idea is conveyed, is far too medieval and too Romish in spirit for the walls of a modern building. Above this, symmetrically placed in the semicircle, are three cloaked and nimbed figures, of very Byzantine appearance, symbolising the Trinity; the faces of these also, we learn from the description, are modelled in relief. Below the lunette is a frieze of conventionally treated angels. The whole, we should think, must be a fine piece of decorative work, but we do not see why a modern artist should go back to Byzantine art for his inspiration for a work of this kind; it would surely have been more suitable to have endeavoured to illustrate the subject in a modern spirit. The same issue contains, under the title "The Conquest of the Forest," a picturesque account of an American "lumber camp," and the process of felling a gigantic tree, 10 ft. diameter in the trunk and 250 ft. high. A long description follows of the whole working of this great American industry.

*Scribner* contains an article by Mr. F. Weitenkampf on "Painter-Lithography in the United States;" that is, of course, lithography as used in original artistic production. Though the art of lithography was taken up in the States only twenty-three years after Senefelder's discovery, it has never been largely practised there. An artist named Bass Otis was the first American lithographer, and reproductions of his two earliest American lithographs are given; timid sketches of buildings and landscape, with too much line in them and not in the true style of lithography. But Rembrandt Peale's portrait of Washington, only seven years later, shows immense progress, and a perception of the true treatment of lithography in finished works. Of course Mr. Sargent and Mr. Whistler, who are Americans (though one rather forgets the fact) come within the scope of the article, and a bold lithographic study by the former is given among the illustrations. Among the other modern Americans the work of Mr. Ernest Haskell seems to be very good, and a "Pastoral" by Mr. J. Foxcroft Cole is an admirable work, quite French in style however. An article on the Sorbonne, the old and the new, with illustrations, will be of interest to architectural readers; the article, by Mr. Spearman, deals mostly with the history of the old Sorbonne, but there are illustrations of the new one. Under "The Field of Art," Mr. F. Fowler writes on "An Exponent of Design in Painting;" the exponent being Mr. Winslow Homer, an American artist whose sketches and studies, we are told, specially exemplify the value of design and composition. The example printed on another page of the magazine, a snow picture with a fox and crows near the foreground, certainly tends to bear out this judgment; the placing of the animal and birds which make the "darks" in the composition is most effective and evidently carefully studied, though we can hardly agree with the writer that composition is little thought of in modern art. Sometimes, indeed, it is the other way; a picture is regarded too much as a mere composition, independent of its intellectual meaning.

In *Harper* a critical comment on Shakespeare's "King John" is accompanied by some designs in black and white by Mr. Abbey which are exceedingly successful in conveying the character and costume of the figures represented in the play, as they may really have been—not as Shakespeare imagined them, for local colour as to place or time exercised little of a dramatic poet's attention in his day. "Photographing the Nebulæ with Reflecting Telescopes" is an article by Mr. Ritchey, Instructor in Practical Astronomy at the Yerkes Observatory, giving an account of what has been done, and a forecast of what may be done, by this means of astronomical investigation. The Yerkes reflector is only a 2-ft. one, but a French firm has produced one of 5-ft. diameter, and profess their ability to cast a 10-ft. one, a foot thick, which will be a success. The difficulty consists in getting castings on that scale without flaw or twist of any kind, and in mounting them so that their own weight in different positions may not distort them; and the writer states that there can at least be no doubt that an 8-ft. reflector can now be made that shall be as flawless as the Yerkes 2-ft. one. The casting is of course only the rough found-





dation of the work; the formation of the complete mirror surface is a matter of subsequent grinding with the most delicate adjustment; no errors of form greater than two or three millionths of an inch can be allowed. As to the possibilities of an 8-ft. reflector, Mr. Ritchey says:—

"Judging from the results obtained with the 2-ft. instrument, an 8-ft. reflector, if used in a climate where atmospheric conditions are fine, would photograph stars which are fifty times fainter than the faintest stars which can be seen with the largest modern refractors. This means that such a reflector would enable us to penetrate seven times farther into space than can now be done with the greatest visual telescopes, and therefore that such an instrument would reveal to us a universe seven times seven times seven—more than three hundred—times greater than the universe which is revealed by the most powerful modern refractors.

Such a great reflector would give us photographs of the nebulae of about five times the scale of the photographs obtained with the 2-ft. reflector; the delicate structure and minute details of these wonderful objects would be shown proportionately better, provided that the instrument were used in a suitable climate. I know of no opportunity which has ever been presented in the entire history of astronomy greater than that which now awaits us in the construction of a large modern reflector and its use in astronomical photography."

The *Pail Mall Magazine* contains "interviews" with five eminent artists, reported by Mr. Harold Begbie, on their various ideas as to "How to Paint a Picture;" but it is only small-talk, and if the interviews are really reports, or approximate reports, of what was said, the conclusion would be that the artists interviewed took care to avoid giving their interviewer any information of real value.

The *World's Work* contains a description of the Woking Crematorium and of the cremation system generally—an important but gruesome subject. We still think there is much to be said for "earth to earth." Cremation may have its hygienic advantages, but it thrusts the reality of dissolution more harshly and brutally on the survivors—in cases where the bond has been a close one—than mere consignment of the remains to rest in the graveyard. It is a subject that can hardly be settled on merely scientific grounds, until at least human nature and human feeling are much changed. Under the head of "Woman's Work" a short article on the "Modern House: a description and a forecast" may serve to indicate to architects what the advanced housekeeper thinks necessary now in the get-up of her house. He will find she wants a good deal. "An American correspondent" describes a visit to one of the Trans-

atlantic Marconi stations. Those who are interested in the position and prospects of the agricultural population should read a short article on "A Remarkable Success in Small Holdings," describing Lord Carrington's experiment in letting lands in Lincolnshire (in the Spalding neighbourhood) to an Allotment Syndicate which re-let them in small lots; a transaction in which all parties seem to have had reason to feel satisfied.

The *Church Builder* (quarterly) contains an illustration of the small and ancient church at Lower Guiting, Gloucestershire, which has been nearly falling to ruin through the poverty of the agricultural district in which it is placed. Illustrations are given of its two good Norman doors. The church is now, it appears, being repaired and (so far as inevitable) restored. Messrs. Buckler & Comper's design for the church of St. Alban, South Norwood, shows a good and simple plan capable of some effect with the narrow aisles and internal buttresses (the section is not given), and with pleasing exterior treatment in orthodox Gothic style.

The *Revue Générale* contains an article by M. Victor Brants, on the working-men's associations in Germany, and their social and political effect. The question of what in England is called "picketing," and its legality or fairness, we observe is also being raised in Germany.

The *Gentleman's Magazine* includes a popular article by Mr. J. Eilard Gore on "Air and Life"—the constituents of air and their relation to life.

#### THE ALBANY, PICCADILLY.

It is announced that at a meeting of the proprietors on April 29, the Board of Trustees made a report whereby they recommend that offers for the purchase of the property should be invited for consideration. The buildings have been erected at successive periods upon the sites of houses of Robert and Charles Spencer, second and third Earls of Sunderland, in the reigns of Charles II., George I., Sir Thomas Clarges (*temp.* Charles II.) and Lady Stanhope. No. 982 of the *London Gazette*, 1675, speaks of Sir Thomas Clarges's house as being "near Burlington House above Piccadilly," that is to say, the house built by Sir John Denham for either himself or Richard, second Earl of Burlington, father of the amateur architect. The garden grounds extended northwards between Sackville-street and the gardens of Burlington House, as far as Vigo-lane (now Vigo-street) and, with the Ten Acres-fields beyond, are delineated in the large bird's-eye view engraved by J. Kip, after a drawing by L. Knyff, 1707. The house,

formerly called Piccadilly House, in the courtyard as entered from Piccadilly, was built for Stephen Fox, second Lord Holland, after plans and designs by Sir William Chambers, who was architect also of the screen, with entrance gates and a middle doorway having a Doric order and angle-pediment, of which we published an illustration, from a large water-colour preserved in the Soane Museum, on January 4, 1902. In our text of that date we cited various data in support of the belief that Chambers's screen was actually built in Piccadilly, though we can adduce no documentary evidence to that effect; it, however, is not plotted in R. Horwood's large-scale Survey of 1792. Lord Holland sold Piccadilly House in 1770 to Lord Melbourne, who employed James Paine to design two chimney-pieces, and Cipriani, Rebecca, and Wheatley in the decoration of the ceilings and other portions of the interior. Lord Melbourne subsequently exchanged the mansion to Frederick, Duke of York and Albany, for Melbourne, afterwards named Dover House, Whitehall, and it was then called York House, York House with its long garden ground at the rear and the buildings on the two sides of the courtyard are plotted in Horwood's Survey mentioned above. In 1804 Henry Holland converted the house, since called "A," for sets of chambers; on the garden ground he built the additional two rows of chambers and the porter's lodges entered from the north; the buildings were then named the Albany, and some of the suites are freehold. They have had many celebrated tenants; amongst them being Sir Robert Smirke at H 1 in 1807-9; Lord Althorpe, Lord Byron in 1814, and Sir E. Bulwer Lytton (Lord Lytton) in 1837, at A 2; George Canning in 1810 at A 5; M. G. ("Monk") Lewis, Lord Clyde, and Sir Charles Napier at K 1; W. E. Gladstone lived there (and was visited by Wordsworth) in or about 1835, and during the interval 1840-50 Lord Macaulay occupied E 1 and F 3; in the former he wrote some of his *Essays* and the first part of his "History of England." In one of his letters Macaulay says:—

"I have taken a comfortable suite of chambers in the Albany, and I hope to lead during some years a sort of life peculiar to my taste—college life at the West-end of London. I have an entrance-hall, two sitting-rooms, a bedroom, a kitchen, cellars, and two rooms for servants, all for ninety guineas a year."

The front gate of stone and the screen-wall of brick with stone piers of Burlington House, which is shown in our view of January 4 last year, and was designed by Colin Campbell, was together with the quadrantal colonnade within,



polled down thirty-six years ago: see also an illustration in the *Builder* of October 28, 1854. The Duke of Devonshire at one time proposed to erect along the east side of Burlington House an arcade similar to the Burlington Arcade he had built after Samuel Ware's designs in 1818-9 along the west side of his property, but his project was successfully resisted by the owners and tenants of the Albany.

#### THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The annual general meeting of the Royal Institute of British Architects was held on Monday at No. 9, Conduit-street, W., Mr. John Slater, Vice-President, in the chair.

The Report of the Council for the official year 1902-1903 was submitted and adopted. The Report stated that it has been decided to award the medal this year to Mr. Charles Follen McKim, of New York, President of the American Institute of Architects. Mr. McKim will come to London to receive the medal in person at the meeting of the Institute on Monday, June 22.

The following tabular statement shows the present subscribing membership of the Institute, compared with that at the corresponding period last year:—

Year.	Fellows.	Associates.	Hon. Corr. Associates.	Total.
1902	617	1,071	44	1,732
1903	627	1,117	43	1,787

During the official year, since the last annual general meeting, thirty Fellows have been elected, sixty-eight Associates, and two Honorary Associates. One Hon. Corr. Member has been elected: Constant Moyaux (Paris). The number of candidates for the progressive examinations continues to increase. They were held in June (Final and Special in July) and November, 1902. The Preliminary was held in London, Birmingham, Bristol, Exeter, Glasgow, Leeds, Manchester, and Newcastle-on-Tyne; the Intermediate in London, Bristol, Glasgow, Leeds, Manchester, and Newcastle-on-Tyne; and the Special Examination for Colonial candidates in Montreal and Melbourne. The Council desire to record their thanks for the valuable services rendered by the hon. secretaries and examination committees of the various allied societies, and the Institutes of Quebec and Ontario, and the Royal Victorian Institute. The Final and Special Examinations were held in London. The results are shown in the following tabulated form:—

	Exempted.	Examined.	Passed.	Relegated.	Total.
Preliminary Examination	94	276	155	91	570
Intermediate Examination	5	196	105	91	201
Final and Special Examinations ... ..	...	...	126	70	266

The total number of candidates was 687, as against 674 in 1901. The total number of candidates in 1892 was 359. The number of probationers now stands at 1,900, and of students at 446. In the above statistics the Council desire to point out the new category of "Exempted" under the "Intermediate" heading. An arrangement has been made with University College, Liverpool, whereby any probationer of the Institute who, having been through the full two years' course in architecture, has obtained the Professor's Final First-class Certificate, and whose work done during his course at the College is found satisfactory by the Board of Examiners, may be exempted from the Intermediate Examination; the Institute being represented by a member of the Board of Examiners at the examination held for the purpose of granting certificates by the authorities of University College, Liverpool.

The Asphitel Prize was awarded to William Greenwood, who passed the Final Examination in November, 1902. The Special Examination for Colonial candidates will be held this year in Montreal and Sydney.

The Deed of Award of the various prizes and studentships was presented to the Institute at a general meeting on January 19. An exhibition of the drawings was held from January 20 to 31 in the Gallery of the Alpine Club, and was visited by 1,204 persons. A selection from the prize drawings is now being sent the round of the allied Societies. The annual dinner will be held this year on Tuesday,

June 23, at the Whitehall Rooms, Hôtel Métropole.

The Council sent an Address of Congratulation to his Majesty the King on the occasion of his Coronation. A scheme for decorating the front of the Institute for the Coronation on June 23, designed by Mr. G. F. Bodley, R.A., was being put into execution when the unhappy news of the King's illness was made public. The scheme was, however, carried out in order that Mr. Bodley's artistic design might be realised. A portion of the materials were utilised as decorations for the Coronation on August 9.

During the official year the Edinburgh Architectural Association has been admitted into alliance with the Royal Institute. The Council have much pleasure in recording the fact, as now there is no non-metropolitan architectural society of any importance which is not constitutionally associated with the Institute, and thus have been furthered the unity of organisation and the centralisation of architectural influence which have been the aims and policy of the Institute since 1889. The Council desire warmly to support the President in his views concerning the allied societies expressed in his opening address. They welcome any communications from the various Councils, either as suggestions of policy or requests for advice or assistance.

In the last Annual Report the Council stated that the Committee of the Architectural Association and themselves had adopted the recommendation of a joint Committee of the two bodies, that the Institute and the Association should combine in a building scheme to house both bodies under one roof.

The Architectural Association, however, having decided to take over the premises of the Royal Architectural Museum, consideration of this joint building scheme has been abandoned. The question of new premises for the Institute is one which the Council have always before them; but they feel that it is wiser to wait for a favourable opportunity of securing a site that meets with all the requirements of the Institute than to commit themselves to any undertaking to inaugurate a building scheme within a definite period. As a favourable opportunity may not occur in the immediate future, the Council have made certain improvements in the meeting room which they hope tend to the comfort of members as well as to the convenience of the working of the Institute. In order to obtain proper picture space, so that the valuable collection of portraits may be seen to the best advantage, the recess behind the chair has been altered according to the design of Mr. J. S. Gibson, who kindly acted as honorary architect. The new system of electric lighting by means of reflection from the ceiling has been carried out under the direction of Mr. J. Slater and Mr. E. T. Hall. The wall opposite the chair has been lined with bookcases, which will relieve the pressure on library space for some time to come. With regard to the portraits of past Presidents, the Council have decided to issue an album of photogravure reproductions, with spaces for future plates. This album will be obtainable by members at a price to be hereafter settled.

The Practice Committee have done excellent work this session for the Institute. To them is due the book on dilapidations published this year. A form of contract, for use where quantities form a part of the contract, prepared by the Practice Committee, has been issued as an Institute publication. With regard to the point raised on the discussion of the last Annual Report, as to the possible effect of the decision given in the case of *Hobbs v. Turner* upon the validity of the Institute Form of Contract, the Council have been advised by the Institute's solicitors that it is unnecessary to alter the present Form in view of that decision.

The London Building Acts (Amendment) Bill, submitted by the London County Council for the criticism of the Institute, was investigated by the Practice Committee, who issued a report to the Council. The Council were considering this report, having in the meanwhile signified to the London County Council their opinion that the measures proposed were far too drastic to obtain their support, when the Bill was suddenly withdrawn. The Council will take the necessary steps to advise the London County Council with regard to the provisions of any amended Bill. The Ancient Lights Bill, approved by the Council of the Institute and the Council of the Surveyors

Institution, is now in the hands of Mr. J. Fletcher Moulton, K.C., M.P., who has kindly undertaken to be responsible for its introduction into Parliament.

The Council sent in a petition to the Privy Council praying that a Royal Charter of Incorporation should be not granted to the Auctioneers' Institute, on the grounds that such a grant would seriously affect the value attached to the possession of a Royal Charter. The petition of the Auctioneers' Institute was refused.

At the general meeting of March 2 the President made an announcement with regard to the question of registration to the effect that the Council were still opposed to any such scheme of registration as that set forth in a previous Bill dealing with the same subject. The Council have since issued a memorandum to the Presidents of the Allied Societies.

The operation of part of the proviso of By-law 9 lapses this year on May 18, viz., "Provided always that when the Council of the Institute receive a unanimous recommendation formally submitted by the Council of any Allied Society that a practising member of the profession is eligible and worthy of being elected as a Fellow, the Council shall, during the five years from the date of approval of this provision by the Privy Council, have power to elect him, if in their opinion his work be of sufficient merit." The second clause:—"The Council shall also have the power to elect annually to the Fellowship without ballot the President or President-elect of any of the Allied Societies who may be eligible and apply for admission," is not subject to the five years' limit.

In the autumn the London County Council announced their decision to abandon the design of a stone bridge at Vauxhall, and to replace it by an iron and steel structure designed by their Engineer. The Council inspected the design and reported adversely to the London County Council, urging them to call in the services of an architect. After some correspondence, the Council were informed by the London County Council that their Architect would be called into collaboration with their Engineer. The principle of the association of engineer and architect in bridge building which they have so long urged has thus at last been admitted by the London County Council.

The Council have taken action with regard to the proposed demolition of All Hallows' Church. A letter was written to the Ecclesiastical Commission to the following effect:—"That the Institute views with regret the proposed demolition of another of Sir Christopher Wren's churches, which has a peculiarly successful interior, and desires to express the hope that means may be found to preserve the building intact; but that if circumstances prevent this, the church should, if possible, be re-erected upon a suitable urban site, stone by stone, and in any case that the fittings should be suitably rehoused in a building of the same character, where the whole of them could be brought together so as to preserve the unity of their design."

In the last annual report reference was made to the question of the appointment of assessors in competitions, and it was stated that a Select Committee of the Council were considering the various matters referred to them. The Council duly received the report of their Committee, and were brought to the conclusion that the appointment of assessors was best left entirely in the hands of the President of the Institute, and that, even were it desirable, there was little chance of success in trying to establish the jury system in this country. A practical result of these deliberations was (1) a revised edition of the "Suggestions for the Conduct of Architectural Competitions" and (2) a confidential set of suggestions for the guidance of assessors. A copy of the "Suggestions for the Conduct of Architectural Competitions" with a circular letter, was sent during the summer to every Town Council, Urban District Council, and Rural District Council in the United Kingdom. The Council have empowered the Competitions Committee, so as to avoid delay, to take independent action where necessary in respect of any competition within the scope of the "Suggestions." To prevent possible misconception among members, the Council desire to state that in the great majority of cases the unsatisfactory points in conditions are of so obvious and simple a nature as to be adequately dealt with in the routine of the secretary's office without troubling the committee to meet.



The Council also desire to refer to the Competition Reform Society, with whose aims they are quite in sympathy. The Society reports to the secretary of the Institute any competition matter that may need investigation. The matter being thus placed in the secretary's hands becomes an entirely Institute question, and in furnishing such material for Institute action—material which it would be often impossible to obtain officially—the Competition Reform Society is doing exceedingly useful work.

Mr. E. T. Hall and Mr. Thos. W. Cutler have been appointed by the Council to represent the Institute at the Annual Congress of the Sanitary Institute, to be held in Bradford in July. Mr. Alfred Culshaw has been appointed by the Council to represent the Institute at the Annual Congress of the Royal Institute of Public Health, to be held in Liverpool in July.

In presenting the statement of income and expenditure and the balance-sheet for the year ending December 31, 1902, and the estimate of income and expenditure for the current year, the Council have again the pleasure to draw attention to the continued financial prosperity of the Institute. The balance of income over expenditure of 1,028l. 15s. falls somewhat short of the estimated balance, but the unforeseen expenditure for the Coronation decorations accounts for the difference. Owing to the many additions made in recent years, the property of the Institute was found by the Council to be considerably under-insured. The Council at Michaelmas therefore took out a fresh policy with the Westminster Fire Office, to the total value of 22,700l.

The Council have this year invested the sum of 1,119l. 16s. 10d. in the purchase of Great Western Railway stock. The total invested capital of the Institute amounts to 12,838l. 19s. 3d. The Reports of the various Committees were appended.

The Report of the Art Standing Committee states that the matter of the design for the new Vauxhall Bridge has been the principal business engaging the attention of the Committee during the current session, and it is gratifying to know that in consequence of the Committee's representations made to the London County Council, the design formerly proposed has been discarded. The Committee are also glad to intimate that the County Council have decided that their architect shall be associated with the engineer in regard to the design and architectural details of the structure. The work of the widening of London Bridge has been in progress during this year, and the suggestions of the Committee regarding the details of the design have been practically adopted by the Corporation.

The Practice Standing Committee reported that the book on dilapidations was submitted by the Council to a general meeting of the Institute, and, having been approved, was ordered to be printed and published. This has been done, and the book is now on sale. It having been reported to the Committee that the London County Council had an intention to amend the London Building Act (1894), the Council was asked to approach the London County Council with a view to the Institute having an opportunity of expressing its views on the proposed Bill. This resulted in the London County Council inviting the Institute's comments on their Draft Bill for increasing the safeguards against accidents by fire in buildings, entitled the London Building Acts (Amendment) Act. Seven special meetings were held by the Committee at short notice and the Bill was fully considered in detail. In addition two Joint Sub-Committee meetings were held at 9, Conduit-street, with representatives of the Surveyors' Institution. The Committee also conferred with the Committee of the District Surveyors' Association. A report was made by the Committee to the Council, and the chairman, Mr. J. Douglass Mathews, attended before them to explain the Committee's views. The report was afterwards discussed at a general meeting of the Institute, but on the day following the London County Council decided, owing to the opposition with which it was being met, to withdraw the Bill and to introduce a new measure at a future date.

In accordance with a reference from the Council, the Committee have had under consideration the production of a form of architect's certificate and have recommended a form to the Council for adoption. They have also suggested that this form might be published by the Institute in book form.

In accordance with a reference from the Council, the Committee have had under consideration the question of the preparation of a form of sub-contract for use between the general contractor and sub-contractors. The Committee are still considering whether it is expedient for architects to be parties to, or to be concerned in arranging, such sub-contracts.

The preparation of a form and conditions of contract for use where quantities are made part of the contract, was undertaken by the Committee, and the form is now issued by the Institute.

The opinion of the Committee has been sought on several points of professional practice, and especially a recent case in the Court of Appeal in which a contractor, having undertaken to carry out a building in accordance with the drawings and specification, was held to be unable to recover for loss sustained by admittedly inaccurate bills of quantities.

The Science Committee reported that the proposals of this Committee with regard to the standard size of bricks have been provisionally agreed to by the representatives of the various Brickmakers' Associations. The matter now only awaits the ratification of these proposals by the Brickmakers' Associations. The Committee hope that architects and engineers will insert the standard in their specifications, and so check the serious differences in size of bricks that interfere with good sectional bonding.

The Committee are pleased to report that the suggestion they made, that the administration of the various Acts of Parliament relating to drains old and new, should be placed under the Borough Surveyors, has been supported by the London County Council, and they have asked the Council to support the resolution the London County Council sent to the Local Government Board to this effect.

At the invitation of the Institution of Civil Engineers and with the assent of the Council, this Committee was represented upon the Committee of the engineers for standardising joists, tees, and angles, and they are glad to say, that practically every suggestion put forward by this Committee was adopted.

Mr. Louis Ambler and Mr. W. A. Forsyth having been renominated as auditors for the ensuing year of office, the existing members of the Statutory Board of Examiners under the London Building Act, 1894, and other Acts of Parliament were reappointed for the ensuing year of office.

The meeting then terminated.

#### THE ARCHITECTURAL ASSOCIATION.

The last ordinary fortnightly meeting of the Architectural Association for the present session was held on Friday last week in the Meeting-room of the Royal Institute of British Architects, No. 9, Conduit-street, W., Mr. H. T. Hare, President, in the chair.

The minutes were read and confirmed, and the following gentlemen were elected members of the Association, *i.e.*, Messrs. R. Haensler, C. R. B. Murphy, J. P. White, and G. Hornblower. Mr. A. Dicken was reinstated as a member.

Mr. H. P. G. Maule, hon. secretary, proposed a vote of thanks to Mr. Arthur Keen for conducting a party of members over the new Baptist Church House, Holborn, on April 4, and for entertaining the party.\*

The vote of thanks having been agreed to, the following votes of thanks were, on the motion of the Chairman, agreed to, *i.e.*, to the Royal Institute of British Architects for their twelfth grant of roof, towards the educational work of the Association and for the use of the Meeting-room; to the School of Design Visitors; to the Technical Education Board re workshop demonstrations; and also to the Press.

The Chairman announced that the members' supper will be held in the Hotel Great Central on Friday, May 15.

#### Architecture and the Public.

The following paper was then read by Mr. A. Needham Wilson:—

It may be considered that in selecting such a subject as "Architecture and the Public" I may be travelling over well-worn ground. I hope to avoid the charge; for a threadbare fabric is scarcely improved by further embroidery of the old pattern, but may present new

aspects 'if held in differing lights. It will be my endeavour to offer for your consideration these differing lights, in the hope that the aspects may occasion some opening for useful discussion. As I look back over the period during which I have dwelt in the architectural world (a longer period than I like to contemplate sometimes) it appears to me that I have witnessed a remarkable change. The old order of things has passed away, and the architectural era I now live in is a very different one to that which witnessed my architectural birth. I do not intend to emulate either the keen insight or the eloquence of Professor Pile's review—read before the Institute recently, and that masterly *résumé* is probably too fresh in your minds to require any enlargement from me. We have passed through many stirring influences. We underwent the ordeal of the Aesthetic era in emerging from the Victorian—we had a severe attack of the "Queen Anne"—and recently we have suffered more or less from a strange disease known as the "New Art," from which we are scarcely convalescent. We have fortified our constitutions with the school of Norman Shaw. We have trembled in the throes of the Gothic revival and the influences of the Oxford Movement, and we have seen as the outcome a new and, I venture to think, a sturdy development of ecclesiastical architecture. And a greater appreciation of the Renaissance stock has encouraged the grafting of some vigorous shoots on that fine old tree.

New methods of training have been established, and the powers that be have been more or less alive to the necessity of keeping abreast of the rapid changes of this strenuous age and the demands thereby created. It is pleasant to feel that our Association has been and is anxious to meet those demands and to furnish the rising young architect with the equipment necessary to encounter them. Is it too picturesque or overdrawn to imagine English architecture as a giant awaked from sleep, and ready and anxious to battle successfully under the new conditions amidst which he finds himself; still stretching his powerful limbs and yawning a little? I believe, by the way, architecture is generally represented as a lady—but let that pass.

If it be granted that we are living in a transitional age, and that the old order of things has passed away, that as a nation we are awaking to the knowledge that we can no longer plod along in our old stubborn way, but must bestir ourselves, unless we would be left behind and unheeded in life's race, are we architects fully alive to the fact?

New inventions, new ideas, new demands, new conditions, new uses for materials crowd upon us and increase daily. We have a differently constituted public to cater for, with an education which makes them infinitely more difficult to please than formerly, and yet have we succeeded in awakening generally a greater appreciation of the beautiful in art as far as we are concerned. Have we succeeded in more than meeting the demands of sanitary and constructional enlightenment? Are we leading or being led? Is architecture to-day an educational force calculated to elevate and teach and brighten the existence of the masses, or to relieve the dull grind and monotony of the great middle classes, or the sordid and deadly dull existence of the workers? Are we as fully equipped for this position as we ought to be, or even alive to the necessity, or is it all the idle Utopian idea of the dreamer, and shall we meet it with the reply that it cannot be done at 5 per cent.?

Further, has the status of the architect at all improved, or is he still considered a visionary, an unpleasant necessity, or an unmitigated nuisance, whose services may be dispensed with if possible? Can he command, any more than before, the tribute to brains and genius ungrudgingly given to the successful painter or sculptor, or can he appeal to the popular imagination with the expression of those brains and genius, as can the engineer. It may not be the ambition of all to appear in the illustrated papers or the cheap sensational dailies, or to be the cause of a torrent of dull statistics served up in attractive form for popular consumption in cheap magazines. But every architect in his soul must hanker even modestly for that deference, that indefinable bowing down, as it were, to the great ideals (which he often feels he so unworthily represents) from an appreciative public. But have we an appreciative public? One that can recognise genius when it exists?

\* See our issue of April 11, p. 389, for an account of this visit.



It can scarcely be claimed that we are artistic as a nation. Art with us is not spontaneously produced; it is rather the result of forced effort; it is not the natural outcome of inherent liking—which will evolve art unconsciously, without knowing that it is art. As a nation we do not produce art unconsciously, and as a nation we are not aware of the fact. The painter appeals more directly to the public than either the architect, sculptor, or craftsman; not because the public appreciate painting as an art—but because it presents subjects which they like to see pictured in a way they understand. They are probably equally pleased with coloured photographs. In spite of our schools of art, and all the machinery for inculcating a true and natural appreciation of painting as means of representing the beautiful, how many of the vast crowds who throng the galleries of Burlington House are capable of judging whether a picture is good or bad either in drawing or colour. If they take any interest at all, it is only a languid sense that the subject pleases them in some undefined manner. And if this may be said of painting, wherein a serious effort has been made to train the public mind, how does it apply to the work of the sculptor and the craftsman, and still less the architect?

Yet I think even I can detect a growing appreciation of art, for art's sake, as expressed by the painter, the sculptor, and the craftsman, an appreciation that is gradually spreading, and even now with the public is supplanting what I may term the oleographic epoch. I hope I can detect signs of an appreciation of better things in domestic decoration, furniture, and ornaments. Is it too optimistic to trust that the era of hideous flowered wallpapers, marble mantelpieces, grained woodwork, ugly mahogany, glass lustres, dyed grasses, and wool mats, and their deadlily atmosphere of sordid respectability is giving way to a craving for something better? The dull monotony of the struggle for existence is leading to a yearning for that which will lighten the grey and leaden hue of the lives of the great mass of the people. In their ignorance it may have taken a trend which we frequently deplore. It may be too often found expressed in tinted glass of an assertive nature, circular stone columns with real carving, at the angles of the everlasting bay window, cast-iron monstrosities of various forms, and the wierd introduction of so-called "half-timber." But we have not as yet succeeded in abolishing the deadly dreariness of the interminable streets of "villas"—long, wearisome vistas of endless monotony—the drab of which must be reflected in the lives of the unfortunates who dwell therein. Yet even the speculative builder caters for tenants with some approach to what he fondly imagines is art, finding that the "half-timber" is worth an additional 5% on the rent. Shall we see the day when these interminable rows of dwellings, ground out of the speculative builders' mill, will give place to cheery and well-designed groups of houses facing their common green quadrangle.

Well, I venture to assert, not until we architects have a hand in the matter. Not until we have succeeded in moulding the popular mind into a far greater appreciation of the beautiful as expressed in architecture; not until we have suppressed the prejudices against us, and created such a demand that it will be as natural to employ an architect as it is now for the builder to draw himself one set of plans for a hundred houses. For any building of importance, and for many a private house, the services of the architect are felt to be a necessity, though this feeling has scarcely reached the stage when the architect will co-operate with the engineer and the contractor as a natural thing; when the public will insist that its engineering works must no longer be blot and eyesores, but possess a definite beauty.

I venture to think that as architects we hardly grasp the importance of the influence of our work upon the social well-being of the people. Do we not design too much for ourselves and our self-gratification? I suggest that we count too much upon the solid insular reserve of the Briton, and too little upon the emotional side, which it is our national characteristic to repress. As a case in point, may not the indefinable religious atmosphere of a church stir the emotions, or fail to do so, according to its sense of fitness for its sacred purpose? The man who can evolve deep devotional feeling in a cold, bald sur-

rounding must be a devotee, and how few modern churches impress the worshipper with that sense of almost reverential awe which surely a church should create. If the emotions may be stirred by music, why not by architecture? However dull, however hardened a man may be, surely he must be unconsciously influenced by his environments, and may I suggest in this we have a means of educating our fellow men to a fuller and healthy appreciation of our work. It seems to me that this is a great responsibility, and one far greater than that hinging on questions of stability. This sense that the work of one's brain is an educating power for good or ill, to be handed down to future generations, and either held up to public derision or pointed at as something to be admired; or else utterly ignored. I think I would prefer to have my work held up as a something to be avoided than not have it noticed at all. And yet how many buildings in this unwieldy Metropolis attract even a passing glance from the hurrying thousands. Whose fault is it? It is easy to rail against the supineness of the public; but is that the true explanation?

And yet I suggest that there are signs that the public are slowly awaking to the fact that there is such a thing as beauty in building. They may not as yet have the trained appreciation which teaches them what should constitute beauty, but I think most architects will be prepared to endorse the opinion that they have to cater for much more critical clients than was formerly the case. Further, I will go so far as to maintain that the public are beginning to realise that a building may actually be ugly. Their ideas of beauty and ugliness may not coincide with either yours or mine, but the fact that they are not always prepared to accept the architect's dictum, though adding to one's difficulties, may surely be welcomed as a distinct advance, and one that offers a fine educational field.

Some may not consider this "a consummation devoutly to be wished," and may hold that a new terror is added to the profession, when every man who believes he can edit a newspaper or write a play better than any one else will add a little dabbling in architecture and a dangerous knowledge of construction and sanitation. Picture the time when the egg-and-tongue wallpaper border will no longer be fixed upside down, or when it will no longer be held that warm carbonic acid gas lies on the floor! I fear our profession will be robbed of its humours. But do we not see on every hand this awakening knowledge and keener interest in our work? If only it all can be turned in the right direction, I venture to prophesy that no registration of architects will be necessary to protect the public against incompetent or unqualified men, but that the public will no more employ such men than they would an incompetent or unqualified lawyer.

Why, even the Press—not a bad barometer, by the way—has been reflecting the movement, and, when reporting upon the opening of a new building, has even illustrated it occasionally, and actually in some instances mentioned the name of the obscure individual who has conceived it, and carried the work of his brain into concrete form. Through what anxiety, what difficulties, what exacting labour, weary days and weary nights, obstacles innumerable, it matters not; but the public are actually aware that a brain has conceived the building, that it has not developed spontaneously under the hands of the builder, and so the name is given, as subsidiary to the builder perhaps—but still it is given.

I do not wish it to be thought that the aim and end of an architect's career is to be mentioned in the papers. I merely mention the matter as a sign of the increasing interest of the public in the creations of our brains.

We are perhaps too ready to dwell on our grievances against the public—sometimes real, sometimes imaginary—and into these I do not, as I said, propose to enter. But what I would ask is, Have the public any legitimate grievances against us? Personally I hear of them constantly: "Oh, you architects are so impracticable. You allow matters of convenience and common sense to become a secondary consideration in your over anxiety to give undue prominence to your beauty. You always insist on having what you want, not what we want. You know nothing of ventilation; you never consider the domestic working of a household; and you can never carry out your work for the price named, and

your fees are most exorbitant; the next time I am fool enough to build I will get a builder to work on my own ideas;" and so on.

I daresay all of us have heard something of the kind, and beyond a momentary feeling of irritation have put it aside as something utterly irrational. Probably it is in most cases, but may there not be a sufficient substratum of truth to require consideration?

The many-sided character of the profession shows no tendency to diminish, but rather to increase, and the exigencies of a modern architect's practice call for a dozen experts merged into one. He never knows what the scope of that practice may demand: anything between the designing of an altar cloth or chalice veil to the settling of some intricate legal difficulty or the cure of a smoky chimney. He must be a sanitary specialist, a ventilation specialist, and a constructional specialist; capable of supervising or arranging the installation of electric power or light, acetylene gas, heating apparatus or laundry machinery, lifts or cooking plant.

He must be *au courant* with the latest fad; must advise on all forms of decoration; be an artist in colour schemes; understand the stoking of a kitchen range, or laying out a garden. He must have an all-embracing knowledge of the nature and properties of materials; and, if we are to judge by the advertisements for assistants in the professional journals, must be a quantity surveyor as well. Small wonder if, in his anxiety to find scope for a little design, and comply with the innumerable by-laws, Building Acts, and vexatious regulations, he occasionally puts drawing-room handles on a classroom door, passes Swedish timber as Russian, or omits to specify a stick for the scullery copper. I am not quite sure that we are alive to the full demands of the age, or that we are taking steps to keep ourselves fully abreast of it, or that not only ourselves, but those who will take up our pencils in the time to come, are efficiently equipped for the modern architect's career.

I do not think as yet we fully recognise the changed conditions under which we practise, and unless we do, some foundation will continue to exist for the charges levelled against us.

One of the problems of the age is undoubtedly the domestic servant difficulty, and I venture to suggest that we have so little grasped the fact that we neither design our houses to minimise the evil, introduce labour-saving appliances, nor so decorate as to lessen work. I do not think we are far-seeing enough. We design for the moment—perhaps on the principle that "sufficient for the day is the evil thereof." The time seems to be approaching when the middle class will not be able to procure domestic servants at all, and when that time comes we cannot expect every one to build afresh or to live in flats. The ingrained liking in every Englishman for his own little castle will not be eradicated readily, and the problem is to make that castle practically independent of domestic labour.

Small wonder that the lady of the house, overwhelmed by her domestic worries, rails against the architect who has aggravated them.

Are we ahead, not abreast, of the demand for technical education in these days? Are we conversant with the recent scientific discoveries? Are we making proper use of new inventions and applications of materials? Are we taking the measures we should to minimise fire risks? I do not know that we are. I will not extend the list, lest I try your patience.

Hedged about as we are with difficulties, hampered at every turn, we can neither experiment on our clients nor at their expense. Our opportunities of testing materials are limited, and we fear to attempt new departures lest they prove failures and bring down upon us the wrath of our clients. No wonder we are dubbed old-fashioned and accused of lagging behind the age. If I am correct, and I admit my assertions may be disputed, I do not think we should be hampered. With all respect, I would offer one or two suggestions to the Institute, not at all as criticisms, but as expansions of its usefulness.

First. Cannot some of its funds be devoted to such valuable tests of materials as, for example, those recently applied to brickwork, which, I believe, are now taken as the standard? I cannot but feel that the Institute could further the welfare of the profession to a much greater extent than it does in this way. I venture to think that a series of tests of cements, especially



as to their expansive properties, would be invaluable, and further, in view of the behaviour of steel girders and stanchions during a fire, how far concrete with steel rods can be substituted. The question of fire protection is so important to the public that some definite data for those who are endeavouring to combat the difficulty would surely be highly welcome.

Second. Cannot evidence as to the behaviour, advantages, or disadvantages of certain materials, fittings, and appliances be collected and published?

Manufacturers are doing much to keep level with the times, and all sorts of new ideas are showered upon the practising architect. If one of these ideas commends itself to me, if I think it grapples in a common-sense manner with some difficulty, or is an improvement on a preceding invention, I should like to make use of it, but in nine cases out of ten I dare not. I have no evidence that it is a success. If I boldly adopt it, and it turns out satisfactorily, well and good, but if otherwise, I have to endure the rage of a client who instantly puts me down as incapable or crazy.

It is too much in the nature of an experiment. I would suggest that such ideas, such inventions should be considered, and if thought to be of value to the profession should be thoroughly tested, that evidence of their behaviour should be gathered, and that such information should be accessible to members of the Institute. I am not sure, but I think manufacturers would welcome such a test, and the profession might be spared a considerable amount of rubbish, and while avoiding the necessity of constantly falling back on things which are nearly obsolete, would encourage the manufacturers to a wholesome emulation.

I am quite prepared to be told that all this is utterly impracticable. Perhaps so—but I am certain of this, if the Institute do not establish something of the kind some other body will.

I need only mention one matter to illustrate my point. I suppose one of the greatest difficulties we have to encounter is the work of the plasterer, and recently attempts have been made to find efficient substitutes, but as far as I know with only moderate success. Here, then, is a field for investigation.

Third. Cannot the Institute afford facilities for the testing of materials at a cheap rate to its members?

Here is a matter in which our governing body have already been forestalled.

The National Physical Laboratory is prepared to undertake such tests at a moderate charge I believe—to a limited extent—but I suggest that this is a boon which membership of the Institute should confer, and would be of more practical value than knowing how the Greeks set out a volute.

If I wish to specify a cement, if I want to know the strength of a particular type of brick, if I am doubtful as to the quality of my timber, or if I want to know whether the plasterer has introduced garden mould into his rough stuff, I think my Institute should afford me the necessary facilities for ascertaining the information.

Fourth. Cannot an elementary knowledge of chemistry be introduced as one of the subjects for examination?

I cannot conceive of any subject more important to the practical architect, and yet one more generally neglected. I think the advantages of even an elementary knowledge of such a subject are so very obvious that I need not weary you by recapitulating them, but I imagine chemists must stand appalled at the alarming ignorance of men who deal with substances without knowing their properties.

As an example, why should it gravely be proposed to dispose of the vitiated air in a room by "drawing off" carbonic-acid gas from the floor, under the impression that it is heavier than air. A little elementary knowledge would prove that warm carbonic-acid gas is lighter than cold air. Where air and carbonic-acid gas are of the same temperature, it is perfectly true that the latter is some two and a half times heavier, but having regard to the high coefficient expansion of gases, it should be obvious that carbonic acid gas, as produced from human bodies and artificial lights, is at a high temperature, and therefore so far expanded that it rises readily through cold air.

Are we not far too dependent upon so-called experts, who themselves lack the definite technical training which should make their services of any real value?

It is in considering such questions as these

that it appears to me an intelligent knowledge of chemistry and physics, as applied to ventilation, materials, and hygiene, should form part of the technical training in the equipment of the architect of the immediate future. Therefore, I would ask the Committee of the Association to consider the advisability of establishing a simple laboratory and the necessary instruction.

If the architect is hampered by insufficient technical training, how much more is he hampered by the lack of any such training at all in the workman—not only the artisan, but the labourer.

As a case in point, may I instance a labourer, who in filling up with dry rubbish under a tile floor, included enough lime to blow up the floor and cause considerable worry—which, of course, recoiled on the architect. I maintain that no architect should have to stand over a workman to prevent such results of ignorance. Ignorance like that should not exist, and I for one would welcome any system of technical training which would not only create efficient workmen, but give them an intelligent interest in their work. Perhaps then we might have less deficient workmanship, less friction, and the long-suffering architect would not be graded to the last pitch of exasperation.

Perhaps, too, in time our employers will come to realise that the scale of remuneration is not always such that it should command the services of many experts in the person of one man, who, if he is to earn a decent livelihood must so overburden himself that he cannot give the attention he would wish to minute details. At present the public little realise the immense amount of labour represented by an architect's services. Their idea of his labours generally being comprised in the notion that he sits down in an easy-chair for an hour or two and produces a pretty sketch, for which no brain-work is required. When it is realised that the services of such an expert as an architect are a valuable commodity, it may be that it will be made worth his while to devote such services to fewer things at a time, with advantage, I venture to think, to both parties.

If an architect could but take up his job, make it his pet, live in it, and revel in it, as a painter does his picture or the sculptor the work of his chisel—if he could make it the fitting home for the work of these artists or the craftsman—untrammelled by sordid considerations—I think we should hear less of the grumbling, and perhaps receive a word of grateful appreciation with the final cheque, more than repaying the months of anxious thought, and unremitting devotion, and endless trouble and worry.

It is coming to this, that with the multifarious requirements now demanded of the architect, life will be too short to cram into it the requisite amount of study, and we shall have to specialise more and more. It may be that our system of training is too general and too superficial, and the problem will be to develop the particular bent, to encourage the special talent of the young beginner. I am not sure, myself, that our present system of training is by any means perfect. I think far too much time is spent over "the orders," to the detriment of more important subjects. What does it matter that the student should determine the proportions of the Parthenon to a hair's breadth, and be called upon to judge between the measurements of various authorities? What does it matter if a student does not know the difference by name between an "apophye" or a "cyma recta," or that he cannot give offhand the name of the man who designed the Parthenon? Is he less likely to turn out a practical architect because he does not know these things? Does it give him greater power of design, or a keener sense of the beautiful? I do not wish to deprecate for one moment the advantage of a good sound grounding and solid knowledge of all on which we base our modern architecture, but I do strongly deprecate the trifling with unimportant details to the exclusion of more urgent matters. As I said, if the particular bent of the student can be determined after a period of general training, then will be the opportunity to insist upon a proper understanding of the minute details connected with that bent. I cannot but feel that in our anxiety to emphasise the artistic side of the profession, we have swung a little too far, and the public have developed some impatience with us and our methods, and it is high time to

show them we can be artistic and practical as well.

Further, we are a humble minded folk, much to our detriment. We have not sufficient self-assertion or combination. We take little heed of criticisms or attack, and we rarely concern ourselves as to whether they are justified. We live too much in a little world of our own, and scarcely realise that we are a vitalising force, and should make ourselves a vital necessity, and a tremendous educational power. There is too much individualism amongst us. Why should any one of us be left to fight out as best he can some vital point, intimately affecting the weal or influence of the profession as a whole? Why should a single individual be left to fight for a principle? He should have the whole weight of the profession and its leading body at his back, provided the cause is just. Far too often have we to acquiesce in some palpable injustice because we dare not, cannot stand alone.

What weight do we carry as a body? If some glaring vandalism is contemplated, who attaches any weight to our feeble protests? Things are perpetrated which should raise a storm of righteous indignation, and we shrug our shoulders and placidly go on our obscure way. Our streets are made hideous by every Philistine method that can be compassed by the wit of man, and we content ourselves with a nervous grumble. Now the public are beginning to open their eyes to the sordid dinginess and dead level of monotony which surrounds them and the rampant ugliness on every hand. They are casting about for means of delivery from this blighting ugliness of commercialism which crushes them down, and it is for us as a body to proclaim ourselves their emancipators, to set ourselves at their head. It is for us to raise the oriflamme of a new era of brightness and beauty adapted to the practical needs of the age, before municipalism sweeps us one and all into a chaos of general commercial utilitarianism.

In conclusion, I feel some apology is due for the unintentional prominence of the personal pronoun in these notes, but on such a subject it is unsafe to dogmatise, and better to stand or fall on the merits of ones personal opinions. I am quite prepared to have them mercilessly criticised, and I do not claim that they are particularly new, and if any of them are, I will cheerfully accept the statement that they are quite worthless. If I have but offered, however crudely, a field for useful discussion from wiser heads than mine, I shall be more than content.

Lord Windsor, who was called upon by the Chairman, said that he did not know that he had any right to address them except for the reason that the admirable paper they had heard had not been a purely technical one. He might first refer to a little personal matter, i.e., that he had had the opportunity of calling in the services, the knowledge, of architects in a way which did not often fall to the lot of most people—that was to say, in building a house in the country and another in London; and the result, so far as those architects were concerned, would redound to their credit for generations to come. One remark which Mr. Wilson made seemed to be very true, but it was common to education in its various branches at the present day, and that was that modern work tended to extreme specialism. The most scientific men of the day were unable, as our predecessors were able, to follow science over a large area, and as each one desired to attain a higher point in the investigations he was engaged in, he was compelled, year by year, to specialise more than did his predecessors, and to devote himself to one branch of work and even to narrow that. This was no doubt true, to some extent, of the work of the architect, and no doubt his difficulties were increasingly great now that the public obliged him to make himself acquainted with a large number of subjects which he would have a right to think should be dealt with by the specialist. At the same time he could not but think that it would be a pity to narrow more than could possibly be helped the great conception of architecture. In thinking of architecture one always remembered the great time of the Italian Renaissance, and—though he did not know that it applied to all schools in Italy—especially to the Florentine school. The great men of the thirteenth, fourteenth, and fifteenth centuries were not only the greatest architects of the day, but they



were also the greatest painters and sculptors, and he did not think it could be doubted by any one who paid close attention to the arts generally in Italy in that great time that the value and the extreme beauty of the creations of that day must be attributable to a certain extent to the wide knowledge of these men in the various branches of art. He therefore thought—and he felt sure they would agree with him—that the nearer they could bring together painting and architecture, sculpture and architecture, the more likely were they to produce great and lasting monuments of art. A valuable suggestion which was made in the paper was as to the opportunity that there should be for testing new ideas or materials that were brought to one's notice. While Mr. Wilson was speaking he (the speaker) thought of an instance he might mention. Within the last few years what was called non-inflammable wood had been brought to the public notice. The name of that material had a very attractive sound to the public who desired to protect their buildings as far as possible from fire, but in one case he knew of, where the material was used as a casing for electric-light wires—just the very opportunity, it seemed, to make use of that material instead of ordinary wood—the chemical process to which the wood was subjected had the effect of ealing away the insulation, so that the troubles with that non-inflammable wood were far greater than with ordinary wood. That illustration seemed to show of what value to architects and others testing facilities would be—especially to the ignorant amateur who insisted upon certain untried materials being used.

Mr. Francis Hooper, in proposing a vote of thanks to Mr. Wilson, said the paper was essentially a practical one for students. In reference to what Mr. Wilson had said about testing materials, &c., Mr. Wilson hardly seemed to realise what this involved when the work was undertaken, as in the case of the recent brickwork tests, by busy men who could ill afford the time necessary for the purpose. The testing of brickwork and its strength in cement or mortar in varying proportions were inquiries which were of common interest, and which had nothing to do with any manufacture or trade; but the scope of Mr. Wilson's suggestions covered an inquiry into the value or the reverse of manufactures, and touched very closely on matters with which architects were obliged to be, to some extent, independent onlookers. It had been constantly urged on the Science Committee of the Institute that they should report on the value of one thing and another, but that involved a great difficulty, which he fully appreciated. Manufacturers would look for a certificate, and a guarantee from the testing body would be a matter revolving responsibility which very few would be willing to undertake. On the other hand, one advantage of joining an Association like theirs or the Institute was that members wanting information could consult another who had, perhaps, been making experiments or tests, and owing to the friendliness between members, that information would be readily given. This, to some extent, met the suggestions made by Mr. Wilson; but it also occurred to him, in regard to strength and durability of materials and chemical constituents, that it would be of great value not only to the profession, but also to the manufacturers themselves, if some basis of information could be formulated, put in such a way that materials could be compared, and the advantages of any particular material or appliance could be readily seen. This seemed a better method than for the Institute to make investigations, especially as there already existed a National Physical Laboratory and also facilities for testing the fire resistance of materials.

Mr. John Murray, in seconding the vote of thanks, said the paper was full of new ideas and suggestions. He fully appreciated Mr. Wilson's remarks with regard to the possibility of the Institute or some body of architects testing materials and laying down some definite data for the use of architects generally. At present architects had to a large extent to base their decisions upon text-books, many of which were obsolete, as was fully proved by the Institute experiments on the subject of brickwork; and if the Institute were to inaugurate some system and spend some money on the matter, and, if necessary, get and pay some specialists to assist, a very useful result would be obtained. Nowadays architects had to consider commercialism and utilitarianism more than ever before, and it was on this basis that they must

work largely in the future. They all desired to present to the public as much art in their buildings as they could, but unfortunately they had to consider the materials before the art.

Mr. W. A. Pite, in supporting the vote of thanks, said that Mr. Wilson seemed to have mentioned all the points which architects regarded as urgent, and he quite shared in Mr. Wilson's woes as to our modern needs and drawbacks. Architects were employed to build houses and other buildings, and they had to satisfy the client. An architect might build a house that would be called pleasing and beautiful by one set of people, while another set would speak of it very differently, and it seemed to him that amongst the general public the proportion of educated people who knew good architecture when they saw it, was very small. The general public seemed to think that ornament was architecture, and he remembered, that some time ago a critic said of a recently erected house that the employer ought to have given his architect 1,000 more for ornament than he had done. There was one point Mr. Wilson had not dealt with among the many subjects he had raised, and that was the question of architect's pay. Within the last twenty-five years the cost of buildings had very much increased, and the demands upon the architect had greatly increased without a corresponding and adequate recompense.

Mr. W. B. Gwyther said the relationship of the public to architecture in India was, so far as his experience went, quite different from what it is in this country. It was the ordinary public here that one looked to, but in India it was the public officials and the heads of departments. As to educating architects so as to satisfy the public, that was a matter in which one could be largely assisted by the leaders of the public and by the encouragement which architects received from them. That was the case in India, especially during the last four years, for Lord Curzon had taken a great interest in art and architecture. He had given a stimulus to art instead of keeping it in the background.

Mr. R. H. Weymouth said that the point raised by Lord Windsor as to the great Florentine palaces and the position of the architects in those days, made him think of the remark by Mr. Wilson that different times called for different methods. The first thing that struck one about those palaces was the absence of what could be called modern intricate planning. It was the intricacy of modern planning which so greatly increased the difficulty of the architect in dealing with his building. The magnificent palaces in Florence had large rooms, one leading from the other in the simplest manner possible, and the planning lent itself admirably to those fine, dignified monumental buildings. Modern architects had to put passages, &c., and perhaps ten rooms in the space of one of the rooms in those palaces, and it was obvious that in such a matter as fenestration there were many intricate matters that the old Florentines never had to face, and to emulate them in their work was almost impossible. Their Chai-san knew as well as any one how difficult it was to plan big modern buildings of a public character, and no doubt he would be able to tell them how difficult it was to get the grand effects of those old buildings in our modern ones. They would all agree as to the monotony of modern suburbia, but it would be difficult to teach the public much on the matter: it was a House of Commons matter—a matter relating to the land. Public bodies ought to have some control of the land round their cities so as to prevent the haphazard growth of streets and houses that was to be seen all round London, for instance; and towns should grow on reasonable lines, as Wren planned that London should grow after the great fire. We are now painfully trying to get wider thoroughfares from St. Paul's to Westminster, thereby doing, but at an enormous cost, what Wren had planned to do. It would be a fine thing if round every city there could be certain dignified lines on which the city could extend, and if that were arranged for it would do much for suburban life. He agreed with what Mr. Murray had said as to the Institute tests. He did not suppose that Mr. Wilson meant that they should be carried out gratuitously; surely the men who conducted the tests should be remunerated, and if the Institute lead the way in this matter more, it would improve its position in the eyes of the public and of its own members. He was glad that Mr. Wilson referred to the question of chemistry, and had

said that it should be given more prominence in the education of an architect, for that was unquestionably desirable. He wondered whether, when the Association moved to the new premises in Tufton-street, provision would be made for a laboratory? As to the testing of materials, there were two or three bodies which might work together to do that better than even the Institute. Surely if King's College, University College, and some of the other bodies which taught architecture were to club together they might do such work well. At University College there seemed to be plenty of room for the purpose, and he did not see why some such body should not be urged to take up this work. He agreed with Mr. Wilson that it would be a great boon if architects, in their difficulties with Local Authorities, had the Institute at their back. Why should architects be unjustly dealt with even to the extent of two or three pounds, when, generally speaking, an official letter from the Institute, if that body were to act in its proper capacity, would cause the Local Authority to act with fairness? A reasonably-stated letter coming from the Institute would have great influence, and would save architects and their clients (especially young architects), from worry and injustice. Why, even the Association might do something to this end. They had a President and a Committee, and something might perhaps be thus done for the younger men of the profession.

Mr. A. E. Munby said it was quite essential for any one dealing with problems connected with heating and ventilation, and especially electric lighting, to have some knowledge of chemistry and physics, and he did not see how they could properly do such work without that knowledge. Clients nowadays undoubtedly demanded more from their architect than they did formerly, and it was only the other day that a gentleman was complaining to him of the practice of a member of the profession of allowing a trade specialist to make his own specification. In the case of electric lighting and heating the practice was not unknown of allowing a firm of good standing to tender and at the same time to prepare a specification, which was, perhaps, accepted as it stood, the architect just knowing whether the specification was a good one or not. That was a bad practice, as it also was for an architect to take a commission on work with which he had but a superficial connexion. He did not mean to suggest that a superficial treatment of these branches was the usual professional practice, but merely raised the point as a plea for some training in pure science which would make a thorough supervision of such work an easy matter for everyone. He saw the specification of an architect recently, in which it was stated that the zinc canopy over a doorway was to be copper-nailed, which showed that that architect did not realise what would be the action of rain on the copper nails and the zinc. They were fortunate in having a gentleman of Mr. Wilson's proved artistic ability to come and address them on such subjects as were dealt with in his paper. Very often people who advocated the development of the practical side of architectural work were said to have no soul for art at all, but that could not be said of Mr. Wilson. The question of the strength, &c., of materials was one as to which all architects must necessarily take some interest, but he did not see why the expense of testing need be an important item. If there were a testing institution and organised museum and information bureau in a central position recognised by the profession they might expect that all trades connected with building would be only too glad to pay something for the tests which would be made on their materials, especially if they got a certificate. He saw the difficulty as to granting a certificate, but it might be necessary to do so. Reference had been made to the National Physical Laboratory at Bushey Park. Through the courtesy of the Director, Dr. Glazebrook, the speaker had had an opportunity of seeing the laboratory. The major part of the work there dealt with pure science, but there was a department which dealt with tests of materials. The instruments there at present for testing materials were not very extensive, but the rooms were large and the authorities were prepared to make additions to those instruments if they received encouragement and support. The institution was partially Government supported, and tests could be carried out for quite reasonable sums. He hoped, however, that the architectural pro-



fession would take up the whole question and provide a testing institution of its own.

The Chairman, in putting the vote of thanks to the meeting, said that the paper, and the general course of the discussion on it, had taken a line which he had not, judging from the title of the paper, anticipated. He had supposed that the general line would be more in regard to the attitude of the public to architecture and architects at the present time and in this country, for it was the attitude of the public to architects and their art which seemed to be of the greatest importance. In England we are labouring under great disadvantages in this respect, and he did not think there was any other civilised country in the world where there was less appreciation of art and architecture than there is in England. The public seemed to be absolutely apathetic, which was a great discouragement to architects, for they could not help, nature being what it is, valuing the appreciation of their fellow citizens. Lord Windsor referred to the period of the Renaissance in Italy. That was a period of great religious enthusiasm, and great enthusiasm in art generally, and he felt sure there would not have been the same eminence of the great masters of that time if the general public had not been inspired by a large amount of enthusiasm, which must have proved a great incentive to the great masters in their art.

He thought that in this apathetic attitude which the English public took up towards art and architecture, the Press were to some extent responsible. It had been often remarked that whenever any reference was made to an architectural subject in the daily press, it was not referred to in a way which was sympathetic or which showed any appreciation of the subject, and often there was internal evidence that the writer did not know what he was writing about. Not long ago he had two gross cases brought to his notice of misrepresentation on the part of the daily press, and it seemed a great pity, considering the influence which the Press might exercise in the way of developing public appreciation of art, that they did not take advantage of their opportunity for educating public opinion. In other countries, more especially in France and Italy, the difference in the attitude

towards the arts was most marked. He had on repeated occasions been in foreign picture galleries, or had been looking at some notable building abroad, and had found an ordinary workman near him making most sensible remarks about the object he was looking at. It was quite a common thing in France to hear an ordinary workman criticise in the most intelligent manner a picture or building, and in a way that no one could imagine in England. No doubt our technical institutes and art schools, which had not been instituted long enough to have exercised a marked influence on the general education, would in a few generations produce a difference in this respect. He thought there were indications that the public bodies were becoming more anxious to see the buildings which they have under their care, and the improvements which they were instituting carried out in a manner more creditable than used to be the case. It was to be hoped that that tendency would develop. There was one remark in the paper which seemed to contain a suggestion for special consideration, and that was in reference to the rows and rows of workmen's cottages. Mr. Wilson suggested that they might be grouped round their own little green, and that seemed to open out an idea which would be of great advantage if followed up. One of the great difficulties was this commercialism which was at the bottom of so many things; everything must be made to pay, and that was the great obstacle. As to another part of Mr. Wilson's paper, *i.e.*, the question of materials, which certainly did not seem to bear on the subject of architecture and the public, it seemed to be quite a domestic affair for architects themselves—whether they were or were not going to use these new materials—but it opened out a wide field for discussion. As to whether the Institute should take up the question of testing new materials, as a member of the Institute council he must say that he foresaw considerable difficulty in the way of doing that. The recent tests in brickwork had been referred to; well, he had heard that the value of those tests and the accuracy of them had been very much questioned, though he did not know whether that was right or wrong. It seemed to him that in the architect's profession the true test of any material was in the building. The test

of new materials carried out in the workshop or laboratory would not be the same as that which was afforded in the actual building; the point mentioned by Lord Windsor about the non-inflammable wood for electric wire casing was an illustration of that. Still, tests were valuable, and there must be some basis to go upon. His experience was that when new materials were introduced by manufacturers, those manufacturers were always willing to give a guarantee, and were willing to let the architect use the material in a small way in his building without payment and experiment with it in that way. He had found it advisable to use new materials in that way, so that if he had occasion to use such material at his client's expense there would not be much risk.

The vote of thanks having been heartily agreed to,

Mr. Wilson, in reply, said that Lord Windsor had made a valuable remark in suggesting that architects ought not to narrow the scope of their work—in the way of design or art, he supposed. [Lord Windsor: Hear, hear.] That was one of the difficulties he had tried to deal with in his paper. The demands on the practical side of the architect's work were getting very great, and the architect had not the scope for the art side which he used to have; and if the public continued to make these demands he did not see how they were to have both art and fully-developed scientific knowledge unless they employed two men as architects for the same work. The subject of the Italian architects was an important one. Were not those architects such great men because they seized the opportunities to adapt themselves to the great change which was then taking place? and his point was that we, as architects, should attempt to do the same. The Italian architects were giants in their way, and he did not think it was so much that they had the public appreciation as that they were able to stand out as great leaders—to an appreciative public, it was true, and that public we had not got. He suggested that architects should set about training an appreciative public. As to the question of tests, he did not mean that they should be undertaken by men in their private capacity or at their own cost. His suggestion was that the Institute ought to devote some of its funds for the purpose, and not take the unpaid time of busy men. He did not think the Institute had devoted much of its funds to the brickwork tests, for he thought they were undertaken largely as the result of private contributions. That was not what they ought to expect from the Institute, for architects ought not to have to put their hands into their poorly-supplied pockets in order to furnish tests which were to become useful to the whole body. He heard that the tests were considered to be of great value to the engineering profession, and an engineer had told him that they took those brickwork tests as the standard. Still, he did not see why the individual architect should pay for those or any tests. He did not suggest that materials should be actually tested, but he did suggest that a good deal of information as to the behaviour of materials should be collected by the Institute privately and without giving any certificate, and that it should be available to the members privately. Such information would be of great value, though there might be difficulties and even danger in getting it together and circularising it. Still, take the case of non-inflammable wood: why should not architects be asked to give their experience of the behaviour of it under certain circumstances? The name of the manufacturer of any material need not always be given, though it might be inserted in the Institute publications, perhaps, with advantage to the members. Such information would be of far more value and interest to the members of the profession than mere antiquarian knowledge. As to fire-resisting materials, he thought architects were rather following a demand than anticipating it. He was under the impression that the methods employed in fire-resisting in buildings were not at all satisfactory, that they failed again and again and that there was no such thing as a fire-resisting building. He had a complete object-lesson recently in seeing the destruction of the Paddington Repository, and he never saw anything so remarkable as the behaviour of the so-called fire-resisting materials in that building, and it made him feel pessimistic as to "fire-resisting" material. Where was an architect to go for data on this important subject? It had been suggested that

a great deal might be done in the use of concrete beams containing steel core bars, but there were no tests available, and he did not know what such beams would do or what they would stand under certain circumstances. Why should an architect have to rely on his own initiative in order to determine the value of these things? Mr. Pite seemed to think that the number of people who could appreciate beauty in architecture was very small. Unfortunately that was so, but it was to be hoped that the number was rapidly growing, and that architects had not quite sufficiently reckoned with the fact. There were, unfortunately, a large number of people who thought they knew what beauty was in a building, but they really mistook over-elaboration of ornament for beauty. That, again, was a question of education. He had dealt, in a way, with the question of the remuneration of the architect, though he had not mentioned that the cost of building had increased. The cost had increased, but not in proportion to the responsibilities and labours of the architect. It was a delicate matter to refer to the matter of remuneration, and he had touched on it lightly. He thought that Mr. Weymouth emphasised unduly when he discussed elaborate and simple planning. The Florentines had to deal with the conditions obtaining in their time, and we should do the same, though it must not be overlooked that the conditions were changing rapidly, and a new epoch was dawning. It was not a question of copying what the Florentines did, but of adaptability to the demands of the present age; it was his point rather, that architects had been lagging behind, had been too antiquarian, and it was quite time they woke up and realised what the demands of the age were. As to that very interesting matter, *i.e.*, the control of the land so that it would be impossible to lay out dreary suburbs, he had touched on it very lightly, because he thought it formed a subject for a separate paper. It might be possible to give suburban authorities powers—in fact, they ought to have such powers—that would prevent the laying out of an estate or a suburb in the present drastic way, *i.e.*, by simply cutting streets through an estate from end to end, and other streets parallel, resulting in those awful backs to the houses of Suburbia. He thought that the land might be equally well occupied without waste of space with the houses facing their own green square. The exigencies of the age, not only as to the working classes but also the middle classes, would create a demand for such houses. He even believed that people would have to live in communities—each family with its own little house, perhaps, but with some kind of central administration or co-operative store and kitchens, &c. He agreed with Mr. Weymouth that architects ought to be assisted a little more in questions of professional practice, and thought the members of the R.I.B.A. should be entitled to look for assistance from the council or committees when difficult questions of professional practice were involved.

#### New Officers.

The Chairman then read the scrutineers' report on the voting for new officers. There had been received 380 voting papers, of which ten were rejected as invalid. The following was the result:—

*President*.—Mr. Henry T. Hare.

*Vice-Presidents*.—Messrs. R. S. Balfour, Arnold Mitchell.

*Committee*.—Messrs. W. A. Pite, Louis Ambler, A. N. Prentice, E. Guy Dawber, W. Howard Seth-Smith, E. L. Lutyens, John Murray, J. S. Gibson, F. D. Clapham, and R. H. Weymouth.

*Hon. Treasurer*.—Mr. Francis Hooper.

*Hon. Librarian*.—Mr. J. McLaren Ross.

*Hon. Secretaries*.—Messrs. H. P. G. Maule and Henry Tanner, jun.

On the motion of Mr. Francis Hooper, seconded by Mr. Louis Ambler, a vote of thanks was accorded to the scrutineers, *i.e.*, Messrs. W. J. H. Leverton, A. Potter, L. Simmons, A. S. Tayler, and T. C. Yates.

Mr. Simmons having briefly replied, the meeting terminated.

THE SOCIETY OF MINIATURE PAINTERS.—The private view of the eighth annual exhibition of the Society of Miniature Painters will take place on Saturday, the 9th inst., at the Modern Gallery, 175, Bond-street, W. The exhibition will be open to the public from the 11th to the 30th inst.



## ENGINEERING SOCIETIES.

**SOCIETY OF ENGINEERS.**—At a meeting of the Society of Engineers held at the Royal United Service Institution, Whitehall, on the 4th inst., Mr. J. Patten Barber, President, in the chair, a paper was read on "Certain Vexatious and Fallacious Cement Tests Now in Vogue" by Mr. D. B. Butler, Vice-President. The author prefaced his remarks with the statement that although, owing to improvements in manufacture, Portland cement had become much more reliable during the past twenty years, it was still far from perfect, and therefore required careful testing before use. The object of testing cement was to ascertain its value as a constructive material, and therefore all tests which contributed useful knowledge of its properties were to be commended. On the other hand, tests which were fallacious and misleading, and needlessly hampered the manufacturer, should be at once discarded.

Variety of uniformity in the method of carrying out the most ordinary tests was first referred to as a cause of frequent vexation and friction. The simple matter of fineness was often in dispute owing to the different thickness of wire employed in the sieves used for testing. In England there was no agreement on this point, but in America and on the Continent the uniform standard adopted was that the thickness of the wire should be one-half the width of the opening. Examples were given of the varying results obtained with different thicknesses of wire, and the author stated that in order to bring his practice into line with the majority of the cement-using community he had abandoned the Fajja standard, and adopted the American and Continental standard. The most glaring example of a vexatious and fallacious test was the "marmalade pot" test for free lime or unsoundness, in which it was assumed that the evolution of heat during setting denoted the presence of free lime. A quotation from a recent paper by the author, published by the Institution of Civil Engineers in 1898, showed the fallacy of this test. As, however, it was still being enforced in many cases, causing an immense amount of unnecessary friction between the engineer and the manufacturer, and in some instances no little expense to the latter, further examples of its misleading character were given from the author's daily practice. The results conclusively demonstrated that the rise of temperature was entirely due to the heat evolved by the crystallising action of setting, and that therefore a slow-setting cement evolved little or no heat, while a quick-setting cement might show a rise of 20 or 30 deg. and yet withstand every known test for soundness. The results further demonstrated that not only did the evolution of heat during setting not indicate free lime or unsoundness, but what was more to the point, the evolution of no heat was no guarantee of soundness, several samples which evolved no heat being utterly unsound and absolutely worthless. Nor could it be asserted that because a cement showed a rise of temperature of 15 or 20 deg. it was therefore too quick-setting for general use. Many cements did not commence to set, and therefore evolved no heat, for about fifteen or twenty minutes from the time of adding water (which was slow-setting enough for most classes of work), and then proceeded to set and crystallise rapidly, sometimes causing a rise of 20 deg. in less than a few minutes. The author therefore strongly urged that the temperature test should be discarded as a vexatious and fallacious test. While recognising the fact that special kinds of work necessitated special kinds of cement, the following standard specification was put forward as ensuring a good sound cement suitable for most classes of work, and obtainable from any first-class manufacturer:—

*Standard Specification for General Purposes.*

The whole of the cement shall be pure Portland cement, and shall conform to the following tests:—

*Fineness of Grinding.*—To be such that, when sifted through a standard sieve having fifty holes per lineal inch, there shall not be more than one-half (½ per cent.) by weight of residue; when sifted through a sieve having seventy-six holes per lineal inch, there shall not be more than five (5 per cent.) of residue; and when sifted through a sieve having 100 holes per lineal inch, there shall not be more than twelve (12 per cent.) of residue.

*Time of Set.*—A pat of neat cement gauged

with the minimum of water at the normal temperature (60 deg. Fahr.), and placed on a glass or other non-porous slab, shall not commence to set in less than eight minutes, or take longer than five hours to set hard.

*Soundness, or Freedom from Expansion and Contraction.*—A pat submitted to moist heat and warm water in the Fajja apparatus for soundness at the usual temperatures, viz., 110 deg. Fahr. and 120 deg. Fahr. respectively, shall show no cracks or signs of expansion after twenty-four hours.

*Tensile Strength.*—Briquettes of neat cement, gauged with the minimum of water on a non-porous bed and placed in water twenty-four hours after gauging, shall carry an average tensile strain of not less than 350 lbs. per square inch after three days, 450 lbs. after seven days, and 550 lbs. after twenty-eight days from the time of gauging.

Briquettes composed of 3 parts of standard sand to 1 part of cement, by weight, treated as above, shall carry an average tensile strain of not less than 150 lbs. per square inch at seven days, and 250 lbs. at twenty-eight days, from the time of gauging; but no matter how much greater strength may be developed at the earlier dates, both neat and sand briquettes must develop an increase of at least 50 lbs. between each date.

## ARCHITECTURAL SOCIETIES.

**NORTHERN ARCHITECTURAL ASSOCIATION.**—

The following is the list of officers and Council for the ensuing session:—President, Mr. J. W. Taylor; Vice-President, Mr. J. T. Cackett; Hon. Treasurer, Mr. R. Burns Dick; Hon. Secretary, Mr. A. B. Plummer (13, Grey-street, Newcastle-on-Tyne); Hon. Solicitor, Mr. H. C. Harvey; Hon. Librarian, Mr. H. C. Charleswood; Council, Messrs. H. G. Badenoch, H. Barnes (Hon. Local Secretary for Hartlepool), G. T. Brown (Hon. Local Secretary for Sunderland), J. Bruce, F. E. Caws, F. Clark (Hon. Local Secretary for Darlington), J. W. Donald, J. W. Dyson, M. H. Graham, H. Grieves, J. H. Morton (Hon. Local Secretary for South Shields), T. Reay, C. S. Errington, J. C. Maxwell, R. H. Morton, C. E. Oliver, and R. P. S. Twizell; Auditors, Messrs. C. Walker and W. W. Oliver. The annual Report gives the present number of members as 203, viz., fifty-five members, seventy-five associates, seventy-three students. The Report includes a warm tribute to the memory of the late Mr. Thomas Oliver, who was one of the founders of the Association, and was for seventeen years Hon. Secretary, and four times elected President.

**MANCHESTER SOCIETY OF ARCHITECTS.**—At the annual general meeting of the members of this Society, held on Thursday last week, the following officers and members of the Council were elected:—President, Mr. J. W. Beaumont; vice-presidents, Mr. John Ely and Mr. W. A. Royle; hon. secretary and treasurer, Mr. Paul Ogden; assistant hon. secretary, Mr. George Brown. Members of Council:—Fellows: Mr. Alfred Darbyshire, Mr. Edward Hewitt, Mr. J. D. Mould, Mr. Isaac Taylor, Mr. J. B. Gass, Mr. Jesse Horsfall, Mr. A. J. Murgatroyd, Mr. John H. Woodhouse, and Mr. P. S. Worthington; Associates: Mr. A. E. Corbett, Mr. L. H. Dutch, and Mr. A. H. Mills.

## COMPETITIONS.

**LIVERPOOL CATHEDRAL SCHEME.**—The time within which the five architects selected out of the first competitors were to send in plans for the Liverpool Cathedral expired on the 30th ult., and inquiry at the Church House shows that all the sets of plans have duly arrived. The competing architects are Messrs. Austin & Paley, Mr. C. A. Nicholson, Mr. G. Gilbert Scott, Mr. Malcolm Stark, and Mr. W. J. Tapper. The plans, which meanwhile remain packed and sealed, will without delay be submitted to the assessors, Mr. G. F. Bodley, R.A., and Mr. R. Norman Shaw, R.A., who will in due course submit their final report. In the interim all concerned are pledged to treat the matter as confidential. The report of the assessors may be expected a month hence.—*Liverpool Post.*

**TOWN HALL, SUTTON COLDFIELD.**—Mr. J. A. Cosins has reported to the General Purposes Committee of the Sutton Coldfield Town Council upon the plans submitted in competition for the erection of a new Town Hall, and the Committee will recommend the Council to make their award to Messrs. Mayston & Eddi-

son, of Great James-street, Bedford-row, London; and that their plan be carried out, subject to certain suggested alterations embodied in the report of the assessor. In the competition the second and third places were given to Mr. Herbert A. Hall, of the Old Park, Southgate, London, and Mr. W. F. Edwards, Colmore Chambers, Newhall-street, Birmingham. There were forty competitors, and the premiums offered were 50l., 30l., and 20l.

**WESLEYAN CHURCH, SALTBURN-BY-SEA.**—The Trustees of the Saltburn-by-the-Sea Wesleyan Church recently accepted the plans and designs of Messrs. Garside & Pennington, architects, Pontefract and Castleford, in a competition for new Wesleyan church. The church will accommodate 350 on the ground floor (no galleries being provided) and is to cost 6,000l., with tower and spire. The interior is divided into nave, aisles, transepts, and chancel by white Whitby stone pillars and arches, the floor of the chancel being covered with grey and red marble. The floor of the church is wood blocks. Externally the walls are in local stone, and roofs covered with red tiles, the windows filled with leaded lights, and the whole buildings designed in a treatment of late Gothic.

**TOWN HALL, HIGH WYCOMBE.**—The premium of 100 guineas offered by the Corporation of High Wycombe for the best design for the proposed new Town Hall and municipal buildings to be erected in Queen Victoria-road in that borough, has been jointly awarded to Messrs. John J. Bateman, Charles E. Bateman, and Alfred Hale, of 81, Edmund-street, Birmingham. The second design in order of merit was sent by "F. H.," of 10, Cheyne-road, Chelsea; the third by Mr. J. Edwin Forbes, 21, Waterloo-street, Birmingham; and the fourth by Messrs. Willes & Anderson, of Adam-street, Adelphi, London.

**MANCHESTER NEW INFIRMARY.**—The Building Committee of the Board of Management of the Manchester Royal Infirmary are about to draw up a list of the architects who are to be invited to prepare plans for the new infirmary at Stanley-grove. A great number of applications to be included in the list have been received from architects in all parts of the country. It is proposed to select from these eight or nine architects, who will be commissioned to submit plans to the Committee, and each of the persons so selected will be paid for his drawings. On the recommendation of the President of the Royal Institute of British Architects (who was asked to suggest a name), the Committee have appointed Mr. J. J. Burnet, of Glasgow, to act as assessor.

**WAVERTREE BAPTIST CHURCH AND SCHOOLS, LIVERPOOL.**—This competition has been decided in favour of designs submitted under motto "New Era," the authors being Messrs. George Baines, F.R.I.B.A., and R. Palmer Baines, 5, Clement's Inn, Strand, London, W.C. The assessor was Mr. Henry Hartley, F.R.I.B.A.

## BOOKS RECEIVED.

BLACKIE'S STANDARD SHILLING DICTIONARY. (Blackie & Son.)

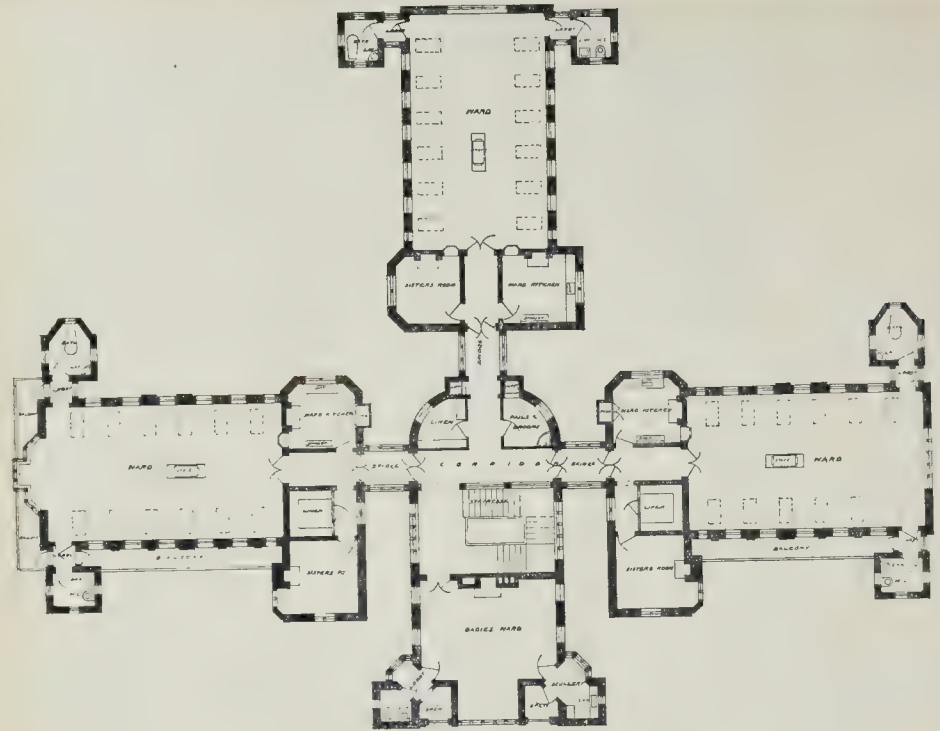
THE ARTS IN EARLY ENGLAND. By G. Baldwin Brown, M.A. (John Murray. 32s.)

THE RESTORATION OF THE ANCIENT IRRIGATION WORKS ON THE TIGRIS. By Sir W. Willcocks, K.C.M.G., &c. (Calcutta: National Printing Department.)

THE PRINCIPLES OF ARCHITECTURAL PERSPECTIVE. By G. A. T. Middleton, A.R.I.B.A. (B. T. Batsford. 2s. 6d.)

**ROYAL HOSPITAL FOR WOMEN AND CHILDREN.**—At the last annual meeting of the Court of Governors held on April 24, it was formally announced that after the demolition of the present hospital in Waterloo Bridge-road, a new one, to accommodate two hundred beds, would be erected upon the site, and upon some adjoining land having a frontage to Stamford-street; of the latter ground, the Governors bought the freehold from the Duchy of Cornwall in 1881. For the main portion in Waterloo Bridge-road, which will provide for one hundred beds and the out-patients' department, the plans and designs of Messrs. Waring and Nicholson have been adopted, and a tender by Messrs. Holliday & Greenwood for 30,949l. has been accepted. The hospital was established on its present site eighty-one years ago. In pulling down the old buildings was discovered the foundation-stone, inscribed with a record of the founding of the charity and of the laying of the stone on July 19, 1823, by Frederick, Duke of York and Albany.





- FIRST FLOOR PLAN -

Belgrave Hospital for Children, Kennington. Plan.

### Illustrations.

#### ENTRANCE TO SEDGWICK MUSEUM, CAMBRIDGE.

**T**HE illustration shows the main entrance of the new Geological Museum at Cambridge, now being built, from Mr. T. G. Jackson's designs, as a memorial to the late Professor Sedgwick.

It forms part of a large group of University buildings on the north part of the old grounds of Downing College, which has been bought by the University. A law library and law schools, and ultimately an archaeological museum, also from Mr. Jackson's designs, are to adjoin it. The contractor is Mr. W. Sindall, of Cambridge, and the clerk of works is Mr. Robert Edwards.

The drawing is exhibited at the Academy.

#### UNIVERSITY COLLEGE, SHEFFIELD.

THE site in Western Bank is about three-quarters of a mile from the centre of the city, on the ancient and broad highway leading to the West End. It is on the ridge of the hill 420 ft. above sea level, and it adjoins Westow Park on two sides. The area is 11,821 yds., nearly 2½ acres, of which 8,900 yds. were purchased for 7,000l., and the remainder has been purchased by Dr. Sorby for 3,500l., and given by him to the College.

The western boundary between the site and the park is to be of light iron railings, so that the building will appear as if within the park, and will be an improvement to it. The building is to be in the Tudor style of architecture, a style which has acquired a collegiate character by long use at Oxford and Cambridge. The walls are to be of brick, with stone dressing.

The general plan is of buildings surrounding a quadrangle 154 ft. by 110 ft., with an annexe

for the library. The buildings on three sides of the quadrangle are to be erected immediately. The fourth side is to be erected hereafter when required, and the library as and when funds are available, and of such a design as shall then be determined.

The building on the south side of the quadrangle, and facing Western Bank, is for general and administrative purposes, and comprises the entrance hall, common rooms, refectory, offices, council-room, and the great hall, which is 100 ft. by 40 ft., is to have windows upon all sides, with dressed stone walls, oak dado, and oak open-timbered roof. The hall is also the principal feature of the Western Bank front.

The building on the west side of the quadrangle, and with a front to the park, is for the arts and science departments, comprising arts, physics, biology, and chemistry.

The building on the north side of the quadrangle, and also with a front to the park, is for the medical department, comprising anatomy, physiology, pathology, bacteriology, public health, and also medical library and lecture rooms.

The internal finish of the building is dependent upon the amount of subscriptions, but it is intended that in addition to finishing the entrance, the great hall, and the council-room in dressed stone and oak, the corridors and laboratories shall have salt glazed brick dados, and the corridor have buff-coloured facing bricks above the dados. The estimated cost of the buildings, exclusive of the library, is 67,500l., and the library, if erected as designed, will cost 7,500l. Messrs. Gibbs & Flockton are the architects.

The drawing is exhibited at the Academy.

#### BELGRAVE HOSPITAL FOR CHILDREN, KENNINGTON.

This building is built externally in red

brick with Portland stone dressings and with red tile roofs.

Internally the large walls have a tile dado 5 ft. high, with enamel painted plaster above. The floors are of teak blocks. The babies' wards has the whole of the walls tiled and painted with pictures. The bathrooms, &c., are all white tiled. The hall has a marble dado and marble floor.

The main staircase is of teak the whole height of the building, and is cut out of the solid, each step being 13 in. by 6 in., thus forming an excellent fireproof staircase, and doing away with any boxing-in casing. This principle has been followed throughout the building, everything being solid, and all pipes exposed, and well away from the surface of the walls.

The buildings have been carried out by Messrs. Gough & Co., of Hendon, Mr. G. Gathercole acting as clerk of works. Mr. H. Percy Adams is the architect.

The predominating tone of the exterior, as will be gathered from the above description, is red; but the rather loaded character of the original drawing made it look very heavy and sombre in a lithograph of a reddish brown tone, and we thought it better to adopt a light grey tone in printing, to get rid of this effect.

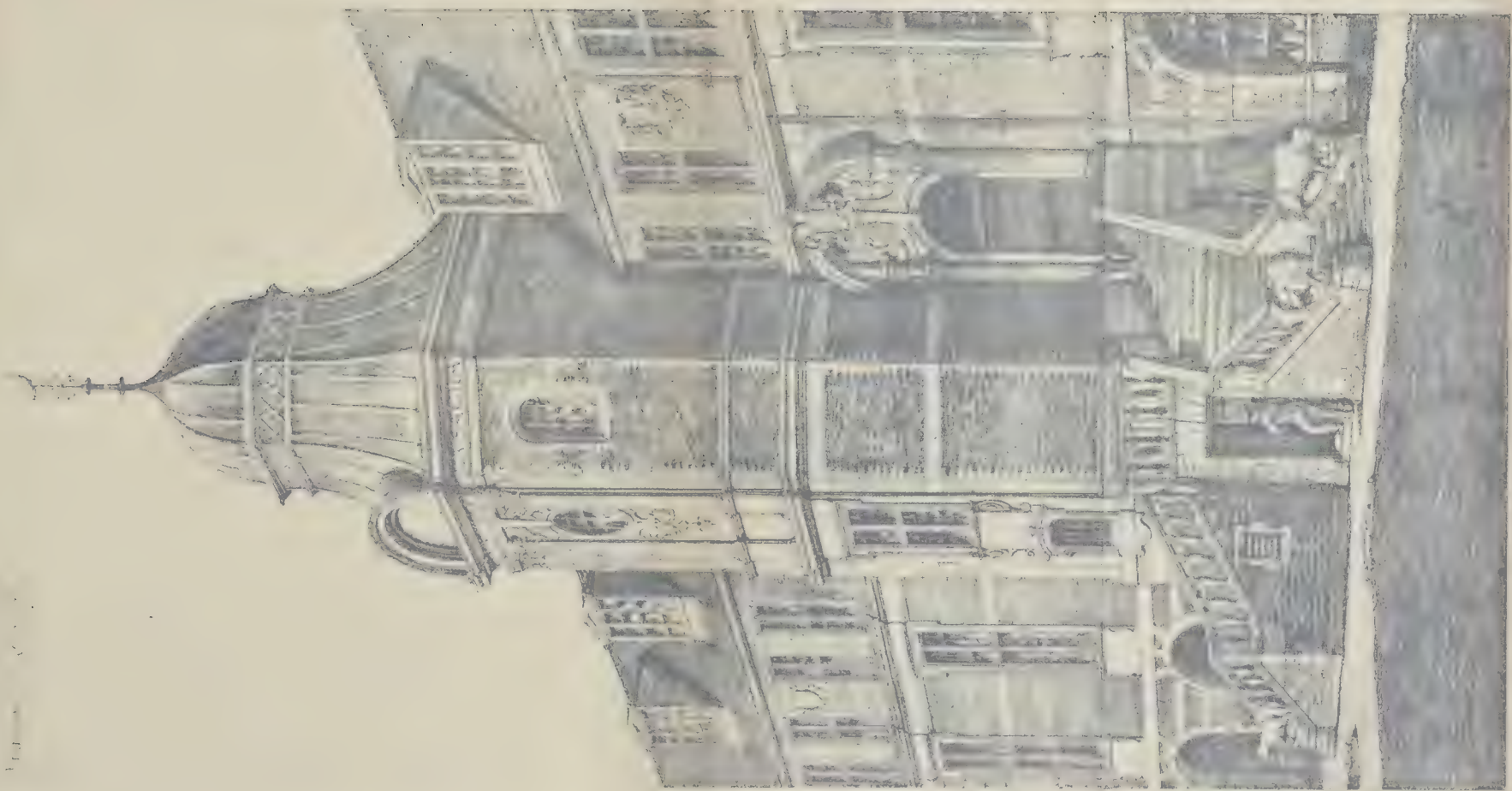
#### "THE GALTRES," EASINGWOLD, YORKSHIRE.

THE house here illustrated was planned in its irregular shape so as to get a good aspect and the best views, and in order that a previous house could be left standing while the new one was built.

The materials are hand-made bricks, and red tiles for the roofs.

Mr. Ullathorne, of Selby, was the builder. The architects are Messrs. Demaine & Brierley, of York.













UNIVERSITY COLLEGE, SHEFFIELD. MESSRS GIBBS & FLOCKTON ARCHITECTS.









THE BELGRAVE HOSPITAL FOR CHILDREN, KENNINGTON. Mr. H. Percy Adams, F.R.B.A., Architect.















## INTERNATIONAL FIRE EXHIBITION.

The International Fire Exhibition was opened at Earl's Court, on Wednesday, by the Duke of Cambridge, K.G. As our readers are aware, the exhibition has been organised by the British Fire Prevention Committee, and a large collection of fire appliances and exhibits, more or less relating to the question of fire and fire prevention, have been brought together.

After the Duke of Cambridge had driven through the grounds, he attended a luncheon in the Quadrant Restaurant, at which Mr. Cremieu-Javal presided. Among those present were Rear-Admiral FitzGeorge, the Duke of Marlborough, Sir George Birdwood, Admiral Sir E. Fremantle, Sir John Furley, Lieut.-Colonel Fox, Count Kamarowski (Russia), Sir N. Kennett-Barrington, Mr. E. O. Sachs, and others.

After the loyal toasts, the Duke of Cambridge proposed "Success to the International Fire Exhibition." He said he hoped the Exhibition would be a great success, not only in that place, but as far as the whole country was concerned. He fancied, from what he had been told, that fire prevention and extinction had not been considered with a view to the advantage of the whole community, which might have been the case, and he hoped that that Exhibition would have great effect.

The Duke of Marlborough, President of the National Fire Brigades' Union, responded, and said he was glad to see present so many gentlemen from foreign countries and from various parts of the United Kingdom. On behalf of the Union, he thanked the Chairman and Committee of the Exhibition for their assistance. There were representatives from every country in the world, from every Metropolitan borough, and from insurance and other societies concerned in protecting the community from fire. He was only sorry that there was no representative there that day from the London County Council, and that no appliances had been sent by that body. All Londoners were interested in knowing what were the latest appliances possessed by their Fire Brigade, and it would have been a pleasure to all connected with that Exhibition to have some of the County Council's fire appliances on view.

Mr. E. O. Sachs, Chairman of the British Fire Prevention Committee, also responded to the toast, and spoke of the success of the exhibition as being assured, because it was at once amusing, interesting, and instructive.

The Chairman then proposed "Our Foreign Fire Visitors," stating that there were exhibits from Russia, France, Germany, Sweden, Italy, Austria, Belgium, Switzerland, and the United States, and that many towns in this country had sent the chief officer of their brigades to attend the opening ceremony. There were representatives from Berlin, Hamburg, St. Petersburg, Bremen, Ghent, the French Fire Brigades' Federation, &c.

Count Kamarowski, President of the International Fire Brigades' Council, Russia, and Chief Officer Westphalen, Vice-President of the International Fire Brigades' Council, Hamburg, responded.

The foreign representatives were then introduced to the Duke of Cambridge.

## Avery Hill.—The Parks and Open Spaces Committee reported as follows:—

"In compliance with the instruction given by the Council on November 18, 1902, we have considered to what purposes the Avery Hill estate at Eltham should be devoted. The area of the estate is rather more than 84 acres, and is enclosed by walls and fences. The grounds are laid out as to a part near the mansion as gardens, and as to the remainder as a park, a portion being enclosed for use as paddocks in connexion with some extensive stabling. The buildings consist of the mansion, with winter garden and conservatories adjoining, a machinery house, stables, stud farm buildings, and an outlying building, and there are two lodges. We recommended the Council in July last to purchase the property for the purpose of a public open space, and this recommendation was adopted with the addition of an amendment reserving the right to devote the property to such other purpose as the Council could legally determine upon. As the result of a very careful consideration of the Council's instruction, we have come to the conclusion that the land (except a small portion referred to in a later part of this Report) together with the winter garden, the conservatories, and some rooms on the ground floor of the mansion should be devoted to the purposes of public recreation. The land and the gardens are already laid out, and the winter garden, fernery, and fruit houses completely furnished, and could be opened for public use at once. We are of opinion that the ballroom, with the annex adjoining, the sculpture gallery, and the drawing-room, all of which communicate with the conservatories, should be retained as shelters and refreshment-rooms. The rest of the mansion might, we think, be used as a convalescent home; and, should the Council adopt our view, we propose to communicate with hospital authorities and ascertain whether they would desire to occupy it temporarily for that purpose. In the event of our proposal being adopted by the Council, we should enclose the part of the garden which is to the north of the mansion for exclusive use in connexion with the convalescent home. This could easily be done by means of hurdles and gates, still allowing the public access to the park by the two lodge entrances. The convalescent would, equally with the general public, have free use of the whole of the land. The machinery-house should be retained. It is fitted with electric-light machinery to supply light to the mansion, and with boilers for supplying heat to the conservatories and the mansion. We are not prepared at present to make any suggestion with regard to the stabling near the house or on the stud farm, but the outlying building we should propose to convert into a public shelter."

The Committee recommended accordingly, and, after a long discussion, their recommendation was agreed to.

**Golder's Hill.**—The same Committee recommended as follows in regard to the mansion at Golder's Hill:—

"That the annexe at the northern end of the mansion at Golder's Hill be utilised for the purposes of public conveniences; the upper part being reserved for women and children, and the lower part for men; and that the Architect do prepare the necessary plans accordingly.

That the rooms on the first and second floors of the northern wing of the mansion at Golder's Hill be allocated as a public reading and writing room; that the Architect do prepare plans showing the necessary alterations, including the provision of a separate entrance from the front of the house.

That the whole of the ground floor and the kitchen, &c., of the mansion at Golder's Hill be devoted to the purpose of a public refreshment place.

That the basement of the mansion at Golder's Hill be used as a store."

The recommendations were agreed to after discussion.

**Municipal Brickmaking.**—The Housing Committee reported on the result of the brick-making on the Norbury Estate, and stated that, though it was not possible at this stage to finally close the accounts for the first season, it appeared to them there should be a sufficient margin to meet all contingencies and to show a saving as the result of the Council's brick-making operations in connexion with the Norbury Estate. The number of clamp-burnt stock bricks made was 2,941,000, and the average cost was 23s. 9d. per 1,000. Assuming that the proportion of waste (11.76 per cent. of those examined) was maintained throughout the clamp, and that the waste was valueless, the average cost of bricks, they estimated, would be 26s. 11d. per 1,000, and, with certain additions, the total cost was 29s. 7d. With regard to the quality of the bricks, they stated that the last season was very unfavourable for sun-dried and clamp-burnt bricks. The frequent rain and generally dull and damp weather delayed the drying of the bricks beyond the

time usually required for that operation. The new clamp had to be burnt in a position which had not been previously occupied by a clamp, and the moisture rising from the ground has consequently increased the number of under-burnt bricks in the lower portion of the clamp. Moreover, the field was idle for twelve months before the Council commenced operations, and the preliminary preparation for the resumption of work entailed a considerable amount of labour and expense which will not occur again. Concurrently with the making of clamp-burnt stock bricks they had also made red bricks, which are burnt in a kiln. The burning of the kiln is now completed, and the number of bricks manufactured is 85,000, at a cost of 39s. 10d. per 1,000. These have not yet been sorted, and it is undesirable to incur expense in doing this until they are required for use in the cottages. It is not anticipated, however, that the percentage of waste will be large. They recommended that a further expenditure of 2,500l. be sanctioned in respect of brick-making.

Mr. E. White said the Report was most meagre; but he suggested that there was an actual loss of something over 5s. per 1,000 on the bricks turned out. It was another illustration of the fact that a body like the Council could not enter on a business of that kind, and compete with a manufacturer experienced in the business. The Council was induced to reject a tender of 28s. per 1,000 for bricks on the assurance that the Housing Committee could make them cheaper on the spot. As a matter of fact, the cost had come out at 32s. 6d. per 1,000, with a large proportion of waste bricks. This season was likely to be worse than last for brickmaking.

Mr. Bruce said it was better to turn the clay on the estate into bricks than to pay for the cost of carting it away. There was a mound on the estate, and that had to be moved in any case, and it seemed a good plan to make bricks of it, especially as there was brick-making machinery on the site.

Sir J. McDougall endorsed this statement. He admitted that the bricks were a little dear, but they were getting bricks 6s. per 1,000 cheaper, including cartage, than they could buy them.

Mr. Goodman said that last year was a very bad year for brickmaking, and Mr. White knew that the first year in such operations was always more costly, especially when they had to put up new plant.

Earl Carrington said they had made 2,900,000 bricks, which had cost 3s. 8.7d. per 1,000. If they had bought them it would have cost them 37s. per thousand, as they would have to pay 5s. for cartage.

The Report was agreed to.

**Housing.**—The Housing of the Working Classes Committee reported as follows:—

"We have to report that the first group of cottages on section A of the Totterdown-fields estate, Tooting, will shortly be completed and ready for occupation. This group consists of seven rows of cottages, comprising thirty-six self-contained cottages, and sixty-four self-contained cottage flats, providing accommodation as follows:—

Class of cottage.	No. of cottages.	No. of rooms.	No. of persons provided for.	Situation of cottages.
First ..	2	5 and scullery .....	20	Ruislip-street.
Second ..	10	4 and kitchen ....	32	do.
Third ..	24	3 and kitchen ....	36	do.
		3 and scullery .....	144	
Fourth ..	32	2 and kitchen on ground floor .....	128	Cowick-road.
		3 and scullery on first floor .....	192	
	68		552	

In connexion with the completion of the first group of cottages on section A of the Totterdown-fields estate, Tooting, we desire to inform the Council of the arrangements that have been made for the lighting of the cottages on this section of the estate. . . . Negotiations were entered into with the County of London and Brush Provincial Electric Lighting Co. with a view to the supply of electric light to the cottages. In the result the company have undertaken to wire and fit up the 276 cottages on section A of the estate, and to supply electric light therein on the automatic pre-payment system at the rate of 1d. for six hours' eight-candle power light. The company have also undertaken to keep the lamps and wires in proper order.

On April 7, 1903, the Council referred to us the following tenders for the construction of wooden cubicle partitions on the second, third, fourth, and

## THE LONDON COUNTY COUNCIL.

The first meeting of the London County Council after the Easter recess was held on Tuesday in the County Hall, Spring-gardens, Lord Monkswell, Chairman, presiding.

**Loans.**—On the recommendation of the Finance Committee, it was agreed to lend St. Pancras Borough Council 980l. for street lighting and 20,000l. for electric lighting purposes; Woolwich Borough Council 2,000l. for site for new offices; Shoreditch Borough Council 770l. and Kensington Borough Council 27,500l. for street improvements; Fulham Guardians 2,525l. for purchase of land; Stepney Borough Council 10,000l. for electric lighting works; Camberwell Borough Council 10,000l. for baths and wash-houses; Woolwich Borough Council 10,000l. for erection of offices; and Wandsworth Borough Council 3,660l. for public baths. Also sanction to the following loans: Finsbury Borough Council 680l. for street lighting; and Westminster City Council 730l. for street improvement.



fifth floors at the Mill-lane lodging-house Deptford:—

	Amount of tenders for		Time required for completion.
	Pine panels.	Bass wood panels.	
Mr. H. L. Holloway & Co., Ltd.	3,700	3,950	3 months.
General Builders, Ltd.	3,957	4,275	2 months.
Messrs. Stimpson & Co.	4,497	4,750	2 months.
	4,350	4,680	3 months with 6 months' maintenance.
Messrs. Spencer, Santo & Co., Ltd.	4,577	4,577	—
Messrs. Fred. Sage & Co.	6,524	6,524	—

The architect's estimate for the partitions with pine panels amounted to 3,720*l*.

On April 7, 1903, the Council authorised our Chairman to accept the lowest satisfactory tender, and directed that the seal of the Council should be affixed to the tender so accepted. In pursuance of this authority our Chairman has accepted the tender amounting to 3,700*l*, of Mr. H. L. Holloway for the construction of the partitions with pine panels, and the work is now in hand.

The Council on March 4, 1902, approved sketch plan No. 2 of the dwellings proposed to be erected by Viscount Portman under the London (Nightingale-street, St. Marylebone) Improvement Scheme, 1890, subject to the living and bed rooms being in no case less than the Council's minima of 144 and 96 sq. ft. respectively, and subject to any approval necessary under the London Building Acts being subsequently obtained. This plan showed accommodation for 630 persons in 40 tenements of one room, 100 tenements of two rooms and 25 tenements of three rooms. Plans on a larger scale showing a compliance with the Council's condition as to the size of rooms were then prepared and forwarded to the Secretary of State for his approval. Considerable correspondence has ensued, since the Secretary of State first required that Nos. 36, Nightingale-street and 8, Samford-street adjoining should be acquired by Lord Portman and pulled down, and that direct access should be provided to the playground in Nightingale-street from all the proposed blocks of dwellings. We have now to report that the Secretary of State has approved the plans subject to one of the following alternatives being adopted:—

(a) Lord Portman to acquire and demolish No. 36, Nightingale-street or (b) one room at the north-east corner of the block of dwellings to front Samford-street to be omitted through all five stories of the building. The adoption of the former alternative depends on the ability of Lord Portman to acquire the leasehold interests in the premises, and if this be done the plans as approved by the Council will be unaltered. If, however, alternative (b) be adopted the accommodation to be provided in the dwellings will be reduced. In this case there will be accommodation for 620 persons in forty tenements of one room; ninety tenements of two rooms, and thirty tenements of three rooms. Meanwhile, the erection of the buildings is being proceeded with pending the decision as to the alternative to be ultimately adopted.

**Road Widening.**—It was agreed to contribute 1,617*l*. towards the cost of widening Putney Bridge-road at its junction with High-street, Wandsworth.

**District Surveyors.**—The Building Act Committee reported as follows, the recommendations being agreed to:—

"The Council, on March 17, 1903, resolved that a new district of Kensington should be formed, with its boundaries co-terminous with those of the Royal Borough of Kensington, and, in order to give effect to this resolution, that the Queen's Park ward of the borough of Paddington and the late detached portion of St. George, Hanover-square, on the north side of Bayswater-road, should be added to the district of Paddington during the Council's pleasure, and that the portions of the parishes of St. Margaret and St. John the Evangelist, Westminster, north and south of Kensington Gore and Knightsbridge, should be added to the district of St. George, Hanover-square, north. Mr. Meeson, the district surveyor for Paddington, declines, however, to accept any additions to his district, subject to the condition that they shall be added during the Council's pleasure. We therefore recommend:—

(a) That the resolution of the Council of March 17, 1903, relative to the alterations necessary to the districts of Paddington and St. George, Hanover-square, north, consequent on the formation of the new district of Kensington, be rescinded. (b) That the portions of the parishes of St. Margaret and St. John the Evangelist, Westminster, north and south of Kensington Gore and Knightsbridge, be added to the district of St. George, Hanover-square, North."

**Great Northern, Piccadilly, and Brompton Railway.**—On the recommendation of the same Committee it was agreed that the Council do

approve the plans in regard to the stations to be erected at Russell-square, King's Cross, York-road, Caledonian-road, Holloway-road, and Finsbury Park, submitted by the Engineer of the Great Northern, Piccadilly, and Brompton Railway Co., so far as relates to the lines to which it is proposed to build the stations.

**Procedure in regard to Dangerous Structures.**—The same Committee also brought up the following Report:—

"At the hearing of a summons which had been taken out against the owner of No. 12, Old Ford-road, in consequence of his not having complied with the dangerous structure notice served by the Superintending Architect in respect of the premises in question, the magistrate, Mr. Mead, took objection to the Council's proceedings on the ground that there was no proof before him that the Council had authorised the proceedings. It was submitted on behalf of the Council that authority was delegated to the Superintending Architect, and the case of the London County Council v. Hobbs was cited in support of this contention; the magistrate, however, said that the case cited was one raised on a refusal of his to make an order because there was no proof of the authority of the Council, but that in the present case there was no proof that the Council had authorised the issue of the notice or that the Superintending Architect had ever seen it; and, further, that the Act under which the Council worked required that the matter should go before the Council.

It appears that during the period between October 1, 1869, when the control of dangerous structures was transferred from the Metropolitan Police to the Metropolitan Board of Works, and February 5, 1890, all notices were signed by the Superintending Architect, but on the latter date the then Superintending Architect asked if he could be relieved of the duty, as signing about 3,000 notices in the course of a year took up a considerable amount of time. The Council's opinion was taken on the matter and as the result the architect then signed the notices by means of a stamped signature, but it afterwards became the practice for the notices to be signed with his stamped signature in the Dangerous Structure section of the department, and this practice has obtained during the last ten years. In consequence of Mr. Mead's objections, however, we have thought it well to take counsel's opinion as to procedure that should be followed, and as a result we recommend that the Council do pass the following resolutions:—(a) That Mr. William Edward Riley, the superintending architect, and Mr. John Briggs, the chief assistant-architect, be jointly authorised to take all such steps as have hitherto been taken by the superintending architect to carry into execution the provisions of Part IX. of the London Building Act, 1894, relating to dangerous structures, including the requirement of a survey under Section 103, the securing of structures, and the giving of notice under Section 106, the enforcing compliance with such notice under Section 107, and the initiation of proceedings under Sections 108 and 112. (b) That in the absence of both the said William Edward Riley and John Briggs, the like authority be exercised by Mr. Frank Sizer Capon, one of the assistant architects."

The recommendations were agreed to.

**Theatres, &c.**—The following proposals were agreed to, i.e.:—

Alterations to the Cabin, 352-3, Strand (Mr. J. Murray).

Alterations to the proscenium wall on the prompt side, Drury-lane, Theatre (Mr. P. E. Pilditch).

Method of fixing a fire-resisting curtain, Eastern Empire (Mr. B. Crewe).

Method of fixing a fire-resisting curtain, Egyptian Hall (Mr. J. C. Buckle).

Method of fixing a fire-resisting curtain, Foresters' Music Hall (Mr. B. Crewe).

Arrangements in regard to the Fire and Life Saving Demonstration at the Empress Theatre (Mr. A. O. Collard for the London Exhibitions, Ltd.).

Method of fixing fire-resisting curtain, Palace Theatre of Varieties, Cambridge-circus (Messrs. Merryweather).

Alteration to sides of the circle at the Shepherd's-bush Empire (Mr. F. Matcham).

The Council adjourned soon after seven o'clock.

**SOUTHWARK BRIDGE.**—It is stated that the Bridge House Estates Committee of the City Corporation have under consideration a proposal for improving Southwark Bridge. Owing to the steep incline on the City side, the bridge is not much used by heavy vehicles, and many propositions have been made in the past for reducing the gradient. One of the schemes considered by the Corporation was the building of a viaduct, which it was intended should span Upper Thames-street, but the idea was abandoned. The new proposal will, it is believed, practically involve the rebuilding of Southwark Bridge.

## APPLICATIONS UNDER THE 1894 BUILDING ACT.

The London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses:—

**Marylebone, West.**—A modification of the provisions of Section 41 of the Act with regard to the proposed erection of residential flats on the north side of Marylebone-road and west side of Lisson-grove, St. Marylebone (Messrs. Gordon & Ganton).—Refused.

**Lewisham.**—That the seal of the Council be affixed to the undertaking to be entered into by Mr. A. Cameron Corbett, M.P., in accordance with an order of the Tribunal of Appeal in the case of the formation of a new street to lead out of the west side of Torrion-road, Lewisham.—Agreed.

**Hackney.**—That the seal of the Council be affixed to a deed of covenant (when ready) to be entered into by Mr. J. Watt in regard to the use of certain land situated at Mabley-street, Hackney, and that, upon the execution and exchange of such deed, the solicitor do withdraw the appeal now pending in the High Court.—Agreed.

### Lines of Frontage and Projections.

**Greenwich.**—Buildings on the Page Estate on the north side of Woolwich-road, Greenwich, eastward of Chilver-street (Mr. W. J. Kemp for Mr. C. H. Polhill).—Consent.

**Lewisham.**—Retention of a greenhouse in the garden of Hyndford House, Inghere-road, Forest Hill, Lewisham, abutting upon Brampton-road (Mr. R. E. Crossland for Mr. J. J. Platts).—Consent.

**Paddington, South.**—A portico at the entrance of No. 6, Westbourne Park-road, Paddington (Mr. H. Boyer).—Consent.

**St. George, Hanover-square.**—Three oriel windows at the second and third floor levels, No. 5, St. George-street, Bond-street, St. George, Hanover-square (Mr. R. J. Worley for Messrs. Robinson & Fisher).—Consent.

**St. Pancras, South.**—The retention of balconies, at the second-floor level, in front of the Marlboro' Arms public house, abutting upon Francis-street and Huntley-street, St. Pancras (Messrs. Rolfe & Matthews for Mr. M. Dromet).—Consent.

**Clapham.**—A wooden bay-window at the first-floor level of Chase Lodge, No. 27, North-side, Clapham Common, Clapham (Mr. S. Pocock).—Consent.

**Hamstead.**—An iron and glass hood over the entrance to No. 85, Greencroft-gardens, Hamstead (Mr. J. D. Hunter for Mr. A. Edlesham).—Consent.

**Lewisham.**—Two brick, stone, and tile porches at the entrance to two semi-detached houses on the east side of Baring-road, Lewisham, southward of Heather-road (Mr. A. Durbin).—Consent.

**Lewisham.**—A porch in front of No. 7, Oakcroft-road, Blackheath (Mr. L. V. Hunt for Mr. H. F. Billingham).—Consent.

**Poplar.**—That the application of Messrs. Owen & Ward for an extension of the periods within which the erection of a theatre building on the north side of East India Dock-road, Poplar, abutting upon Stainsby-road and Canton-street, was required to be commenced and completed, be granted.—Agreed.

**Fulham.**—Projecting pilasters to No. 859, Fulham-road, Fulham, to abut upon Fulham-road and Munster-road (Mr. R. A. Hinde for the London and South-Western Bank, Ltd.).—Refused.

**Lewisham.**—The retention of a building at No. 170, Lewisham-road, Lewisham (Mr. A. Dixon for Messrs. Whitbread & Co., Ltd.).—Refused.

**Strand.**—Projecting oriel windows and balcony in front of No. 170, Strand (Mr. R. J. Worley for Mr. J. S. Beale).—Refused.

**Strand.**—In iron and glass shelter over the entrance to the grill-room of the Hotel Victoria, Northumberland-avenue, Strand (Messrs. Isaacs & Florence for the Directors of the Gordon Hotels, Limited).—Refused.

**Wandsworth.**—Four one-story shops on the east side of Streatham High-road, northward of the river Graveney (Mr. A. W. G. Harding for Mr. C. Norington).—Refused.

**Hackney, Central.**—A one-story building at the rear of No. 88, Mortimer-road, Kingsland, to abut upon Englefield-road (Mr. J. S. Baker).—Refused.

**Islington, East.**—A one-story addition upon the forecourt of No. 112, Drayton Park, Islington (Messrs. Young & Hall for the Express Dairy Company, Limited).—Refused.

**Marylebone, West.**—A projecting cornice to the shop fronts of Nos. 41 and 43, Duke-street, Manchester-square, St. Marylebone (Messrs. A. E. Hughes & Son for Mr. G. Sproston).—Refused.

**Norwood.**—Six shops with shops on the south side of Park-road, West Dulwich, westward of New Clive-road (Mr. J. Mackay).—Refused.

### Width of Way.

**Marylebone, East.**—A one-story addition to the stables in the grounds of North Villa, Park-road, Regent's Park (Messrs. J. Blyth & Co. for Mr. R. D. Walker).—Consent.

**Greenwich.**—A building on the south side of Benbow-street, Hughes-fields, Deptford (Mr. J. Webster for Messrs. May & Roberts).—Consent.



**Hoxton.**—Buildings, blocks Nos. 1, 2, 3, and 4, on the east side of Shepherdess-walk, Hoxton, to abut upon Nile-street, with external walls at less than the prescribed distance from the respective centres of the roadways of Underwood-row and Underwood-street (Messrs. F. Chambers & Son).—Consent.

**Lewisham.**—Two cottages on the northern side of Willow-walk, Rushey-green, Catford, eastward of Willow-walk mission hall (Messrs. Coad & Pamlett for Mr. G. Cowen).—Consent.

**Newington, West.**—A one-story building at the rear of Nos. 187 and 188, Great Dover-street, Southwark, with external walls at less than the prescribed distance from the centre of the roadway of Warren-place (Mr. G. A. Lansdown for Messrs. Johnson & Co.).—Consent.

#### Width of Way, Lines of Frontage, and Projections.

**Lambeth, North.**—An external iron staircase to Block D, Wellington Mills, Westminster Bridge-road, Lambeth, to abut upon Mead-row (Messrs. Parr & Sons for Messrs. J. Oakley & Sons).—Consent.

**Islington, South.**—An iron and glass shelter in front of Collin's Music Hall, Islington Green, Islington (Mr. F. Matcham for Messrs. Richards, Buray & Co.).—Consent.

**Marplebone, West.**—A church hall on the north side of Upper George-street, St. Marylebone, to abut also upon Little Queen-street, with projecting porches and towers (Mr. W. Flockhart for the Building Committee of the Marplebone Presbyterian Church).—Consent.

**Brixton.**—That the application of Mr. W. E. Hazell, for an extension of the period within which the erection of buildings on a site abutting upon Canterbury-road, Popes-road, and Industry-street, Brixton, was required to be commenced, be granted.—Agreed.

**Woolwich.**—The re-erection of No. 81, Wellington-street, Woolwich, abutting upon Upper Market-street, with external walls at less than the prescribed distance from the centre of the roadway of Upper Market-street (Mr. H. P. Monckton for Lieutenant R. L. A. Ogilby).—Refused.

**Brixton.**—A building, with a one-story addition in front, on the site of Nos. 242-258 (even numbers only) inclusive, Ferndale-road, Brixton, to abut also upon Stockwell-avenue (Mr. W. J. Chapman for the Bon Marche, Limited).—Refused.

**Wandsworth.**—Buildings on the site of Nos. 287, 289, and 291, Wandsworth-road, Wandsworth, to abut also upon Cavendish-grove (Mr. A. E. Nightingale for Mr. D. Franklin).—Refused.

#### Width of Way and Construction of Buildings.

**Southwark, West.**—An open shed on the east side of Great Guildford-street, Southwark (Mr. F. D. Smith for Mr. G. Newton).—Consent.

#### Width of Way and Deviation from Certified Plans.

**Strand.**—Deviations from the plans certified by the District Surveyor, so far as relates to the proposed erection of a building on the site of Nos. 3 and 5, Glasshouse-street, Regent-street, St. James's, Westminster (Mr. J. Robinson, for Messrs. A. Oddeino & Co.).—Consent.

#### Space at Rear.

**Whitechapel.**—A modification of the provisions of Section 41 of the Act with regard to open spaces about buildings, so far as relates to the proposed erection of a building on a site on the north side of Whitechapel-road, Whitechapel, abutting upon the west side of Vallance-road (Mr. G. Pestall, for the Metropolitan District Railway Co.).—Consent.

**Kensington.**—A modification of the provisions of Section 41 of the Act with regard to open spaces about buildings, so far as relates to the proposed erection of a block of residential flats on a site on the southern side of Brompton-road and eastern side of New-street, Kensington, with an irregular open space at the rear (Mr. C. W. Stephens, for Messrs. Stutford & Co., Ltd.).—Consent.

**Whitechapel.**—A modification of the provisions of Section 41 of the Act with regard to open spaces about buildings, so far as relates to the proposed erection of two houses on the east side of Vallance-road, Whitechapel, with an open space at the rear (Mr. G. Pestall, for the Metropolitan District Railway Co.).—Consent.

#### Formation of Streets.

**Lewisham.**—That an order be issued to Messrs. D. Smith, Son, & Oakley, sanctioning the formation or laying out of new streets for carriage traffic on the Crofton Park Estate, Lewisham, to lead out of the eastern side of Crofton Park-road and also from Church-road to Blythe Hill-lane (for Mr. J. W. Webb).—Consent.

#### Means of Escape at the Top of High Buildings.

**Chelsea.**—Means of escape in case of fire, proposed to be provided in pursuance of Section 63 of the Act, on the fifth floor of a block of residential flats, on the north-west side of Basil-street, Hans-road, Brompton-road (Mr. C. W. Stephens for Harrod's Stores).—Consent.

**Kensington, South.**—Deviation from the drawings

approved on January 20 showing the means of escape in case of fire proposed to be provided, in pursuance of Section 63 of the Act, on the sixth story of Durward House at the junction of Kensington-court and Thackeray-street, Kensington, so far as relates to alterations in the arrangement of the rooms in the northern flat, and in the position of the exit door from such flat to the flat roof (Messrs. G. H. & A. Bywaters & Sons).—Consent.

**Kensington, South.**—Means of escape in case of fire, proposed to be provided in pursuance of Section 63 of the Act, on the fifth floor of a building on the south side of New-street, Brompton-road (Mr. C. W. Stephens for Harrod's Stores, Ltd.).—Consent.

**Strand.**—Means of escape in case of fire, proposed to be provided in pursuance of Section 63 of the Act, on the fifth and sixth stories of the staircase block and the fourth story (and galleries over) of the surgical ward block, Charing Cross Hospital (Mr. A. S. Snell for the Council of Charing Cross Hospital).—Consent.

\* \* \* The recommendations marked † are contrary to the views of the Local Authorities.

## Books.

*Some Quick and Easy Methods of Calculating.* By ROBERT GORDON BLAINE, M.E. A.M. Inst. C.E. Second Edition, Revised and Enlarged. London: E. & F. N. Spon. 1903.

AS the title on the outside cover implies, this useful little book is an explanation of the slide-rule. The methods of the author are so clear and logical that the reader may be excused if he experiences a little surprise that the title on the exterior differs from that on the title-page. This is only a small matter, but we think Mr. Blaine will agree with the suggestion that it constitutes an undesirable example to students of a work intended to inculcate habits of precision. After showing what can be done by ordinary arithmetical methods towards the reduction of labour in calculations, especially those involving multiplication, division, evolution, and involution, the author says that the two most important extraneous aids are logarithms and the slide-rule. Here he very usefully draws attention to the fact that these two are really modifications of the same system, and that the use of the latter cannot be properly mastered without a knowledge of the former. Those who attempt to use the slide-rule without making themselves familiar with its theoretical construction, are apt to become discouraged and to end by giving the whole thing up in despair. Hence the author prefaces his explanation of the slide-rule by a brief, but singularly lucid dissertation on logarithms. In a few words he makes clear that the logarithm of a given base number is merely another name for the "power" to which the base must be raised to give the required number, and by a simple process of reasoning he explains why the use of logarithms reduces multiplication to addition, division to subtraction, and the raising of powers or the extraction of roots to multiplication or division respectively. Coming to the slide-rule, the author directs attention to the fact that the graduations are proportional to the logarithms of the numbers engraved thereon, and that while the operator appears to be working with numbers, he is, nevertheless, actually employing logarithms for the purpose of arriving at the desired result.

Having dealt with simple arithmetical problems, Mr. Blaine goes on to show how the slide-rule may be utilised in mechanics and engineering for the computation of areas and volumes; for ascertaining the speeds of pulleys and toothed wheels, stresses, and strains in tie-bars, the strength of pipes, belts, shafts, struts, columns, beams; for calculating the head, pressure, and flow of water, and other hydraulic problems; and for various calculations connected with electrical engineering. The present edition contains much useful new matter, including a complete explanation of various methods of finding cube roots, with clear rules for dealing with the ambiguity which arises with the reversed slide. A description of Professor Perry's new form of slide-rule, and various minor additions, bring the work thoroughly up to date. To those who desire plain instruction on the subject we strongly recommend this treatise.

*Different Span Roofs, &c.* By R. W. NEVILL. LANDS. 1902.

IN addition to a folding diagram or chart, this little book contains sixty-four pages, of which nine are blank and seven devoted to advertisements, title, &c., and the price is "5s. net." But as about half the pages are packed with figures, the book represents more labour than its size indicates. The author gives the angular measurements of the different cuts to be made in common rafters, hip and valley rafters, jack rafters, purlins, &c., for ten pitches of roofs, and also the lengths of common and hip rafters for the same pitches for spans ranging from 6 ft. to 50 ft. The figures are not always strictly accurate, some of the angles in the lists of "cuts" being nearly half a degree wrong; but they are sufficiently accurate for practical purposes, and will be of great service to the carpenter. The rule for finding the lengths of jack-rafters contains one error. The rule is thus stated:—"When five jacks are to go into opening, divide common rafter into six parts: One part gives the length of shortest jack; two parts, second jack; three parts, third jack; four parts, fourth jack; five parts, the fifth and longest jack. When, however, the common rafter does not start from angle of hip and ridge-piece, the distance it away from angle must be added to longest jack. If six jacks are to go into the opening, then divide rafter into seven parts, and so on for any number of jacks." The words we have italicised are incorrect; instead of "longest jack," we should read "common rafter," and add, for the sake of clearness, "before dividing by the number of jacks plus one." The rule for finding the length of purlins is not clearly expressed. These, however, are small matters, and we have pleasure in recommending the book as a labour-saving work of considerable value.

*Homeland Handbooks.* Vol. 18. Minehead, Porlock, and Dunster, by C. E. Larter. Vol. 20. Dawlish and the Estuary of the Exe, by Beatrice F. Cresswell. Vol. 23. Kingston-on-Thames, Surbiton, &c., by Dr. W. E. St. L. Finny. Vol. 25. Evesham and Neighbourhood, by William Smith. First Editions. London: The Homeland Association. 1902.

THESE four volumes are all excellent additions to a useful series of handbooks, and deal with particularly interesting districts. The beauties of Minehead, Dunster, and the Exmoor district are well known, and, apart from its scenic attractions, it is a very rich centre architecturally. Fine churches and interesting houses abound, and particular features are the screens and other details in the former, and the plaster-work in the latter. A chapter is devoted to the picturesque ruins of the Cistercian Abbey of Cleve, which is, like the rest of the Guide, well illustrated. Particularly charming is the group of church and almshouses at Selworthy, facing p. 32.

The Guide to Dawlish and its Neighbourhood has interesting notes and illustrations of two of the fine screens for which Devonshire churches are famous—those at Kenton and Kenn. The roofloft at Kenton is particularly fine, and well illustrated (p. 77).

There is still, in spite of the modern growth of the town, a great deal of interest in the town and neighbourhood of Kingston-on-Thames. The parish church is especially interesting, and there are still many quaint examples of domestic work, and some of the houses on a larger scale still retaining their old ironwork, one example of which is illustrated on page 21. Chapters are added on Hampton Court, and the interesting Ham House, Petersham—a fine seventeenth century building—and an illustrated appendix on local trade tokens.

The volume on Evesham and its neighbourhood is exceptionally well illustrated, and deals with a district that would be hard to excel for beauty and historical interest. Evesham is remarkably rich architecturally with interesting ruins of the abbey, a magnificent bell tower, two interesting churches of St. Lawrence and All Saints near by, and in the town a great many remains of old houses. The neighbourhood also is very rich in domestic work, notably the picturesque village of Broadway, and Chipping Campden with its quaint street and market house. A few miles west is Pershore, and the fine fragment of its Benedictine church, while dotted about are innumerable villages, all of which have something of interest to the visitor. There are several striking illustrations in this volume—

*Newlands' Ready Reckoner, giving the Exact Lengths of Rafters and Hip-Rafters for 890*



perhaps the best is a photograph of the village of Crophorne.

The guides are all concisely and brightly written, and, although not necessarily exhaustive, enough is given to materially assist the visitor in finding out all that is of interest in the districts of which they treat.

*The Ancient and Loyal City of Exeter.* By BEATRICE F. CRESSWELL. London: The Homeland Association.

We presume that the compiler of a guide-book has, like the historian, to choose between style and accuracy, and the author of this guide to Exeter has selected the former. It is brightly written, and so far the author is to be congratulated. But her disregard of facts and looseness of nomenclature are sometimes flagrant.

For instance, the statement that the nave of the pre-existing Norman cathedral ended at the present north porch—for which, we believe, Dr. Oliver, a Devonshire worthy, was in the first place responsible—has no business to be re-affirmed to-day. It is generally well-known, we should have imagined, that the bases of the Norman piers are standing now beneath the pavement, abutting on the west wall. Further, this wall is itself for the most part built of Norman masonry, to which the face-work and detail of the fourteenth century nave were afterwards affixed. Moreover, there is a thirteenth-century chapel at the north-west corner. How this came to be there, with the nave stopping three or four bays short of it, does not seem to have occurred to the writer.

Again, to speak of the great west window—a typical Decorated window with mullions—as “Bishop Grandisson’s beautiful rose window” is to confuse commonly accepted terms in a most puzzling fashion.

The material of which the Norman towers are built, we may also point out, is not Beer stone, but Salcombe stone, a distinction of some interest, since the Norman masonry may be thus recognised. The Beer quarries were not called into requisition until later.

It is a mistake of minor importance, perhaps, to speak of the “fine front” of the Albert Memorial Museum, “with its polished marble facings.” Yet it cannot be considered a suitable description of an axed limestone building while two granite piers at the entrance represent the only polish of which it can boast—if polish be really something to be desired.

On the whole, we cannot commend the author’s choice. Some care as regards the authorities consulted, and a patient faculty of observation, are essential features of a guide-book.

*The Rood Screen of Ramworth Church.* By EDWARD F. STRANGE. Norwich: Jarrold & Sons; South Kensington: Lamley & Co. 1902.

THIS is a thin octavo, of 30 pages, giving a very good account of the beautiful rood screen at Ramworth—one of the most interesting of the numerous screens to be found in Norfolk. There are a few illustrations by Mr. H. P. Clifford, including a general view of the screen from the west or nave side, showing the returns or wings that helped to protect the two side altars placed against the western face. Unfortunately, a portion of the vaulted cove that supported the loft has been destroyed, but traces of its outline still remain. Of the numerous painted panels, that depicting St. George is given, and three small illustrations of the decorative detail are included. The church, which had become very ruinous, is being repaired under the superintendence of Mr. J. T. Micklethwaite, F.S.A., and the work under notice has been written to help to raise a fund for the completion of the restoration. It will be found a useful guide to a highly interesting piece of mediæval woodwork and decoration.

*The Country Gentleman’s Estate Book.* 1903. London: The Country Gentleman’s Association, Ltd. 1903.

THIS is the eleventh year of this or of similar publications. The book is an excellent compendium, containing so much material that it would be impossible to refer to all the contents. It must suffice to point out that there is to be found in it much which will be useful for those improving or changing the character of their estates by building. There is, for instance, a most excellent little section on brick enclosure walls, which is illustrated with some little

drawings, which make the text clearer for those who are not professionally concerned with buildings. We think, however, that the small illustrations placed at the end of the sections, and which are not concerned with the subject-matter of the adjoining text, might very well be omitted.

*The Business Man’s County Court Guide.* By CHARLES JONES. Third and Revised Edition. London: Effingham Wilson. 1903.

THIS is a most useful little book, not only for the business man who wants to conduct a County Court action without the assistance of a solicitor, but also for young lawyers who may need a handy book of County Court practice. Both in material and form it is excellent. The addition of information on costs was certainly desirable, and makes the book practically complete.

*Blackie’s Standard Shilling Dictionary.* London: Blackie & Son. 1903. 1s.

THIS is a remarkable shillings-worth, not only including a very clearly printed dictionary of general words, but also an appendix which contains special terms used in engineering, physics &c.; commonly used phrases from foreign languages, with their explanations; a list of commonly used abbreviations and contractions, forms of ceremonial address and title, principal moneys and weights and measures of the world, mathematical and other signs and symbols, and diagrams illustrating the various types of mechanical movements and applications of force. The printing of the book is everything that could be desired, for a dictionary of this scale, and it is a publication which ought to have a great success among the large class of persons who cannot afford an expensive dictionary.

## Correspondence.

### “ARCHITECTURE AND THE PUBLIC.”

SIR,—In his able and comprehensive paper read before the Architectural Association on the 1st inst., Mr. Needham Wilson pointed out very fully what is the relationship at the present time between architects and their employers, but he did not say very much as to the attitude of the public generally towards architecture, nor did he suggest how that attitude might be improved. Several of the speakers in the discussion which followed rather took up the side issues than the main subject, and the President was almost the only one who spoke much upon the vital question.

It occurs to one that something more might have been said both by the reader of the paper and the subsequent speakers as to the real matter under consideration. It may doubtless be taken for granted that the general public do not care about architecture at all. It is certainly the fact that the majority do not realise what the functions of an architect are. Comparatively few people ever employ the services of an architect, and that there is no occasion for them to do so, but that they are too ignorant or too stupid to make use of the men who are best fitted to be of good service to them. Take the average member of the public who buys or rents a house. How often he goes to “Whiteley’s” or the “Stores” respecting the drains, to the same source of supply or to a local builder as to any alterations or additions he may require, and to Maple’s or some other similar emporium for any decorative work! (This is not an exaggerated fancy picture, but a matter of every-day occurrence.) How seldom he consults the proper person to advise him on all these matters, viz., an architect!

A similar instance happened quite recently in the case of a well-known West End Club, which was compelled to vacate its premises and seek a new home. On finding a building which it was thought might be made suitable for the accommodation of the club, the building being then in use for other purposes, did the committee consult an architect as to how their requirements could best be met? No. Nor did the proprietors of the building proposed to spend several thousand pounds on altering and adapting their building to suit the club. They employed a firm of builders to make the plans, and the club committee were apparently content with this arrangement, although they were men of high standing (noblemen, Church dignitaries, retired officers, and others of good social position) and presumably of culture and intelligence, who might have been expected to know better.

One can understand to a certain extent why directors of companies care more for the paying capacity of their buildings than for the architectural appearance of them, and why they prefer to employ an architect whom they can trust to get them a

good rate of interest on their capital, regardless of the architectural design, rather than one who would give them good architecture and perhaps, as they fear, rather less monetary return. Not that there is any reason why a well-designed building need be less remunerative than a badly-designed one, but the public seem to imagine that if they go in for art they must sacrifice utility, ignoring the fact that a good architect will combine both.

To give another instance. A few years ago an enlightened colliery company in Derbyshire built a model village enclosing a green, as advocated by Mr. Wilson. Architects were employed and the cottages were well designed, plain and simple, but of good proportions and details, varied and picturesque; in short—just what such buildings should be. Many other colliery villages have since sprung up within a few miles radius of that one, but has this model been imitated? No. Miles and miles of stereotyped cottages have been erected in long rows of the ugliest and most depressing monotony, just brick walls with large ill-proportioned double-hung sash windows with heavy stone lintols and sills, high, narrow door openings with similar heavy stone heads, and flat-pitched purple slated roofs, with ugly chimneys. Occasionally a row of slightly superior (?) cottages with wooden bay windows of the most shocking proportion and taste—or want of them!

No architect, surely, ever had a hand in these eyesores! And yet the cost of these can be so little less than the model village cottages, that it would seem hardly worth while to spoil whole villages and country sides for the sake of saving a trifling sum in the way of architects’ fees.

Will the workmen’s estates now being laid out and designed admirably by the architects of the London County Council have the effect of inducing people to employ architects to plan the development of estates and design cottages and artisans’ dwellings, or will the general public still be content to leave such matters for the most part to the tender mercies of the jerry-builder, as heretofore?

Why should not Borough and District Councils require plans submitted for their approval to be prepared by professional architects, just as the Incorporated Church Building Society and other authorities do? This surely would be in the interests not only of architects, but of the general public, who might thereby be saved much suffering, in both mind and body.

Why should not the rudiments of architecture be more taught in our schools, so that the public might be led to take some intelligent interest in our art, instead of leaving it a closed book as at present, except in the case of the very few who make a special study of it?

As Mr. Hare said, the daily Press might help architecture much more than it does. Only last week at least two important buildings were opened in London, viz., the Baptist Church House and the School of Art Needlework. The daily papers gave long descriptions of the ceremonies and the buildings, but one looked in vain for the names of the architects. Surely it should be of as much general interest to know who designed a public building as to know who wrote a play or composed an important piece of music. No newspaper report omits to record these latter facts.

Mr. Wilson’s comparison of architecture with music as regards their power of causing emotion seems a little inapt, as it may be doubted whether they can be fairly compared in that respect, any more than can painting and oratory, the one being essentially an emotional art and the other not. It may also be questioned whether his remarks as to “the public not employing incompetent or unqualified men as architects any more than they would an incompetent or unqualified lawyer” are, as he appears to intend them to be, an argument against registration. As matters now stand the public know that when they consult a lawyer they are employing a competent qualified man, but at present they have no such guarantee as regards an architect, nor will they have in the future unless some test of qualification be made obligatory.

Mr. Wilson’s view of the whole matter seems very pessimistic, but there is another side to the picture, and there are good clients as well as bad and indifferent ones. Many clients thoroughly appreciate our services, and an employer who took a great interest in his building during its progress said recently to his architect, “I must say that you architects do earn your fees. I had no idea you did so much work for the five per cent.”

This sort of speech is as gratifying as the “letter of grateful thanks with the final cheque” which persons is not quite so rare as Mr. Wilson appears to infer.

LOUIS AMBLER.

### SAXON REMAINS IN ENGLAND.

SIR,—Referring to the list in your last issue of churches that show signs of Saxon work, you give but one instance for Herts. But is not Bengoe Old Church, Hertford, of Saxon origin and character?

The church is rubble-built; the quoins of the north-west corner of the nave are placed long and short. The chancel arch (cut through a wall 2 ft. thick) is of the narrow, door-like character referred

\* We must point out to our correspondent that the list is not ours, but Professor Baldwin Brown’s, who is solely responsible both for the credit of it and for omissions (if any) in it.—ED.



to by Mr. G. Gilbert Scott ("E.say," p. 48). The arch and jambs were evidently originally quite square cut and un moulded; but the western face has been decorated with rude hatch-cut ornamentation that would appear to be later than the construction of the arch, and yet Early Norman. There is ample room for an altar in the nave on each side of the arch (cf. Mr. Scott's remarks), and on the south side are traces of colour that may mark the place of a fresco. The one window in the north wall of the nave is placed high up, and is round-headed and splayed; but, except as a suggestion of a similar predecessor, it is of no value, as it is manifestly modern. The west window is perpendicular, as also is the finer of the two south windows. The chancel is apsidal, and appears to have been originally lighted by three splayed windows, north, south, and east; but the north light has been blocked by a tablet, and the east light has had an Early English head inserted. There is a very plain, much damaged piscina—fifteenth century, I think.

The nave of the church appears to be used as a lumber-room. The chancel arch is boarded up, and the chancel alone used for service during part of the year.

across the church on a cycle ride, a few weeks ago. ALBERT MITCHELL.

### CAPE TOWN UNIVERSITY BUILDINGS COMPETITION.

SIR,—Might I inquire through the medium of your columns whether anything is known to account for the somewhat lengthy period of silence which has elapsed since the designs in the above competition were sent in on January 31 last—more than three months ago?

I am the more led to make inquiry because a few days before the date stipulated in the conditions for sending in the designs a notification appeared, in your issue of January 31 last, to the effect that the time was to be extended to the last day of February, but that the assessor, Mr. Aston Webb, having objected to this extension, the date would not be altered.

This is itself a rather curious circumstance—together with the time which has elapsed since the designs were submitted, prompts me to ask whether you, Sir, or any of your correspondents, have any information which would explain the matter. I enclose my card, and remain

A COMPETITOR.

"\* We have no further information. The assessor, we believe, objected to the extension of the time because it was proposed at the request of one competitor only, and was therefore manifestly unfair to the remainder.—ED.

### WAVERTREE CHAPEL COMPETITION.

SIR,—In reference to the above, I have been in communication with the Committee's secretary respecting the conducting of this competition (concerning which a letter appeared in your columns several weeks ago). He informs me in a letter replying to mine that there was no voting; (Mr. Hartley, I believe, decided the case). The Committee (a body of twenty gentlemen), and his recommendation was accepted unanimously. The assessor, out of forty-four designs, weeded them down to six, and ultimately to two, 'New Era' and 'Pax,' and eventually fixed on the former."

I may say that the assessor was Mr. W. Hartley, Hartley & Co., of Liverpool, and the authors of the first and second designs were Mr. G. Baines, of London, and myself respectively.

I am sending this to you, Sir, as it will, no doubt, be a satisfaction to the competitors and to the profession generally to know that this competition has been decided fairly.

I was personally informed by Mr. Rogers that the exhibition was held and the book kept for the purpose of obtaining the names of persons likely to be interested in the scheme. A. GLADDING.

### CITY CLOUDS.

SIR,—Have clouds any relation to large buildings, as they apparently have to hills? We find cumulus clouds habitually near certain hills (as if they were moulded by them), and Ruskin has spoken of others forming round clumps of pines. There are often squares of cloud over cities—block after block.

S. JAMES.  
\* Perhaps some one who is proficient in meteorology can answer our correspondent's question.

ORGAN, ST. PETER'S CHURCH, BELFAST.—A new organ, presented to St. Peter's Church, was dedicated on the 26th ult. The instrument was built by Messrs. Norman & Beard, Ltd. It stands in a chamber on the north side of the chancel, the hydraulic engine and feeders for blowing being placed in a crypt below the church. The hydraulic engine is by Mr. H. H. Swanton, of London. The case, of carved oak, is the work of Messrs. Harry Hems & Sons, Exeter, under the supervision of the architect of the church, Mr. S. P. Close, A.R.H.A.

### GENERAL BUILDING NEWS.

WESLEYAN METHODIST CHURCH, MAPPERLEY, NOTTINGHAM.—The memorial stones were laid on the 30th ult. of the new Wesleyan chapel which is in course of construction at Mapperley. The chapel is situated on the north side of Woodborough-road. The style is Gothic, and the building is being constructed of red brick, with dressings of Derbyshire stone. The basement is devoted to a schoolroom about 32 ft. by 34 ft. in dimensions, and containing three classrooms designed to accommodate between 400 and 500 children. Adjoining are kitchen and heating chambers, the intention being to warm the chapel by means of hot-water pipes. The chapel will be approached from the street level by a sloping path, and accommodation for upwards of 300 people is provided, the seats and doors being of pitch pine. Ministers' vestry, choir vestry, organ chamber, &c., are reached from the chapel. Provision is made for the addition of galleries when required. The architect is Mr. A. E. Lambert, and the contractor Mr. T. Barlow.

CHURCH, CHATHAM.—The memorial stones have just been laid of the new Church of St. Andrew, Victoria Gardens, New-road, Chatham. The architect was Mr. G. E. Bond, and the builder Mr. J. D. Coker, of Rochester.

WESLEYAN METHODIST CHURCH, ENDLIFFE, SHEFFIELD.—The foundation stones of the new Wesleyan Methodist Chapel which is to be built in Ecclesall-road, Sheffield, near to Endcliffe Woods, were laid on the 1st inst. The building has been designed by Mr. Joseph Smith, of Durham. It is to seat 850 persons. The exterior walls will be of stone, faced with hammer-dressed local wall stones, and Stoke Hall ashlar stone dressings. There will be a nave, with centre and side aisle approaches, two transepts, apsidal-ended chancel, and choir with organ chamber on each side for divided organ. The scheme will cost about 9,650l.

CHURCH HALL, CATFORD.—St. Andrew's Church, Catford, which is now being used as a temporary church, being crowded to overflowing, the architect, Mr. Philip A. Robson, A.R.I.B.A., has been instructed to prepare contract plans for the permanent structure immediately. The design will follow that which was submitted in the limited competition five or six years ago. The accommodation will be about 850.

CHURCH, LINCOLN.—On Saturday last week the foundation-stone of the new Church of All Saints', Lincoln, situate on the south side of the Arboretum, was laid. The new building was estimated to cost about 8,000l., and the tender of Messrs. M. Otter & Co., amounting to 7,832l., was accepted. The architect is Mr. C. Hodgson Fowler, F.S.A., of Durham. The plan provides for a nave, two aisles (north and south), chancel, choir and clergy vestries, organ chamber, &c., while it will be connected by means of a short passage with the present mission-hall. The building is to be of red brick, with stone dressings, and there will be a bell turret at the east end. The roofing is to be of polished pitch-pine, and will be covered with red flat tiles. The seating is to be of polished red deal, with open benches, and accommodation will be provided for over 500 people.

BAPTIST CHURCH, CAMBRIDGE.—The foundation-stone of St. Andrew's-street Baptist Church, Cambridge, was laid on the 6th inst. The church is being remodelled and to a large extent rebuilt, with an entirely new frontage and interior fittings, making use as far as possible of the foundations and side walls of the present building. The seating accommodation of the new structure will be:—On the ground floor, 580 adults; in galleries, 326 adults; or a mixed congregation of over 1,000 persons. The materials for the front will be whole white flint facings to walls, and stone dressings and tracery to windows, &c., the joinery internally to be of Orham wood wax-polished, the choir seats and pulpit of oak as left from the plane, glazing to windows of richly coloured lead glazing. The cost will be about 8,000l. exclusive of furniture. The exterior from St. Andrew's-street will have a square tower, rising to a height of 60 ft. to the parapet with a spirelet rising to a height of 90 ft. from ground. This tower will have a three-light tracery window in the belfry stage on all sides, and a doorway at its base, leading to one of the staircases up to the gallery. On the opposite side of the main front will be a similar doorway, leading to the second staircase to gallery. In the centre rises a gable with carved traceried apex and finial, and comprising a five-light tracery window with moulded reveals and arch surmounted by moulded gable and finial and moulded traceried parapet. On the side elevations will be four large traceried windows on each side. Internally the seats will be circular on plan, radiating from the pulpit. There will be a wood traceried arcade supported on columns, and hammer-beam truss principals to the roof. The choir seats will be raised behind the pulpit in a semi-octagonal apse, with carved ceiling and large windows. An organ-chamber opens out of the apse with arches. On either side is a vestry. A corridor extends across the rear of apse and vestries, giving convenient access to the choir and vestries without passing through the church, and having two separate exits, one at each end. Two additional exits are provided from the aisles at rear of church. A club parlour, about 26 ft. by 15 ft., with lavatories attached is pro-

vided, opening out of the rear corridor. There is access from the church to the school buildings. The architects are Messrs. George Baines & R. Palmer Baines, Clements-inn, Strand, London, W.C.

WORKHOUSE, HASTINGS.—A new Union Workhouse has been erected at Hastings at a cost of 55,000l. The building is situate opposite the old structure, with which it is connected by a subway, for the present infirmary will still be in use. The materials used are East Sussex kiln bricks with Bath stone dressings. There are three main blocks, the centre of which is devoted to the administrative department. Here are to be found the master's and matron's apartments, and the other officials' rooms. At the rear of these is a dining-hall, the dimensions of which are 70 ft. by 37 ft. Behind this again is the kitchen. This central block is flanked on either side by the men's and women's pavilions, the latter of which is 260 ft. long; the men's, however, is not quite so long. The ground floor of the pavilions, which are about 45 ft. in height, is used for day-rooms, and the first and second floors as dormitories. Sleeping accommodation is provided for 154 men and 184 women. On the west side are situated quarters for the blacksmith, tailor, carpenter, and shoemaker; here is also the bakery and the laundry. In this portion of the premises is the boiler-house, containing two boilers, which drive the machinery used in the laundry, and which is surmounted by a chimney shaft 50 ft. high. The entrance block consists principally of accommodation for male and female vagrants. There are forty-four compartments in the casual ward, half of which are provided with a little cell, where the vagrant has to earn his night's lodging by breaking a quantity of stone, small enough to be thrown through the iron grating with which each little cell is fitted. There is also an apparatus for drying the tramps' clothes; while other space is taken up by the male and female probationers' wards, store-rooms, porter's offices, and waiting-rooms. Messrs. A. W. Jeffery & Son were the architects of the new workhouse, and Mr. Jenkins the builder.

POLICE STATION, SOUTHWICK, DURHAM.—A new police station for the Durham County Constabulary, at Southwick, is being erected. The new building is situated in Shakespeare-street North, on a portion of a large site purchased by the Durham County Council for the purpose. The premises have been erected in the Queen Anne style from the designs of Mr. Wm. Crozier, County Surveyor and Architect. Living accommodation is provided for an inspector and his family and three single constables. The cells are four in number, and are all connected with a system of electric bells. Mr. J. G. Kilburn was clerk of works.

POLICE STATION, BYKER.—The new Byker police station was opened on the 1st inst. The buildings consist of three sections, each complete in itself, viz., fire-station, police-station, and superintendent's house. The principal entrance to each is in Headlam-street. The fire-station comprises on the ground floor an engine-house with watch-room adjoining, and stable for three horses, &c. The three floors above each consist of a fireman's house. The stalls of the stable open directly into the engine-house at the rear of the fire appliances, both the large gates and the doors being fitted with Wm. Osby's patent fittings. The walls are lined with travertine, and the floors laid with hard, impervious briquettes. The ground floor of the police-station is occupied by a square entrance-hall and staircase, from which access is gained to superintendent's office, surgeon's room, waiting-room, parade-room, and charge-room. Through the charge-room the cells corridor is approached, on either side of which are arranged the six cells and bathroom connected therewith. On the first floor a recreation-room and reading-room and a mess-room are provided, as well as kitchen, with the messman's living-rooms adjoining. The second floor is given up to sleeping accommodation for twenty single constables. The superintendent's house is between the fire-station and the police-station, and communicates internally with the latter. Each section has its own yard, outbuildings, &c. Externally red brick is used and stone dressings. Over the staircase of firemen's quarters a clock tower rises. The general contractor for the works was Mr. Isaac Bewley, Dunston. The plumbing was by Messrs. Bland Bros.; the electric wiring by Messrs. Robson, Robson, & Co., the current being supplied from the Corporation Power Station under Mr. A. le Rossignol. The heating engineers were Messrs. Wm. Scott & Sons, Newcastle and Jarrold. The clerk of the works was Mr. Thos. Marriner, and the clock was by Messrs. Reid & Sons, of Newcastle. The architects, Messrs. Cackett & Burns Dick, were appointed as the result of a competition, in which their design was placed first by the Corporation's assessor.

SCHOOL, BLACKPOOL.—A new Board school has been erected in Thames-street, South Shore, from the designs of Mr. H. Wade, architect, of Blackpool, Mr. C. Place being the Board's clerk of works. The school is a one-story building, with separate central halls for infants, juniors, and seniors. The central elevation is of Withnell brick, with Austria stone facings. There is accommodation for 1,000 children, and the cost of the school has been estimated at about 25,000l. The general contractors for the erection of the school were Messrs. J. Parkinson & Sons, of Blackpool, and the various sub-contractors were:—Plastering and slating,



Messrs. W. Walker & Co., Blackpool; plumbing and glazing, Mr. J. Coulson, Blackpool; painting, Mr. J. Hall, South Shore; heating and ventilating, Messrs. Wagstaff & Co., Dukinfield; ornamental railings and gate, Mr. J. Monk, Preston; asphalt, Messrs. Stanbury Bros., South Shore; and street-making and severing, M. R. Escome, Blackpool.

**CHURCH HALLS, ARBROATH.**—New church halls are being erected in connexion with St. Margaret's Parish Church, Arbroath. The halls have been erected from designs prepared by Mr. Hugh Gavin, architect, Arbroath, and have cost about 1,200l. The principal hall is 50 ft. by 24 ft., and is designed to accommodate 250 persons, while the other apartments consist of a Session House and a Guild room. The contractors were:—Masons, Ramsay & Gordon; joiner, R. C. Farquhar; plumbers, Herron & Colville; slaters, Mitchell & Son; and plasterer, Alexander Patterson.

**BANK PREMISES, BLACKHILL, DURHAM.**—New premises for the York City and County Banking Company have been erected in Derwent-street, Blackhill. The new bank, which has cost between 3,000l. and 4,000l., is of three stories, and has been designed by Mr. G. T. Wilson, architect, Blackhill, while the principal contractor was Mr. Joseph Eltringham, also of Blackhill. The sub-contractors were Mr. William Strachan, Blackhill, plumbing; Mr. George Nicholson, Leadgate, slating; Mr. Frankland, Blackhill, plastering and cementing; and Mr. Surtees Leslie, Shotley Bridge, painting and decorating. On the ground floor is the bank room and counting-house, 20 ft. in width and 24 ft. in length. From the main entrance there are separate means of access to the manager's private apartments, the clerk's office, and the banking department.

**FREE LIBRARY AND POLICE STATION, FOLESHILL, COVENTRY.**—The building in course of erection in Foleshill, for use as a public library and police station is approaching completion. The buildings are of red pressed bricks, with red Runcorn stone dressings, and in the Renaissance style. Three front entrances lead respectively to the police station, the police superintendent's apartments, and the public library. The entrance to the public library leads through a vestibule and swing doors with check springs, to the borrowers' lobby, which is divided by a counter from the lending department. Proceeding through the borrowers' lobby, access is gained to the reading-room, 25 ft. by 28 ft. The part of the building devoted to the purposes of the police consists of a charge-room, with three cells at the rear, and apartments above. The charge-room, situated at the front of the building, is entered from the street through a vestibule. At the rear, corridors for the prisoners to take exercise in lead to the cells, two of which are for males and the other for females. Beyond the cells is the boiler-house, from which the ground floor of the entire building is heated, radiators being placed in the principal rooms. In the upper story are rooms for the accommodation of the police who live on the premises. The superintendent or sergeant in charge has apartments above the free library, with separate entrances from front and back. The building will be lighted by electric light from the Corporation's cables. A fire station has been erected on a site at the rear of the building, communicating with Holmdale-road by means of a roadway 10 ft. wide. The architect for the building was the Borough Engineer and Surveyor (Mr. J. E. Swindlehurst), and the contractor is Mr. C. Gray Hill; Mr. G. E. Cluett being the foreman.

**PUBLIC LIBRARY, EDINBURGH.**—An extension has just been made to the library in George IV. Bridge. The extension, which is at the north-west corner of the present building, extends as far as Maconochie's Close, Cowgate, and consists of a book stack four stories in height, and rising 110 ft. from the Cowgate level. With the exception of the newsroom story, the other flats are sub-divided by iron floors into stories about 7 ft. in height. The upper story, which is divided into four flats, is to be used for reference works, and the story below that which is divided into three flats, is for the lending library, while the three flats below the newsroom floor are for general storage of books previous to their allocation. The newsroom floor is in extension of the present newsroom, and will be chiefly used by magazine readers. This apartment is 25 ft. in height, and is approached from the present newsroom through a balcony archway, corresponding to that in the north-east corner of the building. The room has been finished in some respects in correspondence with the remainder of this part of the library, the walls being panelled to the height of about 7 ft. 6 in., and between the windows oak bookcases have been fitted. The room is furnished with eight tables, and lighted by three windows 16 ft. high. Access to the whole of the floors is obtained by an electric lift, supplied by Archibald Smith & Stevens, London. On the west side the exterior walls are of stone, and on the north and east they are of white enamelled brick. Hot-water pipes and radiators supply the heating. The architect was Mr. R. Morham, City Superintendent of Works; and the builders, Messrs. Kinneir, Moodie, & Co. and Colin Macandrew. The cost has been about 6,000l., the accommodation provided is for 125,000 volumes.

**FRIENDS' MEETING HOUSE, CHELTENHAM.**—The new meeting house at Cheltenham for the Society of Friends was opened on the 4th inst. The building, which is erected in Portland-street, consists of a meeting-room, hall, and cloakrooms on the ground floor, and a large classroom on the first floor, which can be used as a gallery for the meeting-room if required. The cost of the building is about 1,000l. The architect is Mr. Henry T. Fowler, Barrow-in-Furness, and the builder, Mr. W. T. Nicholls, Gloucester.

## FOREIGN.

**BUILDING AFFAIRS IN AMSTERDAM.**—According to Mr. Consul Robinson's annual Report on the trade and navigation of the port of Amsterdam, building has been active and profitable throughout the past year, and is still in a flourishing condition, both as regards the quarters of the labouring classes and the better description of dwelling-houses; but the trade has been much disturbed by the restlessness and the constantly renewed demands on the part of the workmen. The exodus of the wealthier classes to the neighbouring towns, in which municipal taxation is still comparatively light, continues to take place, and the immediately outlying parishes of the city are also being filled with cheaper dwellings, with the inducements of much more moderate taxation. The construction of the new entrepôt dock for bonded goods was completed during 1902, and the dock is now in use. The new Exchange nearly its completion, and will probably be opened in the course of this spring. The old Exchange building will be removed at once after the occupation of the new one. The erection of central electrical works for the municipality has been completed for another year or two. The former entrepôt dock will be filled up, and a part of the ground thereby acquired will be converted into an extension of the goods station of the State railways. With regard to the North Sea Canal to Ymuiden, it may be mentioned that the new railway bridge over the canal at Velsen has been completed, but that the footbridge, which is so great an obstacle to shipping passing through the canal, has not yet been removed. The pontoons, which have been constructed as a ferry for passengers and carriages or carts, have unfortunately proved a complete failure after many trials, and new means will have to be adopted to replace the footbridge when removed. The entire reconstruction of the railway and footbridge over the canal on the line leading to Zaandam has been decided upon, and this bridge, another of the serious obstacles to the navigation of the canal, will be raised to a clear height of 39½ ft. above the level of the water, thus admitting of the passage of a much larger number of vessels without the necessity of opening the bridge. The newly-constructed breakwater and quay outside the commercial quay, now called Y. Quay, is in working order. Several sheds have already been constructed and others are in course of construction by the municipality, which lets them to private firms and companies.

## MISCELLANEOUS.

**PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.**—Mr. Geo. Pearson, architect and surveyor, of 50, Moorgate-street, has taken his son, Mr. J. Herbert Pearson, into partnership. The practice will be continued under the style of "George Pearson & Son."—Messrs. Easton & Co. have appointed Messrs. J. Lomax Kendal & Co., of St. James's-square, Manchester, as agents for their hydraulic and electric lifts for the cities of Manchester, Stockport, and Salford.

**THE VICTORIA AND ALBERT MUSEUM.**—We are glad to find that we were mistaken in the idea that this great building is to repeat the prevalent use of terra-cotta frontage in its neighbourhood. The drawing in the Academy for some reason gives very much the impression of terra-cotta architecture, but in fact it is being carried out with Portland stone.

**FIREPLACE LINTELS.**—Mr. Lou J. Newton sends an illustration and description of his skeleton fireplace lintel, a kind of short open box-beam intended to supersede the time-honoured chimney bar. It is fixed at ordinary height of range or register, and the open front of the lintel is filled in with three courses of 4½ in. brickwork after the grate has been set. Where there is much weight over a fireplace opening, it is certainly an improvement on the time-honoured bar.

**PROPOSED INFECTIOUS DISEASES HOSPITAL, LINCOLN.**—On the 28th ult. Mr. E. P. Manby, M.D., Inspector for the Local Government Board, held an inquiry at the Guildhall, Lincoln, into the application of the City Council for sanction to borrow 5,500l. for the erection of an infectious diseases hospital at Lincoln.

**STREET IMPROVEMENTS, FALKIRK.**—An extensive street improvement is to be carried out in the Liotriggs, Falkirk. The improvement consists of the substitution of a 40 ft. wide street for a lane, 8 ft. wide, which at present connects two of the main thoroughfares—High-street and Newmarket-street. To accomplish this purpose the Town Council purchased property in the vicinity, at a cost of 12,600l., giving an area of 3,109 square yards.

The scheme has been prepared and the plans drawn by Mr. David Ronald, C.E., Burgh Engineer.

**ST. LOUIS, MISSOURI, EXHIBITION, 1904.**—A Royal Commission is appointed to obtain and distribute full information as to the best mode in which this country and the British Dominions beyond the seas may be duly represented at the International Exhibition of Arts, Industries, and Manufactures, and the Products of the Soil, Mine, Forest, and Sea, to be held at St. Louis, Missouri, in the course of next year. The Exhibition is to be administered by the Commission, which consists of thirty-seven members and includes Sir William H. Preece: Mr. Horace Plunkett, Vice-President of the Department of Agriculture and Technical Instruction for Ireland; Sir Edward Poynter; Sir L. Alma-Tadema; Sir Caspar Pardon Clarke, Director of the Victoria and Albert Museum (Art Museum); Messrs. Thomas Brock, T. G. Jackson, W. O. Orchardson, and E. A. Abbey; and Messrs. Clement Le Neve Foster (Professor of Mining at the Royal School of Mines, London), J. C. Hawkshaw (President of the Institution of Civil Engineers), W. Maw (President of the Institution of Mechanical Engineers), and F. Grant Ogilvie (Director of the Edinburgh Museum of Science and Art). Colonel Johnston is appointed as secretary to the British Commission.

**THE ORDANCE SURVEY.**—The original programme of the ordnance survey will shortly be completed by the issue of the map on a scale of ten miles to the inch, which, having been intended at the outset to serve as an index to the one-inch map, was adopted in 1892 by the Military Map Committee for strategic purposes. The survey of the scale extends over twelve sheets, whereof the last will be published in three months hence; a bill edition of the survey is being prepared, and will, it is expected, be finished at the close of the current year. Colonel Johnston, R.E., Director-General, is now engaged in preparing for publication a map to the scale of two miles to the inch as a supplement to the current issue of the coloured maps of England and Scotland on the scale of four miles to the inch, whereon a new process of stipple-shading is adopted for indicating inclines, and five different tints are employed. In the new two-miles series only the bolder inclines are shown in stipple, the contours being outlined, and both being coloured in brown; black is used for woods, and burnt sienna for principal roads. Each sheet, covering 864 square miles, has a printed space of 18 in. by 12 in., and is sold for one shilling; the sheet may also be bought mounted upon linen and folded between two covers. It is intended, at present, to issue sheets of the map for certain of the more frequented parts, but not for the whole, of the kingdom.

**THE SHREWSBURY CELEBRATION.**—The ancient city of Shrewsbury proposes in July to celebrate the 500th anniversary of the battle of Shrewsbury, as marking an epoch in the history of the town. The battle was fought on July 21, 1403. The programme of the celebration, which will extend from Sunday, July 19, to Saturday, July 25, will include two performances of Shakespeare's "Richard II.," "Henry IV.," and "Henry V.," and a good deal of attention will also be paid to architectural antiquities. There will be lectures on the church and college by the Rev. D. H. S. Crane and Mr. St. John Hope, and visits to the Shrewsbury churches and to Wroxeter and Houghmond Abbey under the guidance of the Shropshire Archaeological Society. These, at least, are parts of the programme as already proposed, though it may be subject to revision. Any further information will be supplied by the hon. secretaries, Messrs. Adnitt & Nauton, The Square, Shrewsbury.

**THE WORSHIPFUL COMPANY OF CARPENTERS.**—A series of lectures on carpentry and joinery are announced to be held at Carpenters' Hall each Thursday in May and on June 4. There are two new names on the list of lecturers, viz.: Mr. H. D. Searles Wood, who lectures on "Timber, its Nature, Properties, and Applications," and Mr. Lewis Solomon, whose subject is "Stresses and Strains." The other lecturers are Professor R. E. Sney Smith, A.R.I.B.A., and Mr. James Bartlett, Assistant Lecturer at King's College.

**SUBSIDENCE IN THE STRAND.**—At about nine o'clock on Sunday evening the watchman on the Savoy building operations in the Strand was alarmed by the sound of cracking timber. Proceeding to the road he saw the pavement in front of the hoarding erected there sinking gradually, as it were, into the earth. The hoarding itself and the platform hoarding above were tilting over and slowly increasing their angle. He raised the alarm, and the police and a brigade of the Salvage Corps were quickly on the spot. Barriers were erected around the fallen pavement and the foot traffic directed to the other side of the road. A 4-in. gas main runs close by, and immediately under this scene of the accident run three electric cables, one of the London Company of 10,000 volts. Beneath the hoarding on the works side is a drop of some 30 ft., where excavations have been made for building purposes, and the whole district seems to be honeycombed with cellars of an ancient date. On the top of the hoarding platform are some eight or nine tons of old bricks, and these, with the heavy rains, seem responsible for the subsidence.

**ARCHAEOLOGICAL DISCOVERIES IN CRETE.**—The correspondent of the *Times* in the Balkan Peninsula



writes from Sofia, April 22:—The excavations begun towards the close of last season at Hagia Trias, near Pheastos, on the southern coast of Crete, by Professor Halbherr, have been resumed this spring under the direction of M. Halicrakis, the epheor of antiquities at Candia. It will be remembered that at this spot Professor Halbherr made the very interesting discovery of another Mycenaean palace similar to those at Knossos and Pheastos. The palace is conjectured to have been the maritime residence of the Kings of Pheastos, from the sea, which is now some two kilometres from the site, has probably receded considerably since Homeric times. The recent excavations have revealed a large structure containing the usual *μύραρον*, or hall for men, another *μύραρον* for women, baths, and *ἀποθήκαι*, or storerooms. No cisterns or water-pipes have yet come to light. The principal movable objects discovered by Professor Halbherr last year have already been described in the *Times*. In addition to these a large number of clay seals have been found here, as in other Cretan dwellings of this period, and some dozen inscribed tablets exhibiting the mysterious linear or pictographic signs, which as yet have defied interpretation. Among the bronze objects recovered are several statuettes, votive effigies of oxen and goats, a spear-head, and ten double axes of the usual Cretan type, together with two small votive double axes. Nine-teen talents of bronze, in the shape of rectangular *plakotes* have also been found; these apparently served as standard weights, and were employed in commercial transactions. A large amount of pottery has also been recovered. The excavations, which have been suspended during the Easter holidays, will shortly be resumed.

**MILIC IMPROVEMENTS, BELFAST.**—On the 1st inst. Mr. D. Price, M.Inst.C.E., Local Government Board Inspector of the Town Hall, to conduct an inquiry into the application of the Belfast Corporation for the Board's sanction to the following loans:—50,000l. for the purpose of the completion of the new City Hall, and for the fitting and furnishing of same and improvements to the gas-works, 10,000l. for the purpose of providing electric motors, fittings, and apparatus, including those purchased before the passing of the Belfast Corporation Act, 1902; and 1,500l. for the purpose of making additions to the Model Lodging-house for Men, Carrick House. Mr. Alfred Brumwell Thomas, architect for the new City Hall, said the amount of the contract was 149,864l., but now they wanted additional expenditure. The height of the building was to be increased by 3 ft., which would cost 3,750l., or 1,250l. for each additional foot in height. Mr. Thomas gave details of the items which necessitated the additional expenditure, and illustrated his remarks by means of plans, drawings, and photographs.

**DAUNT'S CHURCH, LONDON.**—The long-continued restoration of the church of Holy Trinity is now completed, with the exception of the nave and aisles, at a cost of about 600l. Ten or eleven years ago a sum of 1,100l. was expended upon the repair of the nave roof, the aisles, the clearstory, and the western pinnacles and embattled tower. The church was built of flint, with stone dressings. In the latter half of the fifteenth century it was increased by the addition of a framed painting (1496) representing Sir James Hobart and his wife, kneeling, with views of the church and St. Olave's bridge; an inscription records that he rebuilt the church, and his wife the bridge. Sir James Hobart was Attorney-General and of the Council to Henry VII., and ancestor of Sir Henry Hobart, 1st Baronet, Chief Justice of the Common Pleas and Chancellor to Henry and Charles, Princes of Wales, in the reign of James I.

**CHEBOURG STONE.**—Mr. Loftus, British Consul for the district of Cherbourg, in the course of an interesting report to the Foreign Office on the affairs of his consulate, observes:—"The stone exported from this port consists chiefly of broken stone for road making and mending. This is sent to the southern and south-easterly counties of England in British vessels, which usually come to the port light or with very little ballast, and carry the stone to such ports as Shoreham, Rochester, Poole, Langston, Kye, Whitstable, Gravesend, Ramsgate, and Southampton. This stone is termed *quarritze*, and is known in the United Kingdom as granite; it is, however, not so hard as the real granite in the true sense of the term; the only district in which hard granite is quarried is Fermanville. This is not extensively exported, one of the reasons, doubtless, being that Diellet, the port of Fermanville, is very small and also very shallow, and does not admit any vessel of size to come into the port to load the stone, and it would be difficult to freight charges to the southern ports of the United Kingdom, such as those mentioned before, are 48. 6d. per ton. There is a plant in one of the quarries near Cherbourg which screens the broken stone by machinery, to insure uniformity of size. The principal companies interested exported between them during the year 1901 in 120,000 tons

of stone, and in 1902 the amount was 120,502 tons. The trade is in every way prosperous, the annual returns usually showing an increase over the preceding year as regards the amount of stone exported."

**JOHN'S IMPROVED PATENT WINDOWS.**—We have seen a working model of this window sent to us by "Incorporations Ltd.," who own the patent. It is one of the scores of contrivances for turning sash windows for cleaning, but has greater merits in the way of simplicity and easy working than many of them. A metal water bar in the side of each sash, working in a slot in the frame, is drawn back by two small metal nuts projecting through slits in the front of the sash, which is then reversible. The only question is about the entirely watertight quality at the bar, which cannot of course fit quite tight; but this may be provided against by throat- ing. At all events the action is perfectly simple, and hardly requires an explanation.

**TECHNICAL SCHOOL EXTENSION AT DUDLEY.**—On the 1st inst., Lieutenant-Colonel A. C. Smith, R.E., on behalf of the Local Government Board, held an inquiry at Dudley Town Hall relative to the application of the Corporation for sanction to borrow 18,000l. for the purchase of premises in Stafr.-rd-street and the adaptation of the same for the purposes of a technical school. Mr. J. Gamage (Borough Surveyor) having given details respecting the work, the inquiry terminated.

**AMENDED TENDERS, CARDIFF.**—At the meeting of the Cardiff Guardians on Saturday last week the Board considered the report of a special meeting of the Building Committee, which stated that tenders for the alterations to buildings at Ely were received from Lattey & Co., Ltd., 3,777l. 16s. 8d.; George Burgess, 3,725l.; A. W. Cadwallader, 3,100l.; John Gibson, 2,973l.; K. W. 2,899l.; W. Thomas & Co., 2,873l.; James Allan & Sons, 2,707l. 6s.; Price Bros., 2,690l.; Charles Beames & Nephew, 2,620l.; E. Turner & Sons, 2,448l.; W. T. Morgan, 2,425l.; Blackler Bros., 2,357l.; W. Symonds & Co., 2,258l. 18s. 5d.; and C. C. Dunn, 2,126l. 2s. 6d. A letter was read from Mr. C. C. Dunn stating that the Board had been invited to include in his tender the amount of the slating and plastering summary in one bill, and he asked the Board to add the sum of 511. 8s. 11d. to the amount of his tender. It was resolved, by ten votes to five, that Mr. Dunn's amended tender of 2,177l. 11s. 5d. be admitted to competition. Having further considered the schedules of prices to be allowed for old materials and of charges for day work, accompanying the two lowest tender, the Committee resolved to recommend the Board to accept the tender of Mr. C. C. Dunn for alterations to buildings at Ely at 2,177l. 11s. 5d. Alderman S. Mildon (Chairman of the Committee) moved an amendment that Mr. Dunn's tender be accepted, and not the amended tender. His contention was that once a tender had been opened, it was unreasonable to accept any amended tender, and he thought they ought to stand fast to that principle. He (Mr. Mildon) could secure any contract in a public body in Cardiff provided the principle of an amended contract was accepted. He did not say how it could be done, but it could be done, and he could do it. Mr. J. Enoch seconded. Mr. C. W. Melhuish moved that an amended tender be accepted. He said emphatically that the prices and quantities had been correct and no omissions had been made, Mr. Dunn's mistake would not have been made, and he thought the Guardians were primarily responsible for that mistake. Mr. R. Sutherland seconded the last speaker's motion. Upon a division, Mr. Mildon's amendment was carried, 30 votes to 12. (See *Western Mail*).

**BUILDING RESTRICTIONS AND HOUSING.**—The Glasgow Housing Commission is nearing the end of its public labours. It was officially intimated at the close of the sitting on the 1st inst. that the list of witnesses will be exhausted towards the end of this month, and that any person desiring to tender evidence should at once communicate with the Secretary, Mr. William Brodie, 77, St. Vincent-street. The only witness examined on the 1st inst. was Mr. T. L. Watson, F.R.I.B.A., who gave evidence on behalf of the Glasgow Institute of Architects. Confining himself mainly to the architectural aspect of the subject, he complained at the outset that the Glasgow Building Regulations Acts of 1892 and 1900, while beneficial in effect, contained certain provisions which had increased the cost of building without improving the amenity of the poorer districts, and some which, by restricting the freedom of the designer, tended rather to prevent improvement. He suggested, therefore, to the Town Council the revision of the Acts with a view to cheapening and improving the character of the housing. He pointed out that, by an extraordinary omission, no distinction was made between the thickness of the walls of dwelling-houses and of those of other buildings, such as stores and warehouses, and that the former were in thickness greatly in excess of their requirements, this resulting in a most unnecessary throwing away of bricks and mortar. A comparison of the London and Glasgow Acts brought out the statement that, as the former were sufficient for all purposes of safety, it was evident that the Glasgow Acts involved an absolute waste of money and to that extent interfered with the erection of cheap dwellings. Mr. Watson also argued for a relaxation of the minimum width of 50 ft. for new streets.

The present standard fixed by the Act so far as tenement property was concerned was too high. Asked if he would have narrower streets in order to utilise the ground, Mr. Watson said he would have them closer together, and also narrower where the buildings were very low, as recessed from the building line. With narrower streets it would be possible to build cottages and small self-contained houses in outlying districts. In the more central localities it would be possible not only to abolish the back land, but to dispense with back yards and lanes, and to provide open playgrounds in front of the houses, and this the witness illustrated by plans and diagrams. He considered that the Building Regulation Acts interfered unduly with the legitimate and useful process, under proper restrictions, of "making down" existing houses. There were many buildings of that class which could be made perfectly sanitary, and let at rents lower than those charged for new houses. Mr. Watson concurred with and adopted two suggestions made by the Institute of Architects to the effect that the municipality should either refrain from building or restrict themselves to building for the poorest class of tenants, such as could afford to pay rents not exceeding 2s. 6d. per week, and that they should remove any existing and unnecessary restriction upon private effort.—*Glasgow Record*.

**THE BRITISH EMBASSY BUILDING.**—In our "Letter from Paris" last week the date of the purchase of the house by the English Government should have been given as 1815, not 1850.

**METROPOLITAN WATER BOARD.**—The third meeting of the Metropolitan Water Board was held on the 30th ult. at the offices of the Metropolitan Asylums Board, Sir J. T. Ritchie presiding. The principal business on the agenda was the election of Mr. M. Beachcroft to be Vice-Chairman. Mr. M. Beachcroft was elected to the office for one year, the latter not being proceeded with. The Chairman reported that Mr. Henry Clarke had been chosen Chairman of the General Purposes Committee; Mr. H. Percy Harris Chairman of the Law and Parliamentary Committee; and Mr. D. J. Morgan, M.P., Chairman of the Finance Committee. The Board adjourned until May 8 at half-past two.

**WORKMEN'S DWELLINGS IN NEWCASTLE.**—The Special Committee of the Newcastle Corporation for dealing with the projected erection of workmen's dwellings to replace those that have been extinguished: By recent improvements, passed a resolution on the 4th inst. to erect a street of houses in Walker-road. The dwellings to be erected there will accommodate 238 tenants. The estimated cost, it is stated, will be about 981. a room.

**PRIZE FOR A DUST-ARRESTING RESPIRATOR.**—The Council of the Society of Arts are prepared to award, under the terms of the Benjamin Shaw Trust, a prize of a gold medal, or 200l., for the best dust-arresting respirator for use in dusty processes and in dangerous trades. As far back as 1822 the Society awarded its Gold Medal to Mr. J. H. Abraham, of Sheffield, for a magnetic guard to protect persons employed in dry grinding. The apparatus, described in the Society's "Transactions" (Vol. 40, 1822, page 135), includes a respirator to cover the mouth and nose. This respirator was fixed with magnets, for the purpose of arresting the fine particles of steel thrown off in the process of pointing needles, and in other processes of dry grinding. Although the invention was greatly appreciated at the time, it appears never to have come into practical use, the main objection to it having been, it is believed, raised by the workpeople themselves, who feared that the iron and steel attached to the employment would lower their wages. Similar considerations have, it is believed, stood in the way of the introduction of various appliances intended to limit the risks associated with all trades in which the workpeople breathe a dusty atmosphere. The Council, however, think that such considerations are likely to have less weight at the present time, and they hope that the offer of a prize may draw the attention of inventors to the matter, so that it may result in the production of some suitable piece of apparatus, despite the difficulties with which the solution of the problem is surrounded. Further particulars can be ascertained from the Secretary, Society of Arts, John-street, Adelphi, W.C.

**METROPOLITAN ASYLUMS BOARD.**—At the last meeting of the Board, the Hospital Committee, reporting from the point of view of risk from fire, on the subject of the use of temporary buildings for hospital purposes, said it had already been decided by the Board to demolish two out of eight wooden huts at the Northern Hospital, and the question of replacing those eight huts by permanent buildings was before the Board. The demolition of the temporary hut at the South-Western Hospital and of one of the temporary huts at the South-Eastern Hospital was proceeding, and the question of reconstructing a part of this hospital in permanent materials was under consideration. At the North-Eastern Hospital the Board had approved steps being taken for pulling down the wood structures there, and completing the reconstruction of the hospital in permanent materials, and the whole matter of the preparation of a scheme for their consideration was before the Works Committee at the present time. There remained to be considered the Fountain Hospital, which was constructed



entirely of corrugated iron and wood; and the wooden buildings at the North-Western Hospital. As to the recent fatal fire at Colney Hatch Asylum, it seemed to the Committee that, as between a lonic asylum and an infectious hospital, the circumstances of fire risk in wooden buildings were more favourable to the hospital. At the same time, the risk existed, and must, they thought, be taken into account. They did not advise, however, at present at all events, any further demolition of existing temporary structures, but were of opinion that the accommodation which the temporary structures afforded at the Fountain and North-Western Hospitals should be looked upon in the light of a second line of defence, and be used only for purposes of emergency, and when the number of cases rose considerably. Following this principle they proposed to empty the Fountain Hospital and the temporary buildings at the North-Western Hospital of patients as circumstances of infectious disease made it practicable, and to utilise permanent accommodation to the fullest possible extent. The empty buildings would be kept aired, clean, and ready for use at short notice, so as to provide for quick expansion of accommodation in time of increased needs.

**SHAKESPEARE'S BIRTHPLACE.**—The annual meeting of the trustees and guardians of Shakespeare's birthplace was held on the 5th inst. at Stratford-on-Avon. The Mayor (Councillor Bird) presided. The Chairman of the Executive Committee (Mr. Edgar Flower) dealt with the agitation raised against the trustees, who, it was alleged, intended to demolish the ancient cottages adjoining Shakespeare's birthplace in order to make room for a Carnegie free library. Nothing was further from the fact. It was never intended by the trustees to erect the library on the site of the cottages. They had been given for the sole purpose of extending the garden and so isolating the precious buildings. The cottages were modern, and of no historic or sentimental value. The same spirit of conjecture and misstatement was abroad regarding the proposed building. It had been persistently stated that a palatial modern structure was to be erected. On the contrary, what was intended was the careful restoration, when possible of an ancient, but dilapidated, and wretchedly modernised house, and the filling up of a vacant piece of ground adjoining the School of Art with a building suitable for its purpose and situation.

**ST. BARTHOLOMEW'S HOSPITAL.**—The Lord Mayor's Committee of Inquiry into the affairs of St. Bartholomew's Hospital met on the 5th inst. at the Mansion House, the Lord Mayor presiding. The meeting was held for the purpose of receiving the report of the Sub-committee on Administration and Finance, of which Sir Thomas Jackson was the chairman. After a lengthy consideration of the report, the following resolution was unanimously agreed to: "That this committee, having carefully considered the report of the sub-committee on the financial and administrative management of the hospital, which is summarised in the 'conclusions' given below, are of opinion that the governors have completely vindicated the reputation, character, and administration of the hospital, and are fully justified in appealing to the public for funds to enable them to utilise the land acquired from Christ's Hospital, and to provide the new buildings urgently necessary to bring the hospital up to modern requirements in all respects."

**TENDERS FOR PIPES, BARROW.**—At a meeting of the Barrow Town Council on the 4th inst. a discussion took place with regard to placing contracts for the water-pipe track, 16 miles long, from Duddon to Barrow. The Committee recommended the acceptance of Messrs. Hannay & Clarke's tender for pipes amounting to £2,305, and of Messrs. John Aird & Sons' tender for the laying of the track, amounting to £2,417. It was admitted that these were not the lowest tenders, but they were about 20,000l. less than the Engineer's estimates. After the Council had discussed the matter in private the recommendation was agreed to.

**SCHOOL OF ART NEEDLEWORK.**—Messrs. Martin van Straaten & Co. write to say that their name, and not "Messrs. Martin," should have been given as the contractors for the marble staircase and floor.

**GRIEFF WATER EXTENSION SCHEME.**—The new reservoirs and filters in connexion with the Grieff water extension scheme from Loch Turret, erected on the Knock Hill, and situated on the north-west side of the town, were opened on the 30th ult. The engineer of the works was Mr. Gilmour, C.E., Glasgow, and Messrs. Kerr & Halley were the contractors. The new reservoir is circular in shape, being 100 ft. in diameter and 20 ft. in depth to top water level. The filters, two in number, are each 60 ft. by 30 ft., by 5 ft. 6 in. The cost of the present water extension scheme, including erection of reservoir, filters, and laying of new piping from Loch Turret, &c., is about 12,000l.

#### CAPITAL AND LABOUR.

**PRESTON PAINTERS' STRIKE.**—A meeting between the Committee of the Master Painters of Preston and a deputation representing the employees at present on strike, was held recently in the Castle

Hotel, Preston. The meeting was called in response to the offer of the men to submit the question of wages, 8d. or 8½d. an hour, to arbitration, and during the conference the employers made a counter offer that the arbitration should be on 8s. or 8½d. an hour; whether the men should start at 7 o'clock a.m. or at 7.30; whether the masters should be empowered to employ men on jobs over the three miles limit, the men to pay their own lodgings and railway fare. The latter part of the offer, it is stated, would necessitate an alteration of the men's rules, and would also mean a reduction in wages of from 5s. to 7s. a week.

**PAINTERS' STRIKE, CARDIFF.**—The Cardiff Operative Painters came out on strike on the 1st inst. They claim an advance of wages from 8s. to 9d. per hour. The Masters' Association refuse the advance, although several masters have conceded it.

#### LEGAL.

##### ST. CLEMENT DANES BUILDING DISPUTE.

MR. JUSTICE BYRNE, in the Chancery Division on the 30th ult., delivered a considered judgment in the case of the "Financial Times" Ltd., v. George Bell & Sons, an action by the plaintiff company, the lessees of buildings used as printing works and offices, known as "Newspaper Buildings," in the parish of St. Clement Danes, for an injunction to restrain defendants from erecting any building so as to darken, hinder, or obstruct the free access of light to certain windows in the plaintiff's premises which overlooked the defendants' land. The short facts were these:—The defendants, in February, 1902, acquired a plot of land on the north-eastern side of Gilbert-street, opposite plaintiffs' premises, and proceeded to erect thereon a block of buildings over 30 ft. high, which it was admitted would, when completed, materially interfere with the light of the plaintiffs' premises. The plaintiffs' title to their premises was as follows:—The late Mr. Douglas Gordon MacRae, the founder of the "Financial Times," and the largest shareholder in the company, on May 30, 1896, entered into an agreement with the trustees of a voluntary settlement executed by him to build certain printing works, shops, and offices on the site of the plaintiff company's present printing works, the agreement being that upon the completion of the buildings the lessors (the trustees) should grant him a lease of the premises for a long term of years at a rent of 260l. per annum. After he had commenced building, MacRae was threatened with litigation by the trustees of King's College Hospital, who were the owners of some vacant land on the north-eastern side of Gilbert-street, and to prevent this MacRae purchased the fee simple of the land for 10,000l., and the hospital trustees conveyed it to him in January, 1897. On April 6 of that year MacRae, who was managing director of the plaintiff company, agreed to sell to his company his equitable right to a lease of the printing works, &c., under the building agreement, at a price which recouped him the expenses he had incurred in the acquisition of and in the construction of the premises, together with interest at the rate of 5 per cent per annum on the outlay. In July, 1897, the company completed the purchase, and went into possession of the premises. In February, 1898, the trustees of the settlement, at the request of MacRae, granted the lease of the premises in the manner provided for in the building agreement of May 30, 1896. In November, 1902, the plaintiff company commenced the present action, their contention being that as MacRae was the freeholder of the vacant land on the north-eastern side of Gilbert-street at the time of the alleged agreement of April 6, 1897, he and the persons claiming under him were under an implied obligation not to build on the vacant piece of land so as to interfere with the access of light to the windows in the plaintiff's premises overlooking the vacant land as the same was enjoyed at the dates of the alleged agreement and lease. The executors of MacRae in February, 1902, sold the westernmost portion of the plot of vacant land in Gilbert-street to defendants who are the well-known publishers, and it was on this plot of land that the buildings complained of were being erected. The case was heard by his lordship on April 2 and 3 last, when his lordship reserved judgment.

Mr. Justice Byrne, in delivering judgment, said it was not necessary for him to determine to what extent the doctrine of implied grant, or non-delegation from grant, applied to equitable interests, because in the present case, on the facts, he did not think the plaintiffs had established the right they claimed. He came to the conclusion on the evidence that MacRae was not the agent for the plaintiff company in entering into the building agreement, or in building, and that he did not become their agent in April, 1897. There was evidence to show that MacRae meant to utilise the land he purchased from the hospital trustees for 10,000l. for building purposes. He came to the conclusion that there was no express grant of any right to the access of light by MacRae to the plaintiffs, and no contract or bargain by MacRae with the plaintiffs to keep his land free from buildings and not to sell. He thought the plaintiffs had made out their case, entitling them to relief, and dismissed the action with costs.

His lordship granted defendants an inquiry as to the damages suffered by them by the stay of their

building operations pending the hearing of the action.

Mr. Levett, K.C., and Mr. Beebe appeared for the plaintiff company and Mr. Rowde, K.C., and Mr. St. John Clarke for the defendants.

##### POINT UNDER SECTION 22 OF THE PUBLIC HEALTH ACT, 1875.

MR. JUSTICE SWINFEN EADY, in the Chancery Division, on the 1st inst., concluded the hearing of the case of Faber v. the G. & S. Urban District Council, an action by the plaintiffs for a declaration that they were entitled, under Section 22 of the Public Health Act, 1875, to connect their proposed sewers with the sewer of the Council.

It appeared that the plaintiffs, as trustees under the will of one Montague, prepared a scheme for the development of an estate belonging to the testator at Kenton, in Northumberland, as a building estate. The plaintiffs divided the estate into lots, which they proposed to sell for the erection of a number of houses upon the estate, and to construct sewers for the purpose of taking the sewage from the houses so erected. The sewer, which was vested in the defendants as the Local Authority under the Public Health Act, 1875, was laid and constructed to a point in Kenton-lane, close to the south-west of the estate in question. Section 22 of the Act enacts that the owner or occupier of any premises without the district of the Local Authority may cause any sewer or drain from such premises to be connected with any sewer of the Local Authority on such terms and conditions as may be agreed on between such owner or occupier and such Local Authority, and that any dispute between the parties may be settled at the option of the owner or occupier by a Court of Summary Jurisdiction or by arbitration in the manner provided by the Act. The case came before the learned judge as a motion for judgment on admissions in the pleadings.

At the conclusion of the arguments of counsel, his lordship, in giving judgment, said that the plaintiffs' plans of the proposed buildings showed sewers of different dimensions, ranging from 9 in. to 18 in. in diameter, and plaintiffs' case was that they were entitled under Section 22 of the Act, as the owners of premises which were within the Castle Ward district, to connect their 18-in. sewer with the defendants' sewer—that was to the sewer of an adjoining Urban District. On February 14, 1903, the defendants' solicitors wrote to the plaintiffs that the connexion of such a series of sewers as was shown on the plan with the Gosforth sewer was altogether outside the scope of Section 22 of the Act, and could not be forced upon the defendant Council without their consent, and that if the plaintiffs insisted upon going to arbitration, the Council would appoint an arbitrator under protest, and reserve their right to raise this contention at every point in the proceedings. Plaintiffs afterwards started the present action. No houses had yet been built, nor had any drains been constructed. The plans showed a large system of sewers, and if the works were carried out according to the plan, the result must be that a large volume of sewage would be sent down the Gosforth sewer. In these circumstances he was not prepared to make the declaration asked for, which might have the effect of hampering any arbitrator or Court of Summary Jurisdiction. The only course open to the plaintiffs was that the Council did not think it to make any such declaration as the plaintiffs asked for. There would be liberty to apply as to payment of costs on the conclusion of any proceedings which might be taken under the provisions of Section 22 of the Act.

Mr. McMorran, K.C., and Mr. Waddy appeared for the plaintiffs; and Mr. Scott Fox, K.C., and Mr. Gatey for the defendants.

##### CASES UNDER THE LONDON BUILDING ACT.

AN appeal under the London Building Act against a notice of objection by the District Surveyor of Clerkenwell was heard on the 17th ult. by Mr. D'Eyncourt at the instance of the architect, Mr. G. Hamilton Briggs, who had sent the District Surveyor a notice "to erect a domestic building by the use of a large system of offices and counting-houses within the meaning of Section 39, the building comprising shop and basement used for business purposes, with two stories of living accommodation over, according to the plans submitted to you." The new building was intended to be erected on a part of the present site of No. 77, Chapel-street, at the junction with Suffolk-street. The District Surveyor served a notice to provide an open space in front of the building, and the architect objected to this, and contended that as the cubical contents of the business portion was in excess of the remainder, and was greater in superficial area, no air space in the rear was necessary. Mr. Reed, instructed by Mr. Yates, appeared for Mr. G. H. Briggs, and Mr. Andrews, of the London County Council, represented the District Surveyor. The Magistrate affirmed the District Surveyor's objection, and awarded two guineas costs.

A case under the London Building Act of 1894 came before Mr. Alderman Alliston at the Guildhall on the 30th ult. The prosecution was at the



instance of "the Mayor and Commonalty and Citizens of the City of London," for whom Mr. T. G. Vickery appeared, and Messrs. W. Norman Higgs, Stanley Higgs, and Chas. S. Barber Higgs were the defendants, and were represented by Mr. Joseph, barrister.

The matter arose out of the great Barbican fire in April of last year, and Mr. Vickery explained that the summonses were taken out under the 103rd and 116th Sections of the Act, and were for the recovery of 570l. 10s. 3d., the amount of expenses incurred by the Corporation in respect to certain dangerous structures in Barbican and New Zealand-avenue, which were rendered dangerous by the Barbican fire of 1902. All were burned down and in ruins, and immediate steps had to be taken by the District Surveyor to render them safe.

The Chief Clerk pointed out that there ought to have been a separate summons in respect of each separate building.

Mr. Joseph intimated that that was one of his points. Mr. Vickery: But it was rendered necessary by one event. I am informed that the defendants are acting for trustees.

It was subsequently decided to deal only with the case of 63, Barbican, upon which 75l. odd had been expended.

Mr. Vickery said, to put it very shortly, the points involved in the case which the Court was asked to decide were two, and they were of some importance on account of the whole matter in question. He would remind the Court that the sum was not an amount that he was asking for to pay the Corporation, but which was to be refunded for expenses incurred under a statutory obligation. The first question was, were they the owners? and the second, were the expenses properly incurred? and that involved the question of the character and nature of the works. He referred the Bench to the question of ownership as described by the Act, a definition which had been judicially expressed in several cases. The defendants held the premises under a lease from St. Bartholomew's Hospital, and they sublet portions of their premises under leases to persons in occupation. Section 109—the particular Section under which the summons was taken out—provided that all expenses incurred by the Council or Corporation in relation to the obtaining of any order should be paid by the owner of the structure.

Mr. Savill (Chief Clerk): Was any order obtained?

Mr. Vickery said he would speak as to that later on. Section 103 provision was made for the apportioning of expenses among the different owners, and he submitted that the defendants were owners. The next point was as to whether the expenses were properly incurred. In the case where a structure was unsafe, the Corporation Surveyor—in this case Mr. Martin Saunders—would be expected to survey and report, and he did this the day after the fire. Thereupon the Corporation, under Section 104, required him to survey the premises, and give his certificate. The premises were shored up, and "otherwise secured" for the protection of passengers, and notice served on the occupiers to attend to the safety of the public, and the police-court could make an order to enforce this. In this case, however, no order had been made or applied for. The Surveyor had in this case certified, and he was ordered to shore up, &c., and notice was served on the premises.

The Clerk: And if they did not comply with the notice you ought to come for an order.

Mr. Vickery said the shoring would have been impossible if some part of the building had not been taken down. The question arose whether he was entitled to do more than he did without an order of the Court. No more "taking down" was done than was absolutely necessary for the physical shoring up and protection of the workmen engaged, to say nothing of the people passing. The streets were blocked, and the District Railway Co. complained. The question raised by the defence was whether the Corporation had done more than they had power to do.

The Alderman: "And carrying the order into effect."

Mr. Vickery: I read it as carrying the Section into effect. If it had toppled over on anybody, who would have been responsible? Why, the District Surveyor, and he took precautions in this case.

The Alderman was doubtful whether Section 109 applied, inasmuch as no order had been obtained, nor had any attempt been made to obtain one.

Mr. Joseph observed that there was plenty of time to obtain one.

The Alderman: I may say at once that it is not reversible under Section 109. You must proceed under 116.

Mr. Vickery said it was not intended by the Act that the expenses should be paid by the ratepayers, and unless they could be recovered by the Corporation that body would be out of pocket unless the owners paid and rendered an order unnecessary.

Under Section 116 a test case was taken in respect of New Zealand-avenue, 77l. 7s. 10d. being claimed.

The Surveyor gave evidence as to giving orders for the work to be done by Messrs. Mowlem, and in answer to the Clerk said no application was made for an order under the Dangerous Structures Act. He had heard that the Governors of St. Bartholomew's Hospital had consented to be responsible for any such demand in case of fire, but he did not know that a claim had been made on the Surveyor of St. Bartholomew's.

Mr. Joseph contended that it was necessary that an order should have been obtained in order to bring the owner within the meaning of Sections 102 to 116. The prosecution had taken an entirely erroneous view of their rights under the Act of Parliament. The Surveyors had acted without consulting any legal authority, who would have told them that it was their duty, who they were not entitled to do the work without getting an order from a petty seasonal court.

The fire took place on April 21, and these became dangerous structures, and the Surveyors' duties were set at once to notify the owners. There was clearly no power to take down without an order of the Court, as was shown by Section 106. There was another matter: before the notice was served orders had been given to Messrs. Mowlem to do the very work the defendants were required to do under the notice. The work would certainly have been done by St. Bartholomew's, and not foisted upon the defendants, in accordance with the covenant.

Mr. Alderman Alliston said he need hardly say this was a matter of great importance. The facts and evidence showed that at least six or seven days elapsed before anything was done. He thought the complainants should have obtained the order at a summary court of jurisdiction at first, and to his mind there was plenty of time for this, and under the circumstances, if such an application had been made, it would have been granted. No order had been applied for or obtained. He did not think the costs would be recoverable under Section 109, neither did he think they would be recoverable under Section 116. The summonses would therefore be dismissed.—*Morning Advertiser.*

#### POLLUTING A RIVER.

MR. HENRY CRANE, contractor, of Crane's Wharf, Dace-road, B.W., was summoned at Worship-street by the Steyne Borough Council for infringing a by-law made by the Council under the Public Health Act by allowing refuse to remain on his wharf more than twenty-four hours. Mr. Young, solicitor for the Steyne Council, said the by-law became operative where the collection of refuse was within ten yards of a street or highway, and twenty yards of any dwelling. Mr. Crane was a contractor for street-cleaning, and was found to have on the wharf many tons of street and stable refuse, slop, and garbage. That was undoubtedly the accumulation of weeks; its smell was most offensive, and the slop and manure was draining into the Lea. Besides the pollution of the water, the collection was within five yards of dwelling-houses, and abutted on a street. Dr. Alexander, Medical Officer of Health, said the matter remained on the wharf till April 20. It made him sick from the odour.

Mr. Tilley, for the defence, said defendant did not know the mass had accumulated, and would prevent its recurrence.

Mr. Dickinson imposed a fine of 5l. and 25s. costs.—*Daily News.*

#### PATENTS OF THE WEEK:

##### APPLICATIONS PUBLISHED.\*

10,760 of 1902—G. H. BERNARDSON and F. W. BAKER: *Manufacture of Ornamental Glazing Sheets or Lights.*

An imitation leaded glazing sheet or light formed by fusing on to one or both sides of a plain or coloured glass sheet, outlining and ornamenting bars and edges which are composed of suitably coloured fusible substance, the said bars and edges becoming thereby part of, or in one solid piece with, the glass sheet.

23,357 of 1902—J. BARR and R. ANDERSON: *Electrically driven Surface Planing and Jointing Machines for Wood and the Like.*

This consists in the combination of parts constituting an electrically-driven surface planing and jointing machine for wood and the like, comprising the application of an endless rope drive having the electric motor underneath and a revolving cutter block overhead.

10,941 of 1902—H. C. GOVER: *Venetian or Such Like Blinds.*

A venetian or like window blind composed of laths secured to chain links fitted within tubes or grooves on each side of the window and adapted upon raising the blind to assemble the laths successively at the upper instead of the lower end thereof.

12,327 of 1902—E. A. SHOWELL: *Casement Slays or Fasteners.*

This invention relates to casement slays or fasteners. To the movable casement is secured a bracket to which is joined the one end of a rod. At a short distance from the said joint this rod is joined in itself, with its axis preferably at right angles to its joining with the bracket. A second bracket is provided for attachment to the casement frame or fixture, having a base-plate formation with screw

\* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

holes, and an angular arm proceeding therefrom upon which is pivotally mounted a socket through which the rod travels. This socket is provided with a binding set-pin, so that the rod may be fixed at any point therein. Thus, as the casement is opened, the rod travels through the socket of the angular bracket to the desired extent, when by means of the said pin it may be secured in that position. When the rod is drawn home (inwardly), the joint in the rod permits the longer end of the rod to fall down out of the way.

14,87 of 1903—A. E. HUBERT and W. EDWARDS: *Improved Hermetically Sealed Tester for Locating Leaks in Drain and Other Conduits.*

This consists of a rubber sheath and paper envelope for containing chemicals, which envelope is broken by two compressed springs on the paper, under the action of moisture when drawn through the drain-pipe, becoming too weak to withstand them. The chemicals employed are then scattered in the pipe, and the scent or odour will circulate through, "and, should any defects exist therein, the leakage can be readily detected by the smell of the chemical used."

8,002 of 1902—W. J. MATTHEWS: *Machine for Making*

This consists of a method wherein more bricks than one may be compressed at the same time, using the air to form a division line between the bricks. It further consists in utilising the friction on the sides of the mould to form the resistance to compress the loose clay, shale, and the like.

27,509 of 1902—J. KRAUS: *Apparatus for Reducing or Grinding Materials in a Wet State.*

An apparatus for reducing and grinding materials in a wet state and with continuous or intermittent inflow and efflux of the material, distinguished by this: that the efflux of the reduced material is done by a pipe inserted centrally at one end into the reducing drum, and which pipe does not turn round with the drum.

3,201 of 1903—J. PURVIS and T. ROUSE: *Manufacture of Artificial Stone.*

A process for preparing lime concrete suited for the manufacture of artificial stone by mixing the unslacked lime with sand, gravel, or fragments of stone or other suitable hard material, and during the mixing moistening the mixture with steam.

10,730 of 1902—L. REDMAYNE: *Adapting Coal*

Ovens for Gas Cooking. This consists in an attachment to coal ovens to adapt them for gas cooking, the said attachment forming a strip or strips and top to the oven door.

10,853 of 1902—M. WILLIAMS: *Process of Roasting or Calcining Raw Materials from which Portland Cement and Cements of Similar Character are Manufactured, Ores and Minerals, and the Kilns or Furnaces used in the Process.*

This consists of a method of introducing air, gas, or steam through and over the whole or any part of the floor or roof of kilns or furnaces for calcining or roasting ores and minerals, and the material from which Portland cement is made, by a series of inlets.

#### MEETINGS.

##### FRIDAY, MAY 8.

*Surveyors' Institution.*—(Dublin meeting, continued).—Parties will leave Dublin on the following excursions:—(1) Single day. To Powerscourt House, by permission of Viscount Powerscourt, K.P. (2) Single day. To Albert Agricultural College, Glasnevin, by permission of the Department of Agriculture. (3) Occupying about three days. To Belfast and Giant's Causeway. (4) Occupying about three days. To Cork, Glengarriff, and Killybegs.

##### SATURDAY, MAY 9.

*St. Paul's Ecclesiastical Society.*—Visit to the Church of St. Bartholomew the Great, under the guidance of Mr. E. A. Webb, F.S.A. Meeting in the church at 2.30 p.m.

*Northern Architectural Association.*—Excursion Meeting. The Laing Art Gallery and Byker Police and Fire Brigade Station will be visited.

##### MONDAY, MAY 11.

*Royal Institute of British Architects.*—Second smoking "At Home." *Society of Arts (Lecture Lectures).*—Mr. W. W. Beaumont on "Mechanical Road Carriages." III. 8 p.m.

*Bristol Society of Architects.*—Mr. A. P. I. Cotterell on "Sewage Treatment for Isolated Blocks of Buildings and Country Houses, &c."

##### TUESDAY, MAY 12.

*Royal Institution.*—Professor G. H. Darwin on "The Astronomical Influence of the Tides." I. 5 p.m.

##### WEDNESDAY, MAY 13.

*Institute of Sanitary Engineers, Ltd.*—General Committee at 4.15 p.m.; Executive Committee at 5.15 p.m.; Council meeting at 7 p.m.

##### THURSDAY, MAY 14.

*Institution of Electrical Engineers.*—Adjourned discussion on (1) Mr. A. D. Williamson's paper on "Applications of Electricity in Engineering and Shipbuilding Works." (2) Mr. A. B. Chatwood's paper on "Electric Driving in Machine Shops." 8 p.m.

##### FRIDAY, MAY 15.

*Architectural Association.*—Members' supper, at the Hotel Great Central, Marylebone-road, 7.30 p.m.

##### SATURDAY, MAY 16.

*Edinburgh Architectural Association.*—Visit to



## SOME RECENT SALES OF PROPERTY:

## ESTATE EXCHANGE REPORT.

April 18—By G. B. HILLARD & SON (at Burnham-on-Crouch).	
Burnham-on-Crouch.—Main rd., five building plots, f.	4,700
April 21.—By R. H. LUSCOMBE & SONS (at Kilsbridge).	
South Milton, Devon.—Hollwell Farm, 82½ acres, f.	2,800
Cheddington, Bucks.—Main rd., freehold house with three orchards, area 2 acres, y.r. 40s.	700
April 22.—By J. E. JAMES (at Aberystwyth).	
Reigate, Surrey.—27 to 33 (odd), South-rd., 65 yrs., g.r. 8s., w.r. 6d. 8s.	550
Redhill, Surrey.—37, 39, and 41, Warwick-rd., u.t. 43 yrs., g.r. 2s., w.r. 4d. 10s.	1,050
April 22.—By J. E. JAMES (at Aberystwyth).	
Llanarth, Cardigan.—Nanigwynnydd-issaf estate, 27½ a., f., y.r. 10s. 17s.	2,800
April 23.—By W. H. SHINER & WINTER (at Bristol).	
Butcombe, &c., Somerset.—Sage's Farm, 61 a. 2 r. 5 p. f., y.r. 12s.	2,800
Rusling Farm, 67 a. 2 r. 1 p. f., f.	1,600
April 24.—By VERNON & SON (at High Wycombe).	
West Wycombe, &c., Bucks.—Huckenden Farm, 105 a. 2 r. 9 p. f., y.r. 12s.	1,700
Stokenchurch, Bucks.—Cooper's Court Farm, 121 a. 3 r. 33 p. f., e.r. 12s. 6d.	1,050
Princes Risborough, Bucks.—Speen Farm, 145 a. 2 r. 13 p. f., f., y.r. 9d.	1,700
By REYNOLDS & EASON.	
Paddington.—11, 14, and 17, London-st. (S.), u.t. 45 yrs., g.r. 6d., y.r. 30d.	1,600
Barnes.—Lilland-rd., f.g.r.s. 15s., reversion in 64 and 70 yrs.	1,000
Merthyr-tyr. f.g.r.s. 20s., reversion in 80 yrs.	500
Teddington.—Wolsey-villas, f.g.r.s. 20s., reversion in 67 yrs.	500
Little Ilford.—92, Chesterford-rd., u.t. 96 yrs., g.r. 5s. 5d. p.	1,200
By RUSSELL & SONS.	
Westbourne Park.—54, 56, 58, and 60, Tavistock-cres., u.t. 72½ yrs., g.r. 38s., y.r. 30d. 6s.	1,700
By C. H. & I. W. WILLIOTT.	
Hammer-smith.—64, The Grove, u.t. 80 yrs., g.r. 10s., y.r. 40d.	500
Shepherd's Bush.—5, Ethelnden-rd., u.t. 78 yrs., g.r. 6s. 10s., y.r. 47d.	440
By WILKINSON & THURGOOD.	
Lee.—Old-rd., Manor Lodge, f., e.r. 100d.	1,100
April 27.—By ELLIOTT, SON, & BOYTON.	
Oxford-st.—No. 213 (Circus Restaurant), f., y.r. 40d.	18,000
Nos. 215, 217, and 219 (S.), f., y.r. 30d.	35,000
Nos. 221 and 223 (S.), f., y.r. 50d.	26,000
By DRIVERS.	
Holloway.—120, Alexander-rd., u.t. 60 yrs., g.r. 6d. 6s., y.r. 37d.	300
99, St. James's-rd. (S.), u.t. 40½ yrs., g.r. 6d., y.r. 55d. 18s.	300
Finchley Park.—67, Lennock-rd., u.t. 6½ yrs., g.r. 6s., y.r. 59d. 10s.	230
24, Athelstan-rd., u.t. 6½ yrs., g.r. 5s., w.r. 47d. 9s.	230
Stroud Green.—38 and 30, Mount Pleasant-rd., u.t. 6½ yrs., g.r. 8s., y.r. 6d.	600
Holloway.—24, Tollington-pl., u.t. 75 yrs., g.r. 9d. 9s., e.r. 46s.	300
By DUNCAN & KIMPTON.	
Highgate.—1, Holly Lodge-villas, u.t. 46 yrs., g.r. 3s., e.r. 90d.	500
By FULLER, MOON, & FULLER.	
Epson-rd.—Epsom-rd., Hollycroft, and 1 a. 1 r. 32 p. f., y.r. 7d.	1,500
Epson-rd.—Hessle House and 6 a. 1 r. 21 p. f., y.r. 22d.	5,000
Epson-rd.—a block of freehold building land, area 35 a. or 32 p., with six cottages thereon, y.r. 145d. 16s. 4d.	7,100
West-st., freehold allotment gardens, area 0 a. 3 r. 18 p., w.r. 3d. 4s.	300
West-st., Gibraltar Cottages (3), area 0 a. 1 r. 32 p. f., w.r. 3d. 4s.	510
West-st., freehold building land, 19 a. or 3 r. 3 p. f., g.r. 6s. 10s. 4d.	5,000
Chessington-rd., freehold building land, 3 a. 1 r. 25 p. f., w.r. 3d. 4s.	1,070
1, 2, and 3, Old School Cottages, f., w.r. 30d. 12s.	440
Ruxley-rd., Ruxley Farm, 225 a. or 26 p. f., y.r. 102d.	10,800
Reigate-rd., North Looe Farm, 184 a. 3 r. 23 p. f., y.r. 25d.	10,100
By MICHAEL DENVER & CO.	
Bidborough, Kent.—Ridgeholm, f. p.	900
Highgate.—15, High-st. (S.), u.t. 79 yrs., g.r. 14d., y.r. 63d.	725
Enfield.—2 and 8, Churchbury-rd. (S.), u.t. 74½ yrs., g.r. 14d. 14s., y.r. 70d.	700
By SCORRELL & LAKE.	
Paddington.—108 and 110, Church-st. (S.), u.t. 18 yrs., g.r. 10s. 9d.	410
St. John's Wood.—77 and 79, Henry-st. (S.), u.t. 14½ yrs., g.r. 5s. 11s. 9d.	420
By A. H. TURNER & CO.	
St. James's.—5, St. James's-st., area 2,000 ft. f., p. April 28.—By BROAD, WILTSHIRE, & PENNY.	16,750
Horseney.—1, Burghley-rd., u.t. 76 yrs., g.r. 6d. 6s., y.r. 40d.	380
By DAVID BURRY & CO.	
City of London.—52, St. Mary Axe (S.), f., y.r. 20d.	5,110
7, Snow Hill and 1, Cock-lane (warehouses, &c.), u.t. 53 yrs., e.r. 20d., y.r. 63d.	3,700
1, Creech-burgh (warehouse), area 500 ft. u.t. 70½ yrs., g.r. 70d., y.r. 250d.	2,200
3, Creech-burgh (warehouse), u.t. 74½ yrs., g.r. 75d. 9s. 6d., e.r. 250d.	1,850

Chelsea.—15 and 17, Margaretta-ter., u.t. 32½ yrs., g.r. 14s. 13s. 9d., y.r. 60d.	6,745
By CHAMBERS, GIBT, & FORD.	
Dalston.—41, Browlow-rd., u.t. 4½ yrs., g.r. 5s., y.r. 32d.	350
By PERRY & CO.	
Fulham.—24, Moore Park-rd., u.t. 4½ yrs., g.r. 5s., w.r. 21d. 4s.	225
By C. W. DAVIES & SON.	
Islington.—2, Miller-st., u.t. 24½ yrs., g.r. 9d., e.r. 55d.	355
10, Rochefort-st., u.t. 35½ yrs., g.r. 6d., y.r. 32d.	280
201 and 203, Windsor-st., u.t. 2½ yrs., g.r. 6d. 12s. 4d., w.r. 170d. 8s.	205
Holloway.—1, Hungerford-rd., u.t. 51 yrs., g.r. 9d., e.r. 65d.	530
Commercial-rd. East.—53, 55, and 57, Greenfield-st., f., w.r. 170d. 8s.	1,005
Finchley.—9 and 10, Park-ter., f., y.r. 40d. 6s.	620
By DEBENHAM, TEWSON, & CO.	
Cricklewood.—3, Ashford-rd., u.t. 8½ yrs., g.r. 5s., y.r. 74d. 20s.	330
9 to 12, Ashford-rd., u.t. 9½ yrs., g.r. 10d. 10s.	1,345
14, Pine rd., u.t. 91 yrs., g.r. 4d. 19s., y.r. 36d.	405
2, 4, 6, and 8, Mora-rd., u.t. 9½ yrs., g.r. 12d., w.r. 145d. 12s.	1,010
Wembley, Middlesex.—12 to 15, Tunes-ter., u.t. 60 yrs., g.r. 26d., y.r. 90d.	615
Upton Park.—20, Holborn-rd., u.t. 25½ yrs., g.r. 10d.	335
Peckham.—Whittington-rd., f.g.r.s. 4½, reversion in 47 yrs.	1,150
By A. PANGLOSS & CO.	
St. John's Wood.—77, Boundary-rd., u.t. 34½ yrs., g.r. 8s., y.r. 80d.	750
39, Loudoun-rd., u.t. 34½ yrs., g.r. 9d., y.r. 70d.	550
Leytonstone.—88, Birkbeck-rd., u.t. 65 yrs., g.r. 4s. 4s., y.r. 26d.	255
Holloway.—60, Hanley-rd., u.t. 6½ yrs., g.r. 8d., y.r. 42d.	395
25, Parkhurst-rd., u.t. 49 yrs., g.r. 8d. 10s., y.r. 55d.	525
By E. SIMPSON.	
New Cross.—157, Peppys-rd., u.t. 6½ yrs., g.r. 6d. 6s., y.r. 38d.	345
By W. WAMAM.	
Highbury.—71, Sotheby-rd., u.t. 78 yrs., g.r. 10d. 10s., e.r. 60d.	700
59, Withington-rd., u.t. 81 yrs., g.r. 8d. 2s. 6d., e.r. 48d.	700
211 and 213, Sotheby-rd., u.t. 8½ yrs., g.r. 15d., y.r. 104d.	1,290
By WESTON & SONS.	
Clapham.—57, Fentiman-rd., u.t. 2½ yrs., g.r. 7d. 10s., e.r. 42d.	300
17 to 23 (odd), Claydon-rd., u.t. 20 yrs., g.r. 16d. 8s., y.r. 44d.	1,555
Battersea.—67, 69, and 71, Savona-st., f., y.r. 78d.	900
Camberwell.—41, Herne Hill-rd., u.t. 70 yrs., g.r. 7d. 10s., y.r. 40d.	400
By ELLIOTT & CO. (at Waltham Green).	
Fulham.—93, 95, and 97, Estcourt-rd., u.t. 55 yrs., g.r. 6d. 12s. 6d., w.r. 83d. 4s.	130
12, Waltham-st., u.t. 78½ yrs., g.r. 6d. 12s. 6d., w.r. 83d. 4s.	130
By JAMES T. PRAT (at Crawley).	
Crawley, Sussex.—Springfield-rd., a freehold residence, e.r. 25d.	400
West-st., six freehold cottages, w.r. 67d. 12s.	900
Horsham-rd., 1 and 2, Sunnyside, f., y.r. 32d. 6s.	300
By HUNTER & FINE (at Walford).	
Walford, Herts.—25, High-st. (formerly the Angel), f. p.	600
April 29.—By BEARD & SON.	
Bloomsbury.—16, Tavistock-rd., u.t. 28½ yrs., g.r. 45d., y.r. 130d.	650
51, Hunter-st., u.t. 28 yrs., g.r. 30d., y.r. 130d.	550
Paddington.—13, South Wharf-rd., u.t. 18½ yrs., g.r. 5s., y.r. 40d.	185
St. Pancras.—97, Euston-st., u.t. 16½ yrs., g.r. 17d. 17s., y.r. 40d.	400
Ealing.—33, Ranelagh-rd., u.t. 64 yrs., g.r. 6d. 10s., e.r. 45d.	150
Ranelagh-rd., a plot of freehold land, p.	130
By MAY & PHILIPOT.	
Kensington.—14, Fielding-rd., u.t. 74 yrs., g.r. 12d., e.r. 5s. 10d.	475
By MOSS & JAMESON.	
Blackheath.—55, St. John's Pk., u.t. 70 yrs., g.r. 6d., y.r. 40d.	365
By RUSSELL & STREVEN.	
Notting Hill.—Holland Park-av., f.g.r. 40d., reversion in 59 yrs.	1,300
Forest Gate.—Latimer-rd., f.g.r.s. 40d., reversion in 75 yrs.	1,010
Woolwich, Kent.—3, 4, and 5, Beresford-st., f., w.r. 65d. 10s.	1,015
Samuel-st., f.g.r. 4d. 12s., reversion in 2½ yrs.	250
16, Parson's Hill, f., y.r. 10d.	880
31 and 34, Parson's Hill (wheelwright's premises), f., y.r. 26d.	600
168, rd., reversion in 65 yrs.	415
76, Plumstead Common-rd., f., q.r. 32d.	670
By J. JOSEPH STOVES.	
Paddington.—59, Woodchester-st., u.t. 47 yrs., g.r. 5s., y.r. 65d.	300
31, 33, and 43, Hampden-st., u.t. 4½ yrs., g.r. 36d. 10s., y.r. 60d.	780
Wetbourne Park.—71, Barnsdale-rd., u.t. 59½ yrs., g.r. 7d., y.r. 45d.	500
By R. TIDY & SON.	
Commercial-rd.—13, 31, and 33, Rhodeswell-rd., f., w.r. 114d. 8s.	1,105
Bethnal Green.—1 to 8, Cordova-rd., u.t. 4½ yrs., g.r. 36d. 10s., w.r. 39d. 8s.	1,605
Holloway.—77, Chalfont-rd., u.t. 31 yrs., g.r. 8d., y.r. 26d.	135
By RAWLINS & CO.	
Clerkenwell.—Great Bath-st., f., y.r. 28d.	600
15, Great Bath-st. (S.), u.t. 31 yrs., g.r. 8d.	820
Crawford-pl., &c., f.g.r. 27d., reversion in 9 yrs.	4,800
39, Great Bath-st. (S.), and 4 and 5, Bath-court, area 1,300 ft. f., y.r. 40d.	1,000
17, Great Bath-st. (S.), and 61, y.r. 8d.	1,300
area 1,750 ft. f., y.r. 60d.	2,170
28 and 29, Great Bath-st., area 2,050 ft. f., y.r. 80d.	1,220
24 and 26, Great Bath-st. (S.), f., y.r. 57d.	
31 and 33, Warner-st. (S.), f., y.r. 85d.	6,470
26 and 28, Warner-st., area 2,150 ft. f., y.r. 170d.	1,630
43, Warner-st., and 23, Baker's-row, area 2,800 ft. f., y.r. 65d.	1,445
1 to 26, Mount Pleasant (S.), area 8,200 ft. f., y.r. 205d.	8,100
By WINDHAM & CLEAVE.	
Poplar.—26, 28, and 30, High-st. (S.), u.t. 64 yrs., g.r. 15d., w.r. 89d. 14s.	495
By WINKWORTH & CO.	
Mayfair.—78, Mous-st., u.t. 5½ yrs., g.r. 114d., y.r. 26d.	17,000
By DOWSETT, KNIGHT, & CO. (at Sidcup).	
Sidcup, Kent.—Halfway-st., &c., seven plots of freehold building land.	665
April 30.—By FITCH & CLABURN.	
South Kensington.—24, Fawcett-st., u.t. 4½ yrs., g.r. 9d., y.r. 55d.	540
19, Kempford-gdns., u.t. 63 yrs., g.r. 6d., y.r. 57d.	510
Fulham.—27 and 29, Tilton-st., u.t. 8½ yrs., g.r. 10d., w.r. 83d. 4s.	405
11, 12, 13, 14, and 15, John-st., f., w.r. 78d.	740
Holloway.—57 to 65 (odd), George-st., f., w.r. 74d. 2s.	570
71, Tollington Pk., u.t. 62 yrs., g.r. 7d. 7s., e.r. 53d.	435
18 and 20, Egham-rd., u.t. 16 yrs., g.r. 11d., w.r. 78d.	520
Camden Town.—24 and 25, Priory-st., u.t. 2½ yrs., g.r. 8d., w.r. 81d. 18s.	360
Regent's Park.—Albert-st., f.g.r. 5d. 10s., reversion in 28 yrs.	275
St. John's Wood.—Beckett's-pl., f.g.r. 2½, u.t. 14 yrs., g.r. nil.	135
Hanley.—29, Canal-rd., u.t. 42 yrs., g.r. 6d. 6s., y.r. 65d.	400
87, 89, and 91, Pritchard-rd., u.t. 59 yrs., g.r. 17d. 5s., w.r. 192d. 4s.	800
42 and 44, St. John's-rd., u.t. 104½ yrs., w.r. 55d. 18s.	155
1 and 2, Globe-passage, u.t. 61 yrs., g.r. 11d., w.r. 54d. 10s.	350
15 and 16, Egham-rd., u.t. 57 yrs., g.r. 2d., w.r. 83d. 4s.	450
Hampstead.—25 to 31 (odd), Colleigh-rd., u.t. 79 yrs., g.r. 40d., y.r. 166d. 8s.	1,450
West Green.—2 and 18, Mount View Villas, u.t. 98 yrs., g.r. 13d., y.r. 74d.	700
6, Grosvenor Villas, u.t. 97 yrs., g.r. 6d. 10s., y.r. 33d.	330
11, Hill Villas, u.t. 93 yrs., g.r. 7d., e.r. 49d.	330
Tottenham.—39 to 39 (odd), Cranleigh-rd., u.t. 18½ yrs., g.r. 33d., y.r. 195d. 16s.	1,410
New Cross.—344, New Cross-rd., u.t. 26 yrs., g.r. 4d. 6s. 8d., y.r. 40d.	350
By FISHER, STANHOPE, & DRAKE.	
Stoke Newington.—97, Bethune-rd., u.t. 73½ yrs., g.r. 13d., e.r. 8s.	850
76, Casenove-rd., u.t. 72½ yrs., g.r. 10d., y.r. 75d.	810
184, Lordship-rd., area ½ an acre, u.t. 104 yrs., g.r. 7d. 10s., p.	600
Hackney.—16, Amhurst-rd., u.t. 63 yrs., g.r. 8d., e.r. 52d.	570
By ROBINS, GORE, & MERCHER.	
Kenish Town.—61 and 67, Highgate-rd. (S.), f., y.r. 130d.	1,905
By SELWY, BALL, SMITH, & CO.	
Battersea.—5, Ilminster-gdns., u.t. 77 yrs., g.r. 8d., y.r. 42d.	435
Twickenham.—3 and 5, The Cres., u.t. 70½ yrs., g.r. 18d., y.r. 90d.	915
By STIMSON & SONS.	
Dulwich.—11, Underhill-rd., e.r. 50d.	525
322 to 328 (even), Upland-rd., u.t. 76½ yrs., g.r. 34d., y.r. 137d.	965
227, Friern-rd., u.t. 7½ yrs., g.r. 6d. 10s., y.r. 35d.	310
233 and 235, Friern-rd., u.t. 76½ yrs., g.r. 9d. 19s., y.r. 60d.	650
251 and 253, Friern-rd., u.t. 57½ yrs., g.r. 6d. 10s., y.r. 68d. 4s.	610
255 to 263 (odd), Friern-rd., u.t. 77 yrs., g.r. 30d., y.r. 172d.	1,405
48 to 54 (even) Heber-rd., u.t. 74½ yrs., g.r. 22d. 13s., y.r. 184d.	1,220
Peckham.—13 to 19 (odd), York-gr., u.t. 73½ yrs., g.r. 21d., y.r. 184d.	1,265
Old Kent-rd.—56 and 58, Rustin-st. (laundry and factory premises with stabling), f., y.r. 110d.	1,775
Chelsea.—Lots-rd., the Ashburnham Mews, area 8,500 ft. u.t. 73 yrs., g.r. 41d. 3s., y.r. 202d.	2,400
Holloway.—2, 4, 5, and 7, Brook-rd., u.t. 60 yrs., g.r. 24d., y.r. 110d.	925
Hackney.—11 to 16, Palace-rd., u.t. 54½ yrs., g.r. 184d., w.r. 156d.	1,054
44 to 48, Palace-rd., u.t. 54½ yrs., g.r. 15d. 15s., w.r. 104d.	705
Newington Butts.—16 and 18, Penton-pl., y.r. 120d. 12s., also f.g.r. 18d., u.t. 49½ yrs., g.r. 28d. 10s.	1,605
Clapham.—88, Sandmerer-rd., u.t. 76½ yrs., g.r. 8d. 12s., y.r. 40d.	400
Highgate.—8 and 10, Colva-st., u.t. 76½ yrs., g.r. 1d. 12s., e.r. 45d.	495
Twickenham.—Whitton-rd., Newstead, u.t. 94 yrs., g.r. 7d., e.r. 40d.	425
By VANLIER & LOCKING.	
Kingsland.—7 to 37 (odd), Dunston-st., u.t. 16 yrs., g.r. 24d., y.r. 222d. 14s.	670
Stamford Hill.—5, Daleview-rd., u.t. 56 yrs., g.r. 6d., e.r. 34d.	270
May.—By BEAUFORT & WEBB.	
East Sheen, Surrey.—Upper Richmond-rd., the Wilderness, and 1 a. 1 r. 6 p. f.	2,250
Marke.—24, Lower Rike-rd., y.r. 26d.	455
Kew, Surrey.—1, Cumberland-rd., u.t. 64 yrs., g.r. 12d., e.r. 90d.	900
By BURTON, SMITH, & CO.	
Streatham.—2, and 4, Evalina-ter., u.t. 93 yrs., y.r. 8d. 10s., w.r. 65d.	350
Norwood.—62, Harold-rd., u.t. 75 yrs., g.r. 13d., y.r. 80d.	740
71, 91, and 11, Highgate-rd., u.t. 74 yrs., g.r. 34d. 10s., y.r. 145d.	1,050



By GILBERT & HOW.

Westminster, 10, 11, and 12, Kensington-pl., u.t.	16 yrs.	g.r. nly. y.r. 56l.	£375
25, 37, and 39, Ponsonby-pl., u.t. 22½ yrs.	g.r.	15l. 15s. y.r. 120l.	910
Pimlico, 13, Tachbrook-st., u.t. 45 yrs.	g.r. 11l.	y.r. 80l.	740
Battersea, 144 and 150, Mallinson-rd., u.t. 78½ yrs.	g.r. 13l.	y.r. 64l.	625

By FERGUSON HOLSON.

Southgate, 1, Ada-villas, plot of land adjoining f. p.	y.r. 120l.	155
2 to 5, Ada-villas, f., w.r. 88l. 8s.		750
Wood Green, 1, 9 and 10, Cranbourne-rd., f., y.r. 64l. 10s.		565

By LOWE & GOLDSCHMIDT.

Hampstead, 1 to 6, Grove-cottages, and 8, The Mount, area 6,500 ft., c.r. 228l. 6s.		2,100
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By E. FERGUSON TAYLOR.

Enfield, 1, Bycullah-rd., Teigngrace, area 0.2 a.r.		2,030
32 D. P., y.r. 120l.		1,870
Camberwell, 2 to 26 (even), Pittman-st., u.t. 61 yrs.	g.r. 37l. w.r. 205l. 10s.	1,760
Spitalfields, 38 to 46 (even), Dunk-st., with cowshed in rear, y.r. 26l. 14s.; also i.g.r. 13l. 5s.		405
1 to 35 yrs., g.r. 26l. 14s.; also i.g.r. 13l. 5s.		150
Dalston, 70, Norfolk-rd., u.t. 57 yrs., g.r. 64l.		2,700
g.r. 42l.		7,575

By G. A. WILKINSON & SON.

Hackney, 2, Uxwell-rd., area 25,846 ft., f., p.		2,700
38, Middlesex, u.t. 158 yrs., g.r. 4l. 8s., y.r. 256l. 6s. 4d.		7,575

By G. A. WILKINSON & SON.

Major Farm, 94 a. 2 r. 6 p., f., y.r. 256l. 6s. 4d. (in lots).

Contractions used in these lists.—E.g., for freehold ground-rent; i.g.r. for leasehold ground-rent; i.g.r. for ground-rent; g.r. for ground-rent; r. for rent; a.r. for freehold; c.r. for copyhold; l. for leasehold; p. p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; l. for lane; st. for street; rd. for road; sq. for square; pl. for place; tr. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; g. for garden; b.h. for beer-house; p.h. for public-house; o. for offices; s. for shops.

## PRICES CURRENT OF MATERIALS.

\*. Our aim in this list is to give, as far as possible, the average prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£ s. d.
Hard Stocks	1 15 0 per 1,000 alongside, in river.
Rough Stocks and Glazed	1 12 0 "
Facing Stocks	2 12 0 "
Shippers	2 5 0 "
Fleets	2 7 6 "
Red Wire	2 12 0 "
Best Fareham Red	3 12 0 "
Best Red Pressed	5 0 0 "
Best Blue Pressed	4 15 0 "
Staffordshire	4 15 0 "
Do. Bullnose	4 10 0 "
Best Staffordshire	4 8 0 "
Fire Bricks	4 8 0 "
GLAZED BRICKS.	
Best White and Ivory Glazed	13 0 0 "
Stretchers	12 0 0 "
Quoins, Balloose, and Flats	14 0 0 "
Double Stretchers	17 0 0 "
Double Headers	16 0 0 "
One Side and two Ends	19 0 0 "
Two Sides and one End	20 0 0 "
Spays, Chamfered, Squints	20 0 0 "
Best Dipped Salt Glazed Stretchers and Headers	12 0 0 "
Quoins, Balloose, and Flats	14 0 0 "
Double Stretchers	15 0 0 "
Double Headers	14 0 0 "
One Side and two Ends	15 0 0 "
Two Sides and one End	15 0 0 "
Spays, Chamfered, Squints	14 0 0 "
Second Quality Whitened Dipped Salt Glazed	6 0 0 "
Thames and Pit Sand	6 0 per yard, delivered.
Thames Ballast	6 0 "
Best Portland Cement	30 0 per ton, delivered.
Best Ground Blue Lias Lime	20 6 "

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 10s. 6d. per yard, delivered.

Stourbridge Fire-clay in sacks 25s. 6d. per ton at rly. dep.

## STONE.

	£ s. d.
Ancaster in blocks	11 per ft. cube, deld. rly. depdt.
Bath	10 "
Farleigh Down Bath	1 8 "
Beer in blocks	2 6 "
Grinshill	2 10 "
Brown Portland in blocks	2 2 "
Darley Dale in blocks	2 4 "
Red Corshill	2 5 "
Clovelly Red Freestone	2 0 "
Red Mansfield	2 4 "

## PRICES CURRENT (Continued).

### STONE.

YORK STONE—Robin Hood Quality.

	£ s. d.
Scrapped random blocks	2 10 per ft. cube, deld. rly. depdt.
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 3 per foot super.
6 in. Rubbed two sides	2 6 "
Ditto, Ditto	2 6 "
3 in. Sawn two sides slabs (random sizes)	0 11½ "
2 in. to 2½ in. Sawn one side slabs (random sizes)	0 7½ "
1½ in. to 2 in. ditto, ditto	0 6 "
BEST HARL YORK—Scrapped random blocks	3 0 per ft. cube
6 in. sawn two sides, landings to sizes (under 40 ft. sup.)	2 8 per ft. super.
6 in. Rubbed two sides	2 8 "
Ditto	2 8 "
3 in. sawn two sides slabs (random sizes)	1 2 "
2 in. self-faced random flags	5 "
Hopron Wood (Hard Bed) in blocks	2 3 per ft. cube, deld. rly. depdt.
6 in. sawn both sides landings	2 7 per ft. super, deld. rly. depdt.
3 in. do.	2 2½ "

### SLATES.

	£ s. d.
20x10 best blue Bangor	13 2 6 per 1000 of 1200 at rly. dep.
20x12 "	13 17 6 "
20x10 best seconds	12 15 0 "
20x12 "	13 10 0 "
16x8 best	7 0 0 "
20x10 best blue Portman	12 5 0 "
16x8 best blue Portmadoc	5 5 0 "
20x10 best Eke up fading green	12 5 6 "
20x12 "	17 2 6 "
18x10 "	12 10 0 "
16x8 "	10 5 0 "
20x10 permanent green	11 0 0 "
18x10 "	9 5 0 "
16x8 "	6 10 0 "

### TILES.

	£ s. d.
Best plain red roofing tiles	42 0 per 1,000, at rly. depdt.
Hip and valley tiles	3 7 per doz.
Best Broseley tiles	50 0 per 1,000 "
Do. Ornamental Tiles	52 6 "
Hip and valley tiles	4 0 per doz. "
Best Rusdon Red, brown or brindled Do. (Edwards)	57 6 per 1,000 "
Do. Ornamental Do.	50 0 "
Hip tiles	4 0 per doz. "
Valley tiles	3 0 "
Best Red or Mottled Staffordshire Do. (Peaks)	51 9 per 1,000 "
Do. Ornamental Do.	54 6 "
Hip tiles	4 1 per doz. "
Valley tiles	3 8 "
Best "Rosemary" brand plain tiles	48 0 per 1,000 "
Do. Ornamental Do.	50 0 "
Hip tiles	4 0 per doz. "
Valley tiles	3 8 "

### WOOD.

	At per standard.
	£ s. d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in.	15 10 0 16 10 0
Deals: best 3 by 9 in.	14 10 0 15 10 0
Battens: best 2½ in. by 7 in. and 3 in. by 7 in.	12 10 0 12 10 0
Battens: best 2½ by 6 and 3 by 6	10 0 0 less than 7 in. and 8 in. or less than best
Deals: seconds	2 0 0 10 0 0
Battens: seconds	2 0 0 10 0 0
2 in. by 4 in. and 2 in. by 6 in.	8 0 0 9 10 0
2 in. by 4 in. and 2 in. by 5 in.	8 10 0 9 10 0
Foreign Sawn Boards—1 in. and 1½ in. by 7 in.	0 10 0 more than battens.
3 in. Fir timber: Best middling Darning or Memel (average specification)	1 0 0 0
At per load of 50 ft.	4 10 0 5 0 0
Seconds	4 5 0 4 10 0
Small timber (8 in. to 10 in.)	3 18 6 3 15 0
Small timber (6 in. to 8 in.)	3 0 0 3 10 0
Swedish balks	2 15 0 3 0 0
Pitch-pine timber (30 ft. average)	3 5 0 3 15 0

### JOINERS WOOD.

	At per standard.
	£ s. d.
White Sea: First yellow deals, 3 in. by 11 in.	23 0 0 24 0 0
3 in. by 9 in.	21 0 0 22 0 0
Battens, 2½ in. and 3 in. by 7 in.	17 0 0 18 0 0
Second yellow deals, 3 in. by 11 in.	18 0 0 20 0 0
3 in. by 9 in.	17 0 0 19 0 0
Battens, 2½ in. and 3 in. by 7 in.	13 10 0 14 10 0
Third yellow deals, 3 in. by 11 in.	13 10 0 16 10 0
and 3 in. by 9 in.	12 10 0 12 10 0
Battens, 2½ in. and 3 in. by 7 in.	12 10 0 12 10 0
Petersburg: first yellow deals, 3 in. by 11 in.	21 0 0 22 0 0
Do. 3 in. by 9 in.	18 0 0 19 0 0
Battens	13 10 0 15 0 0
Second yellow deals, 3 in. by 11 in.	16 0 0 17 0 0
Do. 3 in. by 9 in.	14 10 0 16 0 0
Battens	11 0 0 12 10 0
Third yellow deals, 3 in. by 11 in.	13 10 0 14 0 0
Do. 3 in. by 9 in.	13 0 0 14 0 0
Battens	10 0 0 11 0 0

## PRICES CURRENT (Continued).

### WOOD.

	At per standard.
	£ s. d.
White Sea and Petersburg:—First white deals, 3 in. by 11 in.	14 10 0 15 10 0
" 3 in. by 9 in.	13 10 0 14 0 0
Battens	11 0 0 12 0 0
Second white deals 3 in. by 11 in.	12 0 0 13 0 0
" 3 in. by 9 in.	12 0 0 13 0 0
" battens	9 10 0 10 0 0
Pitch-pine: deals	16 0 0 18 0 0
Under 2 in. thick extra	0 10 0 1 0 0
Yellow Pine—First, regular sizes	33 0 0 upwards.
Oddments	22 0 0 24 0 0
Seconds, regular sizes	24 10 0 26 10 0
Yellow Pine Oddments	20 0 0 22 0 0
Kauri Pine—Planks, per ft. cube	0 3 6 0 4 6
Danzig and Stettin Oak Logs—Large, per ft. cube	0 2 6 0 3 6
Small	0 5 0 0 6 0
Wainscot Oak Logs, per ft. cube	0 5 0 0 6 0
Dry Wainscot Oak, per ft. sup. as inch	0 0 7 0 0 8
3 in. do.	0 0 2½ 0 0 3
Dry Mahogany—Honduras, Tabasco, per ft. sup. as inch	0 0 9 0 0 11
Selected, Figury, per ft. sup. as inch	0 1 6 0 2 0
Dry Walnut, American, per ft. sup. as inch	0 0 10 0 1 0
Teak, per load	17 0 0 21 0 0
American White-wood Planks—Per ft. cube	0 4 0 0 5 0
Prepared Flooring—1 in. by 7 in. yellow, planed and shot	0 13 6 0 17 6
1 in. by 7 in. yellow, planed and matched	0 14 0 0 18 0
1½ in. by 7 in. yellow, planed and matched	0 16 0 0 21 6
1 in. by 7 in. white, planed and shot	0 11 6 0 13 6
1 in. by 7 in. white, planed and matched	0 12 0 0 14 0
1½ in. by 7 in. white, planed and matched	0 14 6 0 16 6
2 in. by 7 in. yellow matched and beaded or V-jointed boards	0 21 0 0 23 6
1 in. by 7 in. do. do. do.	0 14 0 0 16 6
3 in. by 7 in. white do. do.	0 11 6 0 13 6
2 in. by 7 in. do. do.	0 11 6 0 13 6
6 in. at 6d. to 9d. per square less than 7 in.	

### JOISTS, GIRDERS, &c.

	£ s. d.
London, or delivered.	
Railway Vans, per ton.	£ s. d.
Rolled Steel Joists, ordinary sections	8 5 0 8 15 0
Compound Girders	8 2 6 9 5 0
Angles, Tees and Channels, ordinary sections	7 17 6 8 17 6
Fitch Plates	8 5 0 8 15 0
Cast Iron Columns and Stanchions, including ordinary patterns	7 2 6 8 5 6

### METALS.

	Per ton, in London
	£ s. d.
IRON—Common Bars	7 15 0 8 5 0
Staffordshire Crown Bars, good merchant quality	8 5 0 8 15 0
Staffordshire "Marked Bars"	10 10 0 10 10 0
Mild Steel Bars	9 0 0 9 10 0
Hoop Iron, basis price	9 5 0 9 10 0
" galvanised	16 0 0 16 0 0
(* And upwards, according to size and gauge.)	
Sheet Iron, Black—Ordinary sizes to 20 g.	10 0 0 10 0 0
" 10 14 g.	11 0 0 11 0 0
" 10 20 g.	12 0 0 12 0 0
Sheet Iron, Galvanised, flat, ordinary quality—Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	12 15 0 12 15 0
" 22 g. and 24 g.	13 5 0 13 5 0
" 26 g.	14 5 0 14 5 0
Sheet Iron, Galvanised, flat, best quality—Ordinary sizes to 20 g.	16 0 0 16 0 0
" 22 g. and 24 g.	16 10 0 16 10 0
" 26 g.	18 0 0 18 0 0
Galvanised Corrugated Sheets—Ordinary sizes, 6 ft. to 8 ft. 20 g.	12 15 0 12 15 0
" 22 g. and 24 g.	13 5 0 13 5 0
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g.	12 0 0 12 0 0
" and thicker	12 0 0 12 0 0
" 22 g. and 24 g.	13 0 0 13 0 0
" 26 g.	14 5 0 14 5 0
Cut nails, 3 in. to 6 in.	9 5 0 9 15 0
(Under 3 in. usual trade extras.)	

### LEAD, &c.

	Per ton, in London.
	£ s. d.
LEAD—Sheet, English, 3 lbs. & up.	14 15 0 14 15 0
Pipe in coils	15 5 0 15 5 0
Soil pipe	17 15 0 17 15 0
Compo Pipe	17 15 0 17 15 0
ZINC—Sheet—Vienne Montagne	28 5 0 28 5 0
Silesian	28 0 0 28 0 0
COPPER—Strong Sheet	per lb. 0 0 10½ 0 0 11½
Thin	0 0 11½ 0 0 12½
Copper nails	0 0 11 0 0 11
BRASS—Strong Sheet	0 0 10 0 0 10
Thin	0 0 11 0 0 11
Tin English Ingots	0 1 5 0 1 5
SOLDER—Plumbers'	0 0 64 0 0 64
Timmen's	0 0 84 0 0 84
Blowpipe	0 0 94 0 0 94

[See also page 501.]



(For some Contracts, &c., still open, but not included in this List, see previous issues.)

## CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c., supplied by	Tenders to be delivered
Free Library and Offices	Biddford Corporation	J. J. Dunn, Architect, 85, Colomere-row, Birmingham	May 12
Plans and Information Hill	Nineotton U.D.C.	A. C. Cook, Engineer, Council Offices, Nuneaton	do.
Sewer, Stone-lane	Handsworth U.D.C.	P. Powell, Civil Engineer, Council Offices, Woodhouse	do.
Sewers, Barwell	Birmingham Corporation	J. Price, City Engineer, Council House, Birmingham	do.
Stabling, Portwall	Messrs. Burchard & Co., Ltd.	W. Edwards, Barrister-at-Law, Brewer, Blackfriars	do.
Messrs. Ball, Arklow, Ireland	Great Western Railway Co.	G. K. Mills, Paddington Station, London, W.	do.
W. J. Paving and Kerbing Works	Willesdon District Council	S. Stuart, Ferrybank, Arklow	do.
Houses, Queensdown, Ireland		C. J. H. Ball & Sons, Architects, 23, South Mall, Cork	May 13
Additions to the Blount Furnace Inn, Pontefract		P. V. Jones, Architect, Hongkong	do.
Stables, &c., Lumphannan, N.B.		G. Cocker, Finzean Aboyne, Aberdeen	do.
Twelve Houses, Alnwick	North Eastern Railway Co.	W. Bell, Architect, Central Station, Newcastle-on-Tyne	do.
Refuse Destructor, St. Paul's-road, yard	Nelson Corporation	W. A. Corbett, Engineer, 10, Rait's Place	do.
Sewerage Works, Chichester	Neston U.D.C.	Knowles & Russell, Civil Engineers, 8, Castle-street, Liverpool	do.
Superficial Materials	Bradford Corporation	J. H. Cox, City Surveyor, Town Hall, Bradford	do.
New School at Tankly Docks	Chislewell St. Mary School Board	J. Thompson, 12, St. Michael's-road, Southdown-on-Sea	May 14
Two Lodges, Farnham Reservoir	Braunham Corporation	G. H. Burt, Civil Engineer, 3, Victoria-street, S.W.	do.
Brick and Gilder Bands, Ealing-road	Leicester Corporation	E. G. Mawbey, Civil Engineer, Town Hall, Leicester	do.
Sewers	Windsor Parks L.D.C.	W. Wise, Surveyor, High-street, Winslow	do.
Three Houses, Truro	Messrs. Palmer & Cundy	S. Hill, Architect, Redruth	May 15
Wesleyan Church, Dodworth, near Barnsley	Castle Donington R.D.C.	G. Moxon, Architect, 5, Church-street, Banbury	do.
Road Metal, &c., near Derby		P. J. Burton, High-street, Castle Donington	do.
School, Heanor		A. Marshall, Architect, King-street, Nottingham	May 16
Repairs to Chapel, Brynegrwys (Wales)	Leigh (Lancs) Town Council	The Carnegie, Brynegrwys	do.
Cast-iron Pipes, &c.	Leeds Guardians	J. Gibson, Engineer, Town Hall, Leigh	do.
Additions to Nurses' Home, Beckford (Staffs)	Boston (Lincs) School Board	T. Wain & Sons, Architects, 92, Albion-street, Leeds	do.
Additions to Cowbridge Arms Hotel	Aberdare Town Council	J. Howell, Borough Surveyor, Boston	do.
Alterations to Villas, Santal-rail	Elmhurst Conservators	Smith & Daines, Architects, 10, St. James's-square	do.
Three Houses, Dingle	Newcastle-on-Tyne Corporation	Richards, Conservators Club, Port Talbot	do.
Workmen's Dwellings, Walker-road	Severnage (Herts) U.D.C.	G. Nicholson, Chopwell View, Dilton	May 18
Granite Road Metal	St. Charles's Church, Leigh	Liddle & Browne, Architects, Mosley-street, Newcastle-on-Tyne	do.
Police Station, Rowton	Birmingham Guardians	James, Council Offices, Newcastle	do.
Additions to Infants' Day School, Dudley	Barnack Joint Hospital Board	H. Little, Architect, County Offices, Preston	do.
Additions, &c., to Hospital	Worcester U.D.C.	W. H. Ward, Architect, Paradise-street, Birmingham	do.
2,118 ft. of 12-in. Storm Water Sewer, &c.	Corporation of London	P. P. Trepass, Architect, 1, Church-street, Warwick	May 19
Asphalt Paving Works		Engineer to Corporation, Guildhall, E.C.	do.
Wood Paving Works	Rev. J. S. Longdon	G. S. Halliday, Architect, Carlisle	do.
Chapel, Holton-road, Barry Dock, Cardiff	Commissioners of H.M. Works, &c.	J. Wager, H.M. Office of Works, &c., Cardiff	do.
Foundations of New Parcel Office, Union-street, S.E.	Acton District Council	Council's Surveyor, 212, High-street, Acton	do.
Making-up Road	St. Charles's Ch., Seighford, Commit.	The Vicarage, Seighford, Stafford	May 20
Sewering, Levensham, Paving, &c.	Borough of Kingston	Borough Surveyor, Clatten House, Kingston-on-Thames	do.
Erection of a Public Library	West London School District	Clerk to the Managers, West London District Schools, Ashford, Midd.	May 21
External Painting at Ashford School	Crondon L.D.C.	R. M. Chart, Surveyor, Town Hall, Crondon	May 22
Alteration to Trow Hall	M.B. of St. Marylebone	Engineer to the Council, Town Hall, Marylebone-lane, W.	May 23
Sewers, Drainage, Road Making Works, Fencing, &c.	H.M. Works	S. D. A. Westcott, H.M. Office of Works, Storey's Gate, S.W.	May 24
Newspaper Repository at St. John's	Rams-gate Corporation	S. D. A. Bedhead, Architect, 36, Great Russell-street, W.C.	May 26
Water Supply of New Pavilion, Shillier, &c.	Commissioners of H.M. Works, &c.	H.M. Office of Works, Storey's Gate, S.W.	do.
Erection of Post Office, Knightsbridge	W. J. Ham, H.M. Office of Works, &c.	C. A. Atkinson, Engineer, 11, Tithebarn-street, Liverpool	June 2
Making-up Streets	W. J. Ham, H.M. Office of Works, &c.	H. E. Sim, Architect, 8, Craig's-court, W.C.	do.
Sewerage and Drainage Works, Forbury	London Guardians	Osley & Skinner, Architects, Baiting, &c.	do.
Sewerage Works at Infirmary	Cardiff Corporation	H. Horley & Son, Architects, Commercial-street, Halifax	do.
Superstructure, &c., of New Lunatic Asylum		Howdill & Howdill, Architects, 7, Oxford-row, Leeds	do.
Four Shops and Houses, North-st., & Lady-lane, Leeds		E. Hill, Architects, 13, Oxford-row, Leeds	do.
Chapel and School, Rensley, Leeds		A. Marshall, Architect, 10, St. James's-square	do.
Two Houses and shops, of Dewsbury-road, Leeds		F. Musto, Architect, Green-street Chambers, Leeds	do.
Schools, Heanor, Derbyshire			do.
Additions to Chapel, Horsforth, near Leeds		E. Mitchell, 31, Mallams, Portland	do.
Alterations to Mission Hall, Lister Hill		J. Wigg, Architect, 10, Martin's-lane, W.C.	do.
Drainage Works at School, Fortunes' Well, Portland		P. P. Oakley, Architect, Cross-street, Manchester	do.
Stables and six Cottages, Nodham-st., Leicester		Johnstone Bros., Architects, 39, Lower-street, Carlisle	do.
Church, Whitaker-lane, Presh-wich, Lanes.			do.
Four Houses, Wilton-road, Carlisle	Messrs. Carr & Co., Ltd.		do.
Factories, Calverley, Carlisle		W. J. Taylor, Architect, Bank-street, Sheffield	do.
Four Houses, Chapelwold, Sheffield		W. Mawer, Whitechurch, Hants	do.
Schools, Whitchurch, Hants	Rev. J. W. Harbord	G. Dale Oliver, County Architect, Carlisle	do.
Water Supply of New Garrison, Weymouth	Carlisle Lunacy Committee	J. Haggas & Sons, Architects, 71, North-street, Keighley	do.
Water Supply, York	The Directors	E. Appleton & Sons, Architects, 70, Abbey-lane, York	do.
Annexe to Victoria and Albert Hotel, Torquay		J. Johnson, Architect, Lord-street, Southampton	do.
Two pairs of Houses, Upton, near Bickenhead	Handsworth School Board	Hensoll & Paterson, Architects, 18, Norfolk-row, Sheffield	do.
School, Upton, Sheffield		Tapp & Jones, 1, Prince's-street, Westminster, S.W.	do.
Erection of Steel Foundry, West Drayton			do.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*Second Clerk of Works.....	Coalville U.D.C.	Not stated	May 12
*Clerk Works.....	Horl School Board	£2. 3s. per week.	May 14
*Engineer and Surveyor.....	Dartford U.D.C.	2500.	May 18
*Manual Instructors.....	School Board for London.	1551.	May 19
*Assistant Manual Instructors.....	do	do.	do.
*T/a Assistant Engineers.....	Colombo Municipal Council.	F. A. Cooper, C.M.G., Director of Public Works, Ceylon.	June 1
*Assistant Examiners in Patent Office.....	Civil Service Commissioners	Not stated	July 2

Those marked with an asterisk (\*) are advertised in this Number.      Competition, iv.      Contracts, iv. vi. viii. x. & xx.      Public Appointments, xvii & xx.



Herbert	£1,586	0	0	E. Seckerson	£1,376	0	0
Hilton & Caswell	1,495	0	0	Guest & Sons	1,350	0	0
A. Meredith	1,457	0	0	J. Dallow	1,335	0	0
Heke & Son	1,443	12	6	Oakley &			
Hugh & Son	1,420	0	0	Coulson,			
Griffiths	1,400	0	0	Dudley*	1,299	0	0
Hekman &							
Round	1,386	0	0				

[See also next page



**LOWER GORNAL** (near Dudley).—For alterations and extensions to Red Hall School, Lower Gornal, for the Sedgley School Board. Mr. A. Ramsell, architect, Dudley.—

I. A. Meredith.....	£5,750	James Herbert .....	£5,630
Speke & Son .....	5,770	John Dallow .....	5,490
C. Griffiths .....	5,746	Oakley & Coulson ..	5,116
Hilton & Caswell ..	5,710	Gough & Son, Wol-	
M. Round .....	5,690	verhampton* .....	4,900
F. L. Jones .....	5,640		

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# The Builder.

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MAY 16, 1909.

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Premises for the Royal London Friendly Society .....	Mr. John Belcher, A.R.A., Architect.
Cornbury Park, Oxon: Details of New Entrance Wing .....	Mr. John Belcher, A.R.A., Architect.
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### The Church of Norbury, Derbyshire.



IVE miles south of Ashburne, on a slight eminence overlooking the valley of the Dove, stands the old church of the small country parish of Norbury. Situated on a by-road, and remote from the usual run of Midland tourists, this village church is known but to few; nevertheless it well merits a visit from ecclesiologists on account of its singularly fine fourteenth-century chancel, and its unusual ground-plan. Moreover, the antiquary will here find two good shafts of pre-Norman crosses; two exceptionally rich examples of fifteenth-century monumental effigies; a remarkable palimpsest brass to a remarkable man; and one of the best collections of fourteenth and fifteenth century glass to be found in any village church throughout England.

The church of St. Barloke, Norbury, consists of a large chancel; clearstoried nave, with north aisle; and a tower in the centre of the south side of the nave, with a chapel both to the east and west. The lower portion of this tower forms the south porch. The history of the fabric is closely bound up with that of successive generations of the distinguished family of Fitzherbert, who for five centuries continuously occupied the manor-house to the immediate west of the church, of which several interesting remains are still extant. Norbury formed part of the great estates of Henry de Ferrers when the Domesday Survey was compiled. At that time mention was made of a priest and a church. A few years earlier, Henry de Ferrers, when founding the Priory of Tutbury (1080-1), had given this church and its tithes to the monks of that classical house. But in the year 1125 the Prior of Tutbury gave Norbury in fee-farm to William Fitzherbert on a yearly rental of 100s. From that date the Fitzherberts held the manor and a portion of the tithes of the priory up to the year 1422,

when Nicholas Fitzherbert and Ralph, his son and heir, gave to the Prior of Tutbury lands at Osmaston, &c., in lieu of their fee-farm rent. Meanwhile the advowson of the rectory remained uninterruptedly in the hands of the Fitzherberts, as successive lords of Norbury, from the time of William Fitzherbert, in 1125, down to Sir Anthony Fitzherbert, who died in 1538. After his death the troubles and persecutions of the Fitzherberts for adherence to the unreformed faith began, and they became incapable, as Romanists, of presenting to the rectory. They still, however, lived at the Norbury manor-house for another century, until, through marriage with the heiress of Swynnerton, their chief residence was transferred to Swynnerton, Staffordshire.

There seems to be reasonable probability that a church of stone stood on this site for some time prior to the Conquest. During recent repairs done to the chancel in 1902 the important discovery was made of the shafts of two Saxon upstanding memorial crosses, which had been embedded in the foundations of one of the fourteenth-century buttresses on the north side. One of these, inclusive of the unornamented base—which was originally sunk in the ground—measures 5 ft. 3 in. in height. The other fragment is the main part of the shaft of a cross, ornamented throughout, which is 3 ft. 9 in. high. In both cases the head of the cross is missing.

The sculptured patterns of these crosses are good examples of interlaced work, and on one side of the latter example is a small human figure bearing a staff. These crosses are probably of the ninth century, and one of them may be of even earlier date. If there were sufficient ability to construct these beautiful sculptured patterns on hard stone, and sufficient Christian fervour to erect two such memorials (the survivors probably of several others) in a Norbury graveyard at this early period, it may with some confidence be assumed that the church itself was of stone, and no mere wooden shanty.

The dedication of this church was to St. Barloke or Burlok, according to Fitzherbert wills of the fifteenth century. It is difficult to identify this saint, but he was possibly

identical with St. Barrog or Barroc, a British saint of some repute in the sixth century, to whom the church of Bedwas, Monmouthshire, is dedicated. This discovery of pre-Norman crosses, built up into the fabric of the church, make its dedication to an early national saint all the more probable; for in those days it was customary to dedicate churches in honour of saints, who had first preached Christianity in the particular place or district, or whose names were held in reverent and real or recent memory by their first founders. Such dedications were often disturbed by subsequent Norman rebuildings, but where they are met with they are frequently in association with the remains of ancient Christian crosses. Thus in Derbyshire there are, among the few dedications of English origin, those of St. Werburgh at Blackwell and Spondon, St. Altmund at Derby, and St. Chad at Wilne, and in every one of these cases there are highly interesting remains of pre-Conquest crosses.

A careful examination of the squared stones of the fabric brings to light the fact that several bear obvious traces of the characteristic "axeing" of Norman masons, proving that the present structure is largely composed of material that had been used in the Norman church, which was doubtless erected on the site of the previous ruder church of Saxon origin, and was probably built early in the twelfth century when the Fitzherberts first settled at Norbury. Three moulded stones of Norman workmanship have also come to light during recent restorations.

The substantially built Norman twelfth century church, consisting of a nave and chancel, apparently sufficed for the worship of this small village until the fourteenth century, when a new chancel was erected on a large scale. At the west end of the nave are some remains of the internal plays of a doorway, which may have been part of some slight modification or alteration of thirteenth century date. But there seems no doubt that an aisleless Norman nave was extant when the large new chancel was designed. The length of the nave was then, as now, about 50 ft., and as the builders of





Norbury Church: Exterior.

the twelfth century were generally fairly uniform in their dimensions, it may be assumed that the length of the former chancel was about 25 ft., or not much more than half that of its successor.

When Mr. Henry Bowman wrote and illustrated his most useful and timely volume on "Specimens of the Ecclesiastical Architecture of Great Britain" (Parker, 1846), he took the remotely situated but "very interesting and beautiful church" of Norbury as the most suitable one he could find wherewith to begin the work, and gave the first, and indeed the only, critical architectural account of it that has been published. Taken as a whole, Mr. Bowman considered that the architectural composition of the church was "exceedingly pleasing," notwithstanding the somewhat "glaring discordance" between the chancel and the rest of the edifice. His actual phrases with regard to the exterior of the chancel and its buttresses may with advantage be reproduced:—

"The general character of the exterior of this chancel is at once bold and chaste, an effect more of outline and proportion than of deeply cut mouldings or elaborate workmanship; for not the least remarkable peculiarity in its composition is the great simplicity and elegance, not only of the general features, but also of the details. The dignity and boldness of the buttresses, and the chaste simplicity of the parapet, harmonise admirably with the light, elegant, and just proportions of the windows, and the whole composition is calculated to produce a very pleasing impression on the mind. The buttresses are peculiar. Though divided into two stages above the stringcourse, these are both of equal projection, so that there is, in fact, no set-off; and, again, the pyramidal cappings with which the buttresses are surmounted are not like anything we have before met with of the same period. Those of the angle buttresses are different from the rest, but still peculiar, being splayed off on two sides only, without any projecting mouldings."

In Mr. Bowman's now rare volume are ten

plates of this church: (1) ground plan; (2) view from south-east; (3) external elevation of south side of chancel; (4) window on south side of chancel, coloured; (5) coloured glass of same in detail; (6) interior of chancel; (7) internal elevation of south of chancel; (8) details of stalls, piscina, mouldings, &c.; (9) window, north of chancel, coloured; and (10) coloured glass of same in detail. The glass details are not very accurate.

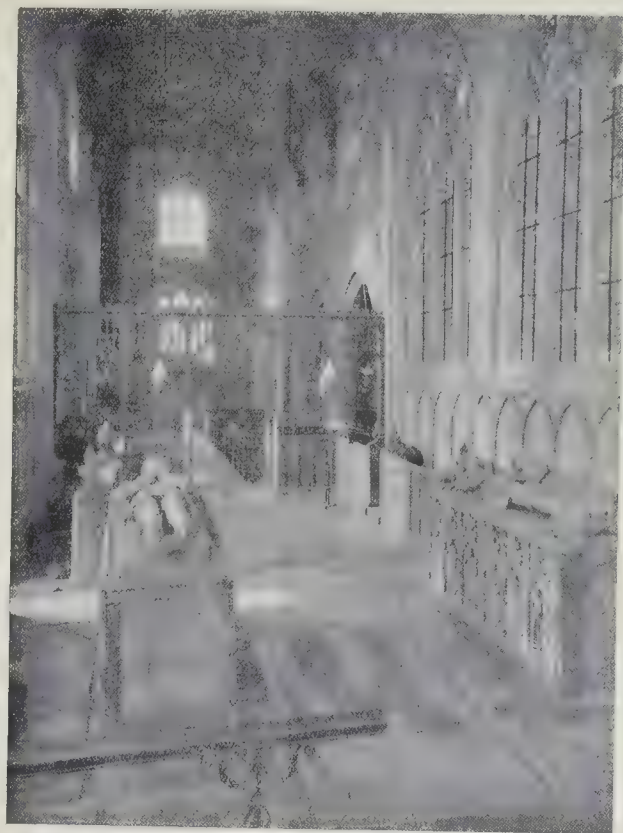
With regard to the date of this remarkable chancel, it has been assumed by one of our first architectural authorities that "it was probably finished and the windows glazed before the Great Pestilence of 1349." As to the architectural style, however, it would be very difficult to produce any English work known to be prior to that great check on building and on every other work of man's hands—the Black Death of 1348-9—which would compare with the main features or with certain details of Norbury Church. There is, for instance, an awkwardness in the arrangement of the tracery in the upper part of the centre of the large east window which clearly speaks of an approach to the style that is usually termed Perpendicular, and which would have been almost impossible in the first half of the fourteenth century. With respect, too, to the glass of the side windows, which is obviously coeval with the fabric, there is hardly any room for doubt that the treatment shows a considerable advance on the grisaille designs of York, Exeter, and other examples in England of the first half of the fourteenth century, as well as on those in use during a like period in France. The heraldic display in the windows also favours the second half of the fourteenth century. But this is too large a question for present discussion. Mr. Bowman's conjecture as to the date of the chancel, knowing nothing of the history of the fabric, and judging solely

on comparative architectural lines, was that it was built between 1370 and 1380. If this surmise errs, it is in putting the date rather too late, and possibly 1360 would be nearer the mark.

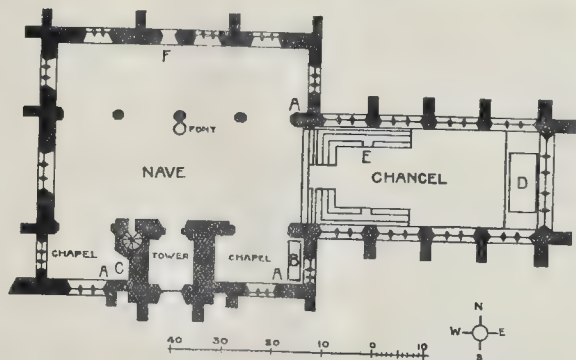
Coming to history, the episcopal registers show that Henry Kniveton was instituted to this rectory in 1349, the very year of the awful pestilence, on the presentation of Sir John Fitzherbert, and that his successor was not instituted until 1395. Between these two dates the chancel of Norbury must have been erected. The Meynell MSS. and the Rawlins MSS., as the result of visits made to this church in the respective years 1817 and 1823, make mention of the fact of an inscription on a slab in the floor of the chancel to the memory of Henry Kniveton, wherein it was stated that he was the builder of the chancel. This slab was, apparently, ejected and never replaced during the restoration of 1842.

In addition to that which has been cited from Mr. Bowman's discriminating remarks as to this somewhat peculiar and beautiful example of a fourteenth-century chancel, a few other brief remarks may be permitted. Its interior measurements are 46 ft. 6 in. by 20 ft. A particular feature of its nine large windows—for it has four on each side—is the insertion in each case, at the central intersection of the upper tracery, of a well-carved double flower, or rose, of twelve petals. It should be noted that the five lights of the large east window are of unequal width, the centre one being 3 ft. 6 in. in breadth between the mullions; the two next lights 2 ft. 9 in.; and the outside lights 2 ft. 7 in. The arcade work of the interior of the chancel also deserves mention. The walls below the window strings, save at the east end, are filled in with a series of slightly-sunk cinquefoil-headed arches, five below each window. One of these arches in the





Norbury Church: Interior.



Norbury Church: Plan.

been noted by any one. There used to be a covered entrance or gallery from the adjacent manor house immediately to the west of the church, which allowed the Fitzherberts to enter a loft at the west end of the parish church without going into the open air. The old tenant of the manor house, whose family had been there for several generations, used to point out the exact position of this passage, much of which was still standing when Mr. Meynell visited the church early in the nineteenth century. This communication at the west end of the fabric was probably the reason why the new tower was not built in the usual place. Somewhat later, towards the close of the fifteenth century, further great changes were made in the fabric. The nave was rebuilt and a north aisle added, as well as a clearstory. The position of the tower rendered a south aisle impossible; but chapels were designed east and west of the tower to produce as near an approach to an aisle as was possible without the removal of the tower. This work was designed and most of it carried out by Nicholas Fitzherbert, tenth Lord of Norbury, who died in 1473. By the side of his monument, which originally stood in the south-east chapel, was the following epitaph, which has been copied from Le Neve's manuscript collection of inscriptions:—"In Northbury Church in Derbyshire, on a tombe in a little chapel; on the right hand:—

\*An [M]CCCC. seventy and three  
Yeres of our Lord passed in degree  
The body that beried is under this stone  
Of Nichol Fitzherbert Lord and Patrone  
Of Norbury with Alis the daughter of Henry Bothe  
Eight sonnes and five daughters he had in sothe  
Two sonnes and two daughters by Isabel his wyfe  
So seventeen children he had in his lyfe  
This Church he made of his own expence  
In the joy of Heaven be his recompence  
And in moone (sic) of November the nineteenth dey  
He bequeathed his Soule to everlasting jey."

In the chancel is an alabaster slab with the incised figure of a priest under a canopy in eucharistic vestments, and holding a chalice. The stone is much worn, and only parts of the marginal inscription are legible, but sufficient remains to show that Henry Prince, who was rector from 1466 to 1500, re-roofed the chancel. The re-roofing and reconstruction of the western end of the chancel became necessary owing to the rebuilding of the nave, and a lower pitch of the chancel roof was adopted to make it harmonise with the clearstoried nave. It would probably be at this time that the chancel arch disappeared. The absence of a chancel arch is a decidedly uncommon feature of an old church in the Midlands; but the fifteenth-century church builders of Cornwall and North Devon usually did away with this arch, and thus gave greater facilities for the erection of elaborate screens and rood-lofts that were then becoming so fashionable. When the chancel roof was lowered, the side walls were slightly raised the pointed edge of the parapet, of peculiar and effective design, is probably of that date, for the inner side of these stones shows that they have been reworked from a former battlement. It was suggested about the middle of the last century, and is now sometimes repeated, that the exceptional form of this parapet was an imitation of the heraldic *quatre* which occurs in the arms of Fitzherbert, of Norbury (Arg., a chief vaire, or and gules, over all a bend sable). But irrespective of the extravagant idea of imitating a

south wall is occupied by the piscina niche, which has a double drain and a double credence shelf. Against the same wall are three sedilia of equal height, but without any canopies over them.

The simple old Norman church had doubtless been content with a mere bell-gable turret, for one or two bells, at the west end of the nave, and this continued to serve for some time after the erection of the splendid chancel by Rector Kniveton, who was a man of considerable wealth. In the early years, however, of the fifteenth century there was a desire for better accommodation

for bells, and a small tower was built for their accommodation. Mr. Micklethwaite, whose opinion was asked in connection with recent restoration, considers that it was erected "about a hundred years after the rebuilding of the chancel . . . and that it is a good ordinary work of the time." At all events, this tower was built some time in the first half of the fifteenth century. Its position in the middle of the south wall of the nave is decidedly unusual, and the lower story was utilised to form a porch. There is a good reason why such a position should have been chosen, which has not hitherto



mere fur—which was only equivalent to a colour, and formed no part of an heraldic design—a close examination shows that the supposed similarity does really not exist, and has at most but a vague resemblance.

The work of reconstruction designed by Nicholas Fitzherbert was accomplished by his grandson, John Fitzherbert, twelfth lord of Norbury, who built the south-west chapel. He did not die until 1531, but by his will, dated September 21, 1517, he left his body to be buried in the parish church of Norbury, "under the newe made arche benethe the steple or elsewhere as God shall otherwyse dispose it." The plain table tomb to his memory, with alabaster sides, now stands again in its original position, namely, under the arch into the chapel to the west of the tower.

As to the interior of the church, there is one important detail, which is older than any of the monuments or other remains, save a few uninscribed coffin-lids or old memorial stones, and that is the thirteenth-century font, which is of simple but effective design. It is figured in Paley's "Baptismal Fonts" (1844).

The church is rich in monumental remains. The oldest identified memorial is that of Sir Henry Fitzherbert, fifth Lord of Norbury, who came into his inheritance in 1267, and died soon after 1310. He rebuilt the manor-house at the beginning of the fourteenth century, and to him was probably due the gallery that led into the church. His effigy is sculptured in durable stone, and represents a knight in chain armour, with a hood of the same on his head, whilst over the armour is a surcoat. It is in fairly good preservation.

There are but few parish churches in England that possess two such beautiful effigy-bearing table-tombs of the fifteenth century as those of the tenth and eleventh lords of Norbury. The tomb of Nicholas Fitzherbert (1473) bears his knightly effigy delicately carved in alabaster, in plate-armour of the period. His head, with short-cut, straight hair, rests on a helmet surmounted by the crest of a clenched gauntleted hand. Round the neck is the collar of suns and roses, with a lion pendant, which was the badge of Edward IV. There are not many effigies extant wearing this collar; Derbyshire, however, has another example, which occurs on the brass to Roger Bothe (1476) in Sawley Church. Roger was brother-in-law to Nicholas of this monument. The long sword rests by the knight's left side, and of all the beautifully finished details of the monument, none show more care than the particulars of the sword-belt. There can be little doubt not only that such effigies as this were designed by the sculptor as portraits, but that the actual armour and ornaments were faithfully copied from those worn by the deceased. The feet rest upon a lion, with the curious addition of a minute angel on the lion's back supporting the tip of the right foot. The east end of the tomb is blank, and was probably so originally as a necessity of its position. At the west end are two female figures, which were certainly intended to represent his wives—Alice Bothe and Isabel Ludlow. The sides of the monument are panelled into numerous niches to contain beneath crocketed ogee canopies small figures of the large family born to Nicholas Fitzherbert. On the south side are the eight sons by his first wife, all in slightly

different costume. On the other side are the five daughters by his first wife and the two sons and two daughters by the second wife. As recently as 1870 many of the names of the children could be read in painted letters; but since that date almost all traces of these names, as well as many remnants of the original gilding and painting, have been cleaned away.

The other fine alabaster table-tomb bears the effigies of Ralph Fitzherbert, son and heir of Nicholas, and his wife Elizabeth, daughter and heir of John Marshall of Upton. This monument is so precisely similar in its whole treatment to that of Nicholas that it is not only the work of the same sculptor, or school of Nottingham sculptors, in Chellaston alabaster, but was also probably executed at the same date—namely, subsequent to the death of Ralph in 1483, when it would appear that John Fitzherbert, twelfth lord of Norbury, gave orders for the tombs to both his father and grandfather. Ralph's effigy is very similar in arrangement to that of his father; one of the few points of difference being that the tip of the right foot is sustained by the diminutive crouching figure of a bearded beads-man. The collar founded by Edward IV. is also round his neck, but with a boar as pendant—the cognisance of Richard III. His lady wears a close bodice and gown, which have been painted green, and a mantle painted red. The hair is arranged in a pointed, reticulated head-dress, on which are some traces of gilding. Encircling her neck is a chain, on the pendant of which are the Blessed Virgin and Child. There are two small dogs at the foot of her robe, and the cushion beneath her head is supported by two angels. The east end of this tomb is also blank, and at the west end are three angels holding shields. On the north side are six niches under crocketed canopies occupied by Ralph's various distinguished sons; whilst on the south side are the eight daughters. All the children bear shields, the blazonry on which has only finally disappeared of late years.

These two beautiful tombs have quite recently suffered sorely. Sir Ernest Clarke, F.S.A., described to the Society of Antiquaries a visit he paid to this church in January, 1893. He found "the two magnificent altar-tombs to Nicholas Fitzherbert and his son Ralph smothered with boughs and twigs of fir which had been stuck in every crevice. . . . We counted on one tomb alone twenty-five recent chippings of the alabaster, especially on the side nearest the wall, and a further search would doubtless have revealed more." Happily the present rector keenly appreciates the value of the various memorials within the church of which he is custodian.

On the death of John Fitzherbert, twelfth lord of Norbury, in 1517 the property passed to his younger brother, Anthony, a man of much celebrity and probity. Sir Anthony Fitzherbert became a most distinguished judge, being made one of the Justices of the Common Pleas in 1522. His legal works are even now of much value. He died in 1538. The monument to Sir Anthony and his second wife, Maud Cotton, by whom he had ten children, is noteworthy. It consists of a large blue stone inlaid with brasses. The head of the judge is missing, together with the group of sons and part of the elaborate marginal inscription. All that remains is palimpsest. These re-used frag-

ments of older brasses were of fourteenth and fifteenth century dates, the latter being the epitaph of one Thomas, the prior of some religious house. The spoiling of the monasteries and the sale of their memorials were in full swing at the time of Sir Anthony's death. These brasses are now securely fixed; rubbings of the reverse sides have been placed in the vestry.

Striking as are the monuments at Norbury in stone, alabaster, and brass (of which only the most memorable are here named), the church is yet more remarkable for its wealth of old glass. There are only one or two village churches in all England that have more interesting or valuable remains of old painted glass. The retired situation of the church and the close proximity to the building of the manor-house of the once powerful and ever-respected family of the Fitzherberts were the probable causes that hindered the destructive action of Puritan iconoclasts of the sixteenth and seventeenth centuries. But the neglect, parsimony, and greed of the eighteenth and early nineteenth centuries did grievous harm to that which had escaped the devastations of religious and civil strife. The great east window of the chancel, which had been filled with fourteenth-century subject glass, got into bad repair about 1800, when the then rector, Mr. Mills, actually blocked it up with lath and plaster, in order to save the expense of repairing it, for which he as rector was legally liable. His successor, the Rev. T. Bingham, was offered a large sum of money, by a Roman Catholic family of Yorkshire, for permission to remove what remained of this east window glass to a private chapel. The offer was at first declined (1823), but seems afterwards to have been accepted. At all events, this valuable figure glass soon after disappeared, and cannot now be traced.

A well-intentioned, but reckless and disastrous, restoration of Norbury Church, was carried out in 1842. At that time most of the clearstory windows of the nave, the large west window of the nave, and the small windows of the north aisle, as well as the great side windows of the chancel, were filled with painted glass. The east window of the chancel was again opened, and, by a most unhappy lack of judgment, it was decided to fill it up with glass brought from the body of the church. Not only did this decision cause much damage and loss to the old glass in the course of its translation, but it effectually destroyed the harmony and consistency of the scheme of the chancel colouring by placing glass in juxtaposition with work of a very different style, and at least a hundred years earlier in style. On some of the quarries of the east window may be noticed the initials N. and A., and on others the golden star, or *rose en soleil*, the badge of Edward IV., showing that it was glass put in by Nicholas and Alice Fitzherbert, circa 1450. Other pieces, taken from the south-west chapel, bear J. F., being the initials of John Fitzherbert, circa 1500. In the centre light is a representation of the Holy Trinity, taken from the same chapel, and elsewhere are the somewhat mutilated figures of the Twelve Apostles taken from the clearstory windows.

The eight large windows of the side walls of the chancel retain, for the most part, their original fourteenth-century glazing. They are filled with grisaille glass of scroll-work and varied leaf patterns, re-



lived with occasional colouring in red, blue, or green, and having a large shield of arms inserted near the top of each of the main lights. In 1842, certain parts were found to be missing, and they were clumsily reproduced on the cheap by mere brush daubing, which has already worn off in parts. The patterns in the tracery lights were also mainly of modern insertion.

There is some interesting fifteenth-century glass in the south-east chapel, though here, again, much of it proves, on close examination, to be the imitative smearwork of 1842. It includes figures of SS. Anne, Winifred, Osyth, John Baptist, Anthony, and the patronal saint of the church, lettered below, "Sanctus Burok Abbas;" as well as small kneeling figures of the two families of Nicholas Fitzherbert. There is also some further old painted glass in the west window of the nave. We understand that the old glass of Norbury is now in process of being releaded. It is sincerely to be hoped that no attempt will be made at any further refilling or unnecessary repair, but that it will be left to tell its own tale of the art of past generations.

Between 1899 and 1902, certain absolutely necessary repairs of this church, both in nave and chancel, mainly consisting of new roofs, have been well carried out on conservative and reverent lines by Messrs. Naylor & Sale, of Derby.

#### WORKMEN'S COMPENSATION.

THE Court of Appeal have recently had under consideration a considerable number of appeals in cases under the Workmen's Compensation Acts. One of the decisions of the most importance is that in the case of *Stevens v. General Steam Navigation Co.*, in which it has been decided that the references contained in the Workmen's Compensation Act, 1897, to the Factory Acts, 1878 to 1895, which have since been repealed by the Factory and Workshop Act, 1901, "an Act to consolidate with amendments the Factory and Workshop Acts," are now to be read with reference to this latter Act. The effect of this decision is that the scope of the Workmen's Compensation Act has been extended by this indirect method of legislation. This extension is chiefly connected with the question of ships, which we need not deal with in these pages, but as regards other undertakings, the chief extensions seem to be as follows:—

1. In the Workmen's Compensation Act, 1897, "railway" is defined by reference to the Regulation of Railways Act, 1873, and includes "every station or siding belonging to such railway and used for the purposes of public traffic." Section 106 of the Factory Act, 1901, however, makes any line or siding used in connexion with a factory or workshop or any place to which any provisions of the Factory Act are applied, a factory. Thus it now appears these private lines will come within the scope of the Workmen's Compensation Act as "factories."

2. By the Factory Act, 1901, some new undertakings are made "factories," viz., (a) "Electrical Stations," which are defined as "any premises, or that part of any premises in which electrical energy is generated or transformed for the purpose of supply by way of trade, or for the lighting of any street, public place, or public building, or of any hotel, or of any railway, mine, or other

industrial undertaking;" (b) "Dry-cleaning, carpet-beating, and bottle-washing works." The liability under the Workmen's Compensation Act is imposed on the "occupier" of the factory, and it is a curious fact that, although the Factory Act, 1901, carefully supplies a definition of the word "owner," no definition is given generally of the word "occupier," which is the keynote of the whole question, as it is only the "undertaker" or "occupier" who is liable under the Workmen's Compensation Act to his employees.

*Atkinson v. Lumb* is an important case on the area of employment in "engineering works." Except in the case of railroads, harbours, docks, canals, or sewers, to make an undertaking an "engineering work" under the Workmen's Compensation Act, machinery has to be used. In this case a reservoir was being constructed by means of machinery two miles from the town of Todmorden. This reservoir was to be connected with the town by pipes, and no machinery was necessary on this latter operation. A man laying these pipes was injured 500 yards from the reservoir, and he was held to be employed "on, in, or about an engineering work," the court holding that he was in actual physical contiguity to the area embraced by the undertaking an engineering work, and distinguishing the case from those decisions where the workman, although engaged on his master's business, was outside the physical area of the undertaking.

The case of *Ives v. Langley* (the *Builder*, p. 443, ante), raised a point somewhat similar to those which arise under the Public Health Act in relation to sewers. Four cottages all under one roof were being erected, and an employee engaged in erecting a gate in a yard attached to the first cottage was injured: scaffolding was at the time being used on the third cottage. The Court held that the back yard was within the curtilage of the building, and that all the cottages were one building, and that, therefore, the man was employed "on in or about a building being constructed by means of a scaffolding" within the Act. It should be noted that in one case *Preston v. Wade* (*Builder*, p. 467) it was contended that to render an employer liable under the Act he must be the person using the scaffolding in his undertaking, but the Court of Appeal entirely negatived any such construction of the Act. We have already commented on the point of ladders constituting scaffolding, *Elvin v. Woodward & Co.* (*Builder*, May 2). The case of *Vamplew v. Parkgate Iron and Steel Co.* is an important one on the distinction between a "workman," a man within the Act, and an independent contractor. The man in this case was engaged to break steel and clear cinders, employing men under him and being paid so much a ton. The Court held that there was ample evidence to justify the finding of fact by the County Court Judge that this man was an independent contractor and outside the Act. This has an important bearing on the position of miners and quarrymen who are usually paid by results, but we venture to think that that fact alone would not suffice to constitute them independent contractors, but, nevertheless, they will be wise to come to some agreement on the point as was done in the case of *Evans v. Fenwylt Dinas Brick Co.* (18 *Times L. Rep.* 58).

*Giles v. Belford Smith & Co.* is an important decision as showing that although the House of Lords have held that casual labourers are within the Act, yet the decisions which construed the schedule of the Act as involving continuous employment where the employer remains the same are still in force, and that therefore in calculating the compensation due to a man injured who has been irregularly employed by the same employer the Court must consider whether there has been a break in the employment, and not take into consideration all the days of employment during the preceding twelve months, but only the period of continuous employment. In the case of *Rothwell v. Davies* it has also been held that where a workman has been injured the employer cannot compel him to undergo an operation which in all probability would render him more efficient for work, but which would entail some risk.

#### NOTES.

AFTER a prolonged controversy, the Senate of the United States has finally decided in favour of the ratification of the Panama Canal Treaty with Columbia. Two or three years ago it seemed very unlikely that the American nation would ever accept the Panama route. In the first place, there was a sentimental difficulty, due to the mistaken idea that it would be unpatriotic to adopt the Panama scheme, which was looked upon as a purely European, and consequently an antagonistic, enterprise. Again, Nicaragua had been associated in the minds of the people as the site of a distinctively American canal, conceived by American brains, and carried out from first to last with American dollars. Moreover, the Panama scheme suffered from the odium of past failure and mismanagement, and from floods of literature leading the public to believe that the failure of the first Panama Company was due to physical and engineering difficulties. It is true that the first Report of the Commission appointed by the President of the United States was in favour of the Nicaragua route, but it was distinctly stated that this choice was due to the excessive price demanded by the Panama Company, and as soon as the price was reduced to about 8,000,000*l.*, the Commission reported unanimously in favour of the latter scheme. Briefly summarised, the advantages determining this choice were, that the Panama route would be 134.6 miles shorter than the alternative; that it would necessitate fewer locks and less curvature; that the passage of vessels would be shortened by twenty-one hours; and that the annual cost of maintenance would be 260,000*l.* less. The decision that has now been made must be regarded as a distinct triumph of commonsense over misinformation, misrepresentation, and blind prejudice, a result upon which the American people are to be congratulated.

The Trades Dispute Bill.

THE debate on the second reading of the Trades Dispute Bill last week was really one upon the question whether legislation is needed upon the subject of picketing and trade combination. No one for a moment supposed, even if [the second] reading of the Bill had been carried, that it could have passed into law. As a matter of fact, it was



defeated by a small majority. The result of the debate is, however, that the Government has promised to inquire into the whole question by means of a Royal Commission. It is pretty certain therefore that no legislation will take place during the lifetime of the present Government. There is, however, some doubt whether on such a question as the combination of workmen to effect a particular object there is much need of further facts, since it is really a question of principle whether a number of persons should be allowed, even by legislation, to combine to do such an act, for example, as to persuade another workman to break his contract. It is obvious, however, that for some time to come we shall hear a great deal of the question, and it is equally certain that, with the voting power possessed by the workmen, the probabilities are in favour of a change of the law which will give greater facilities for labour combination.

**MR. HAMO THORNYCROFT**, in his well-intended protest in the *Times* a few days ago suggesting an alteration in the proposed north line of the Strand so as to open out St. Clement Danes Church better, seems to have omitted to take into consideration the whole of the site plan, and to have looked only at one end of it. The slight curve southwards opposite St. Clement Danes is only one end of a long curve which is to run past St. Mary-le-Strand and to be finished in a similar manner at its western extremity; it is symmetrically laid out, and as the whole new site here is on a symmetrical plan, Mr. Thornycroft's proposed alteration would disarrange it. If St. Clement Danes stood axially with St. Mary's it would be a different matter; but it does not. We are told on good authority that the proposed alteration would involve a loss of public money to the extent of at least 100,000*l.*, and that it might be nearer 200,000*l.*; and considering that it would be really an interference with a symmetrical street plan, it is certainly not worth that.

**INFORMATION** as to Southwark Bridge may be of interest just now. John Wyatt originally projected a bridge from Three Cranes-wharf to Bankside; the Act for its erection by a public company was passed on June 15, 1811. Rennie was assisted by his son, Sir John Rennie, in the design and construction of the fabric, 1813-9. Walker & Co., of Rotherham, cast all the ironwork, the masonry of Craig Leith, Whitby, and Bramley Fall stone being built by Jolliffe & Banks. The abutments, 708 ft. apart, extend over 71 ft. apiece, the land and invert arches included; the piers, 24 ft. wide, rise to 60 ft. from the river-bed to the top of the parapet; their timber platforms, 2 ft. 6 in. thick, are 14 ft. below the bottom of the river and rest upon piles, some of which were driven to a depth of 23 ft. The middle arch, at that time the largest after its kind and exceeding by 4 ft. in span the famous iron bridge at Sunderland, has a span of 240 ft., with a rise of 24 ft. and a whole height of 53 ft. from low-water mark to the roadway; the two other arches have a span of 210 ft., the minimum length imposed by the Act. Solid masses of cast-iron constitute the soffits; in each arch are eight great ribs increasing from

6 ft. to 8 ft. in depth, riveted to diagonal braces, a method then adopted for the first time. All the braces and segmental parts are kept in position by means of long iron wedges and dovetailed sockets, so that bolts were used only during the construction for holding the pieces in place until the wedges had been driven in. Upon the spandrels, which are similarly connected, rests the roadway formed of solid iron plates joined with iron cement. Vertical and horizontal bond-stones tie the masonry of the piers and abutments. Upon the removal of the timber framework it was found that the settlement of the middle arch at the vertex was only  $1\frac{1}{8}$  in., being exactly  $\frac{1}{8}$  in. less than the limit allowed for. Experiments show that the arch rises from 1 in. to  $1\frac{1}{2}$  in. during the summer months. The castings, some of which weigh 10 tons, have an aggregate weight of 5,780 tons. The total cost of the work, the approaches included, amounted to 800,000*l.* Admiral Lord Keith laid the first stone on May 23, 1815, and at midnight on March 24, 1819, the bridge was opened for traffic.

**THE** Committee of the House of Commons which was engaged last week in hearing evidence for and against the Crystal Palace District Gas Company's Bill has decided to permit the company to discontinue purifying the gas from sulphur compounds other than sulphuretted hydrogen, and to reduce the illuminating power of the gas from 15 candles to 13 candles upon condition that the standard price shall be reduced 1d. per 1,000 cubic feet. The gas company may congratulate themselves upon having secured a good bargain for themselves, for the two metropolitan companies which have recently reduced their illuminating-power standard from 16 candles to 14 candles had to consent to a reduction of 2d. per 1,000 in the standard price. This reduction to a 13-candle standard indicates that the advocates of low-grade gas are gaining in number and power. Indeed, Sir J. Brunner, the chairman of the Committee, remarked that in his opinion the quality of the gas throughout the country might with advantage be reduced to 8-candle-power, and we see no objection to such a change provided that a fully commensurate reduction in price be made and a satisfactory calorific standard be adopted. At present all the gas companies (except the Mond Gas Co.) have power to reduce the calorific value of their gas with impunity, for no reference has been made in any of the Gas Acts to heating value. We have long looked to cheap, low-grade gas to form a smokeless fuel which will bear comparison, even on a purely economic basis, with coal as a fuel for domestic heating and cooking, as well as for industrial uses and power purposes, and material progress in the right direction does at last appear to be about to be accomplished.

**WHILE** giving evidence before a Committee of the House of Commons last week, Professor V. B. Lewes stated that a burner has been invented which will enable ordinary producer gas, such as Mond gas or Dowson gas, to be used for incandescent gas lighting, and that he had seen a mantle heated by such gas emitting a light of over 100 c.p.

It has hitherto been generally believed that producer gas cannot be used for incandescent lighting, owing to its very low calorific power, and the numberless factories and foundries which make their own producer gas will now be able to supply their own lighting installations at a much lower cost than when supplied with coal gas. The lighting efficiency of the producer gas will probably be found to be a little less than one-fourth of that of coal gas, but the cost of producer gas manufactured on a large scale for industrial purposes on the site upon which it is to be used is, in most cases, less than one-tenth the cost of coal gas bought from a neighbouring gas company.

Physical Properties of Brick.

An elaborate paper, illustrated by photographs, drawings, and diagrams, and accompanied by numerous tables, describing an investigation of the physical properties of brick, under different conditions, was recently presented before the American Society of Civil Engineers. At first sight it may seem superfluous to take so much trouble about so simple a material, but all inquiries of the kind are desirable in the interests of scientific construction. The object of the tests was to ascertain the weak points of a brick, and, as bricks are subjected to compression, tension, bending, shear, and torsion, to a greater or smaller degree, it was decided to test them under all these conditions, and to compare the results. Bricks were also tested in three conditions, natural, filled with water, and reheated, the author having in mind bricks used in dry places, bricks used in wet places, and bricks used again after having passed through a fire. In comparing the tables of strength under different strains, we find the following order of increase in strength, viz.:—Tension, shear, torsion, bending, compression. Of course, tension and compression are the most important tests, and tension is more important than the other, as the tensile strength of a brick is only about one-fortieth of its compressive strength. As to the best kind of brick for use, the tables and diagrams are in favour of reheated brick; and while it would not be economical to prepare bricks in this way, the tests show conclusively that the effect of a fire is to improve the quality of the material. Natural bricks, and bricks thoroughly soaked in water, show about the same results, so that it may be generally assumed that water does not cause diminution of strength.

Arsenical Wall-paper.

**ARSENICAL** poisoning from a bedroom wallpaper acting on a body weakened by Bright's disease was, according to Dr. Smyth, the cause of the death of a Leyton packer upon whom an inquest was held last week. Many years ago it was discovered that a considerable proportion of the wall-paper in general use contained arsenic, and great care was subsequently taken by the principal paper manufacturers that all colours and other materials used in the production of their papers should be free from arsenic. We do not know whether the long period which has elapsed since the question of poisoning by arsenical wall-paper was a popular topic of discussion has caused the manufacturers to relax their vigilance, but in



any case Dr. Smyth's evidence should serve to remind them of the advisability of retaining the public confidence and of preventing any papers being placed upon the market which are liable to create a scare and injure their trade. It is not commercially impossible to manufacture coloured wallpapers free from arsenic, and only such papers should be sold.

**Parishes and Union Boundaries.** AN interesting point was decided in the case of Guardians of Whitehaven *v.* Guardians of Whitehaven Union (*Times*, May 11). Seascale, which adjoins the parish of Drigg and Carleton, was within the Union of Whitehaven, although Drigg and Carleton are within the Bootle Union. By an order of the Local Government Board confirming a resolution of the County Council, part of the parish of Drigg and Carleton was added to the parish of Seascale, and all Seascale was brought within the Bootle Rural District, but the boundaries of the unions remained unaltered, and the plaintiffs contended that the effect of the Order was not to add part of their union to that of Whitehaven. The court, however, took the view that the effect of this order was to add this portion of the Bootle Union to that of Whitehaven.

**The Electric Driving of Machinery.** A PAPER was read to the Institution of Electrical Engineers last week by Mr. Williamson on "The Applications of Electricity in Engineering and Shipbuilding Works." He described particularly the numerous applications of electricity to driving machinery in the works of Messrs. Vickers, Sons, & Maxim, where an aggregate of 22,500 horse-power is in use. Before the introduction of electricity it was necessary to employ a gang of workmen to do odd jobs in the works, such as opening furnace doors, &c. To open one of the heavy furnace doors formerly required six men, now the operation is performed by a small two horse-power motor. To charge a 40-ton Siemens' furnace by hand required four men for four hours, now the same operation is performed in half an hour by the Wellman charger. Also the output is the same in summer as in winter, whereas formerly with hand charging it was much less in the hot weather. The adoption of electricity has considerably reduced the wage costs, and has increased the output. At the same meeting a paper was read by Mr. Chatwood on "Electric Driving in Machine Shops," and he arrived at practically the same conclusions as Mr. Williamson. He took as the basis of his paper the cost of electric power at Bolton, where motors can be hired at 10 per cent. on their cost, and current can be got by large consumers at practically 1d. per unit. In these circumstances it would nearly always be more to the benefit of the manufacturer to get his power from the supply mains than to generate it himself. In some London districts this is also true, as the supply companies give very favourable terms to power consumers. Mr. Chatwood gave general formulæ, by means of which the relative costs of motor driving and steam driving could be rapidly found. These formulæ are novel, and ought to prove useful. Both papers contain a large amount of data which will be of value to engineers.

**Sewage-Filtration.** A REPORT on sewage filtration at Reigate has been prepared by Dr. Thresh, the Medical Officer of Health for the County of Essex, and has been submitted by him to the Sanitary Committee of the County Council. The Report is short and does not give full details of the process of purification. The installation is on a small scale, only "a portion" of the town's sewage being treated. After "slight subsidence"—this is very vague—the sewage is distributed by means of an automatic revolving-arm sprinkler over a primary coke-bed, and the effluent from this is distributed in a similar manner over a secondary bed. The filtering material is 3 ft. 6 in. deep, but no information is given as to the sizes of the pieces of coke. The area of the primary bed is only 38½ sq. yards, and that of the secondary bed 50 sq. yards. The first analyses which Dr. Thresh made were so surprising that he paid another visit to the works, and took samples of the crude sewage, and of the primary and secondary effluents, every five minutes for two hours. All the samples of one kind were mixed, and from the three mixtures thus obtained, the samples for analysis were taken. The results previously obtained were confirmed, the secondary effluent showing a marked loss of chlorides, "proving that the diminution was not due to dilution, but is a natural result of the process of purification." Nitrates were present in the final effluent, and "practically the whole of the ammoniacal matter had disappeared." We may add that the sewage contained "a rather large proportion" of tanning effluent, which rendered it more difficult to treat. In concluding his report, Dr. Thresh strongly commends the method of distributing the sewage over the beds, and advises local authorities in Essex to adopt it, as he is convinced that it will prolong the life of the beds and produce a better effluent than any of the systems of charging now in operation in the county. It would be interesting to know the time which the sewage takes in flowing to the works, and also the rate of flow through the subsidence tank.

**The Temple Church.** WE understand that in a Report which he has prepared upon the condition of the fabric Mr. T. G. Jackson recommends that some repairs should be carried out, at an estimated expenditure of about 2,000*l.* The repairs comprise the rebuilding of the bell-turret, the renovation of the west doorway and the arches of the porch, and the fixing of iron ties at the springing of those arches. The three aisles and the circular vestibule of the church were restored in 1825-6 by Sir Robert Smirke. In 1840-2 a reparation of the stonework, as begun by James Savage, architect and surveyor to the two Honourable Societies, was continued, and mainly in accordance with his plans and intentions, by Sydney Smirke and Decimus Burton, in association we believe with Cottingham, who, by reason of some disagreements that arose between Savage and the benchers, had been appointed to carry on the work. During the interval the stained glass windows, by Willement, were inserted. On that occasion, however, it seems that an unsuitable kind of stone was employed for the exposed portions. The decay of the stone, accelerated by the impurities of the atmosphere, is

now so far advanced that some remedial measures are necessary. Beyond that, no structural damage is apparent, nor is the safety of the fabric in any degree endangered. About forty years ago Mr. St. Aubyn effected a further renovation of the western part of the church and the conical roof. A print by Malton shows that the west doorway and its porch were formerly encumbered with a block of chambers, having two floors.

**Miss Ida Lees's Exhibition.** AT Messrs. Dowdeswells' Gallery there is a collection of oil paintings and drawings, under the title "Moonlight and other Night Effects," by Miss Ida Lees, a lady who seems to have taken up specially the study of moonlight and lamplight effects. One has always a little suspicion of this type of art, as it has often been made the occasion for appealing to the public by means of "stagey" effects of light which catch the eye, and which are not very difficult to produce. In the present instance, however, the small oil paintings, which are the best part of the show, do give evidence of a careful study of actual effects. In "The North Gate, Salisbury" (40), the mingled effect of the street lights and the light from the concealed moon seems very true; so is the street effect in "Church Square, Corfe" (53) with the lighted-up shop windows throwing a bar of light across the street; and perhaps still better is "A Padstow Steamer" (47) passing at night, with her mast and side lights, and the hull and funnel only just visible. There is always a temptation in such scenes to show too much, and thereby lose the night effect, but this has really the effect of steamers that pass in the night. "The 'Portslade' Coming into Shoreham Harbour" (49) is also good in the same way, but not quite equal to No. 47; "Winter" (44) owes its effect to the reticence of the artist—to the little that is shown; in "The White Cottage" (56) there is a poetry in the ghost-like house just discernible, and its two faintly-lighted windows. The mistake in several of the pictures is the exaggerated size of the moon, which, to put it technically, subtends far too large an angle in the picture in most cases, and in Nos. 38 and 39 this exaggeration is so great as to be absurd. If Miss Lees will get one or two photographs of a landscape with a moon in it, she will see how small the moon really is, with reference to the angle included in the scene, in comparison with the scale represented in her pictures.

**Holland Fine Art Gallery.** A COLLECTION of pictures by the well-known Dutch sea-painter, Herr Mesdag, is on view at the Holland Fine Art Gallery. There is, as might be expected, a certain amount of sameness and repetition of effect in a number of these works when seen collectively, for Herr Mesdag paints mostly one kind of scene and effect; rough sea handled in a very broad, free, and masterly manner, and broad blunt-nosed Dutch fishing craft. It is all excellent work however; among the best are some of the smaller ones—"Homeward Bound" (3), "In Danger" (7), "Storm" (25); the latter a fine gloomy sketch, hardly more, of a threatening sky and sea. "Early Morning" (14) is a variation from the artist's usual style of



subject, a calm sea and the light of the dawn in the distance. Mrs. Mesdag, van Houten contributes three pictures to the collection; two small flower-pieces of fine colour, and a remarkably bold and broad landscape sketch under the title "On the Dunes."

Nesfield's Drawings at the Institute

MEMBERS of the Royal Institute of British Architects owe much to those who placed before them such a valuable collection of drawings as were shown at the President's "At Home" on Monday last. The late Mr. W. Eden Nesfield's executed works are so well known to every one that a little insight into his methods of expression on paper is of the utmost interest and value. The first impression conveyed by a general look round is appreciative of the importance of his works, the variety of subjects, the reasoning of Gothic and Classic influences, the minuteness of his care, and, finally, the marked individuality existing throughout. All his working drawings show the infinite pains he took over every detail, and the small perspective which is often introduced into the contract drawings illustrates his anxiety to show his work to the builder as he saw it, and to convey to him, as far as possible, the feeling and character in which he wished him to work. One of his most important works is the addition to Combe Abbey, done at the outset of his career. These are a most fascinating set of drawings done entirely by his own hand. The 8 in. scale drawings have the stamp of a capable enthusiasm combined with an appreciation of the care necessary to govern it. The full-size iron-work details of oven, fire-dogs, spit, and other fittings, are full of interest, and express a thorough knowledge of the nature and treatment of the material. In handling a remodelling problem his genius is shown at its best; and the drawings of Babbacombe, Lea Wood, and Gloddaeth, were perhaps the most interesting contributions to the exhibition. The happy manner in which Nesfield associated himself with the old building and searched out for its utmost possibilities, is the secret of his successful solution. In his minor works the same interest is taken, and nothing could be more charming than the drawings of butcher's shop and cottages at Hampton-on-Arden, or the signboard at Old Hall, Sandbach. The Institute is to be congratulated upon securing such drawings for exhibition, and the privilege of viewing them is one which must be deeply appreciated by the members.

#### ARCHITECTURE AT THE ROYAL ACADEMY.—II.

ECCLESIASTICAL architecture is pretty largely represented this year, though the larger proportion of the drawings of this class, and many of the most prominent and important, do not illustrate executed work, or work to be executed. The Liverpool Cathedral competition naturally furnishes its contribution, six of the competitors being represented here by eleven drawings. Among these are two elevations and the plan of Professor Pite's design, called in the catalogue, as it was in the competition, "Design for an Anglican Cathedral" (1,677, 1,690), but of course at once recognisable. This fine design was illustrated in our issue of October 18, 1902, by reproductions from some of the original drawings, and further by a perspective view made by our own artist, published in the New Year's number for 1903, so that we need not describe it further. Considering that this design was passed over by the assessors in the competition without a word,

although "honourable mentions" were bestowed upon designs far inferior to it, one is glad to find it placed on the line here, under the direction (as is supposed) of one of the same assessors who could see nothing in it before. A remarkable design by Mr. Skipworth is shown in two drawings (1,677, 1,680), a perspective taken at the West-end, and a side elevation. The plan is one with passage aisles only; it may be questioned whether this type of plan, however suitable and practical for an ordinary-sized Congregational church, has anything like the same dignity of effect, for a cathedral interior, as is furnished by the three aisles on the usual proportion. The crossing is occupied by a vast octagon, treated externally in a very bold and original manner, in three stages; the first a mass of plain walling; the next, of about the same height, decorated with a kind of order of very free type of design, with columns partially decorated near the top by slightly indicated spiral lines; the third stage has a window with a kind of canopy in the centre of each face, while at the top, just under the coping, a small wall arcading is carried all round. The level line of the coping terminates the structure; something more seems to be wanted, but nevertheless this feature would have a fine and striking effect in execution, and is at all events original. So is the west end, with its massive and deep buttresses, one of which cuts the centre of the central archway and carries a central turret above; this position of the buttress seems a somewhat forced attempt at novelty, hardly to be commended, but the general effect of the grouping, with its base of alternating courses of dark and light stone, and the mass of plain walling in the upper portion is certainly picturesque and effective. In another part of the room is shown the proposed interior perspective of the same design (1,666) which suggests to a certain degree a reminiscence of Siena, only that the black and white work is confined to the lower parts of the piers and to the arches, instead of being carried all over the building. The piers which mark the aisles are octagonal in the lower portion, and in the upper part show the same slightly marked spiral treatment which occurs on the exterior of the octagon; the connexion to the main wall, by an impost with partially gilded carving and a small open arcading under it, is a charming piece of architectural detail. The whole is roofed by a vault with moulded ribs in light and dark work, and the wide wall arches carried from impost to impost of the piers are treated in the same manner. It is a striking and original interior and perhaps the best part of the whole design, the author of which, in our opinion, ought to have had the opportunity of entering in the final competition for the cathedral.

Mr. Corlett's design for the Liverpool Cathedral is shown in perspective views of the exterior and interior (1,670, 1,672), a small plan being added. It is a five-aisled plan in a sense, but the outer aisles are only passage-aisles. The exterior is a rather rough but very bold and effectively tinted drawing, showing a design of considerable power, the defect of which is that the buttresses are overdone—it seems all buttress, great masses up the angles and centres of the western towers, without a break till they come to a set-off near the top; and the effect is to give these towers a somewhat hunched-up appearance, as if they were too high in the shoulder. The centre tower, with its subordinate features at the angles, is much more successful and would have a fine effect. This is anything but a commonplace design, but the author seems to have over-reached himself in an effort after an exceedingly solid and massive effect, and has not realised where to stop in this aspiration. The interior is in a more restrained style, with a plain vault with the inter-spaces coloured. Mr. Walley's design (1,683, 1,685) we take to be that of a young man; it is a very ambitious piece of rather restless Gothic, creditable as such, but not that one could imagine being carried out. The east end composition is not improved by cutting away so much of the solid of the buttresses and separating them from the main wall; a bad treatment both in a practical and a picturesque sense. Mr. A. D. Sharp's design (1,682) is an ordinary modern Gothic design presenting nothing special for blame or praise; the treatment of the upper part of the towers is the best portion of it. Lastly, we have Mr. Leonard Stokes's picturesque and original design, which we fortunately have other means of judging of (it was illustrated in our issue of November 8).

since it is so thoroughly skied that no one could make anything of it in its present position. This also is an able design which seems to have spoken in vain to the assessors, and is apparently no better appreciated at the Academy.

From designs for a modern cathedral we turn to one for putting a new face on an ancient one, that by Mr. J. Oldrid Scott for the west front of Hereford Cathedral (1,644). This is intended, evidently, to supersede the work of the ill-omened Wyatt, who in 1786 was called in after the fall of the west tower had ruined part of the west front, and availed himself of the opportunity to shorten the nave by one bay, to remove a good deal of Norman work, and make a west front of his own wretched Gothic. The present design is of course strictly orthodox Gothic; there is no attempt to make it look like a modern addition; a point on which many people hold strong opinions nowadays. But there is something to be said for consistency of architectural design, after all, and we do not know that, in supplying a façade which has been destroyed, there is really any better or more fitting course than to adopt the style of the existing remainder of the building, or, if a mediæval cathedral, its contiguous portions. Mr. Scott follows the exterior of the nave, and adopts late fourteenth-century Gothic, ignoring the Norman nave arcade of the interior. The design gives the impression in the drawing of being rather heavy in its mouldings and other details, but this may be because the scale is smaller than in most of our cathedrals, and there is nothing in the drawing to scale it precisely. Generally speaking, it seems to be a satisfactory piece of orthodox Gothic, only we do not particularly like the change from square to octagonal in the flanking turrets, by the introduction of long broaches; a feature much more suited to the base of a spire, where they lead up to its raking lines, while here they contrast rather harshly with the vertical lines. Another exhibit of Mr. Scott's, showing the north transept of St. John the Baptist Church Norwich (1,494), is a pleasant piece of Gothic perspective in the old style, recalling the days of Street and G. G. Scott.

Among other church designs is Mr. Warren's "St. Peter's Lowestoft" (1,401), a severely treated brick church with a passage-aisle plan, over which project the buttresses, the upper portions of which are carried up the walls to end in a series of heavy solid gabled terminations. The principal windows are round arched with stone heads and tracery; the aisles are lighted by small round-headed windows. A small octagon stair-turret is the only variation from the generally plain and severe character of the design. Two large drawings hung at angles of the room (1,640, 1,507) show Mr. C. H. Reilly's idea of a "Design for a Cathedral." This is Classic, and to some extent based upon St. Paul's—especially so in the interior; the exterior shows an immense mass of rusticated walling up to the line of the main cornice, with an attic above which is rather too heavy and too much broken up in line; but if, as we surmise, this is by a young hand, there is a great deal of promise in it, and both drawings are finely executed. The "Church School and Cottage at Troon" (1,546) owes its place on the line, we should suppose, to its being shown in a good water-colour drawing, for it is of little interest in any other sense; an example of the extent to which mere drawing counts in the hanging of the architectural designs. Mr. W. J. Tapper's "Interior of a Town Church" (1,552) is, as may be supposed, of more interest. Is it intended for concrete? It has rather that appearance, since mouldings are scarce and the interior buttresses are square masses with no appearance of masonry jointing. It is a one-span church, the buttresses pierced for passage aisles, and the principals consisting of solid pointed arches springing from them. It is rather bare-looking as an interior, but there is an idea in it. Near this is Mr. Goldie's elaborate drawing, hung too high to be well seen of the "High Altar and Reredos, Hawkesyard Priory" (1,573), a built reredos of the type of Winchester and St. Albans, filled with niches and sculpture, but broken in the centre by a square bay which rises high above the rest, and behind which is a blue ceiling painted with figures of angels. It seems a rich piece of work, but the details cannot be made out. Mr. Bodley's "Design for a Tomb for the late Canon Carter" (1,578), intended for Clewer Abbey,



is illustrated in a very well executed water-colour drawing. It is in Late Gothic style, with elaborately carved wooden traceried sides and canopy, a figure of an angel on the canopy at each angle. Below is a stone tomb, white stone or marble with a black marble base and subbase, the sides divided up by small buttresses and triangular-headed niches containing escutcheons; this forms the most characteristic portion of the design; the remainder is imitative Gothic work, very well carried out. In the interior of the "Church of St. Paul, Wood Green" (1,585) Mr. Goldie shows a plain Romanesque church of massive character, completely a reproduction of eleventh-century architecture as far as the stonework is concerned; there is a good painted timber roof with principals and tie beams decorated in a simple and effective herring-bone pattern. It is a pity that there was not an attempt to do something a little more original with the substructure, for this severe round-arched style, with no ornament of its own, is a very good basis to work further upon. Mr. Prynn's "New Church, Belvedere, Kent" (1,583), of fourteenth-century detail with a pointed wooden barrel vault and one of his favourite stone tracery chancel screens shown in the distance, is probably not well represented in the perspective; the openings of the arcade seem too wide, and probably the church looks better in execution than it does in this drawing.

"L'Art Nouveau" is represented in Mr. Wheeler's chapel for the Consumption Hospital at Northwood (1,587); walls partly red and partly green, looking in the drawing like glazed surfaces; the return wall across the chancel opening, with steps up the centre, is of a yellow tone, and carries wooden uprights with some kind of decorative termination in blue, carrying a rod-beam or something in the place of one. It is a good water-colour drawing, and the effect is pleasing but perhaps wanting in dignity and repose, for a chapel. Mr. Hutchinson's "Design for the West End of a College Chapel" (1,610) is evidently intended for a Roman Catholic college in a disturbed district, where the church may have to be used as a fortress. The front is flanked by battlemented towers of solid masonry only broken by arrow slits, and roofed with copper domes; the whole of the front is in this castellated style, with a deep unmoled pointed arch in the centre, where we almost expect to see a portcullis. On the faces of the two inner turrets are bronze conventional sprays flattened against the walls; and the whole is crowned by a bronze Calvary with the three figures on crosses standing up against the sky. It certainly does not give one the idea of a college chapel; but it is nevertheless a bold and original architectural conception, and more interesting as such than two or three other church designs of more orthodox character, with which no fault can be found, but which on the other hand present no new or original idea.

#### THE INTERNATIONAL FIRE EXHIBITION, EARL'S COURT.—I.

FIRE prevention and fire extinction are interesting subjects, and a really representative exhibition of methods of fire-resisting construction and of apparatus for "fighting the flames" could hardly fail to be instructive and popular. It is perhaps too early to say whether the exhibition at Earl's Court will prove to be truly representative, as there are still a great many vacant spaces, but that it contains much of interest cannot be denied. Indeed, the fact that it has been "organised under the auspices of the British Fire Prevention Committee" is a sufficient guarantee that at least architects and builders will find in it some valuable object lessons and some useful information. An attempt has been made to arrange the exhibits in two main divisions, the first being described in the catalogue as the "Historical and Art Loan Exhibition," and the second as "Industrial Exhibits," but the attempt is not entirely successful even in the catalogue, and in the exhibition itself it is a failure. The loan exhibits are not numbered, and many of them are scattered about among the industrial exhibits—apparently for the purpose of filling vacant spaces—with the result that it is almost impossible to find any particular loan. It is to be hoped that some sort of order will gradually be evolved out of the chaos. The industrial exhibits are more conveniently arranged, but even here the visitor's convenience has not been

studied as it ought to have been. Surely the Earl's Court directors know that the catalogue of an exhibition of this kind ought to contain a plan showing clearly the number of every stand; when this is done, the visitor can easily find any particular exhibit.

To describe the exhibits in the order in which they are given in the catalogue would be confusing. We propose, therefore, to classify them, and in this article some of the exhibits of fire-resisting construction in the industrial section will be considered. In the German Court, at Stand No. 1, the Eggert system of fireproof flooring is shown by means of a flat slab about 30 ft. span. We could not obtain any description of the system, but the slab is formed with somewhat porous black bricks,  $\frac{1}{4}$  in. thick, covered with concrete  $\frac{5}{8}$  in. thick. Probably steel is embedded in the concrete. The temporary wood staging on which the floor was laid is still in position. Other fire-prevention exhibits ought to be on view at stands 17 and 20, but we could not find them. At No. 22 the "Terrast" system of concrete flooring is shown. It is both simple and ingenious, and can be used with wood or iron joists. One specimen has steel joists about 3 ft. from centre to centre, and another has wood joists, 9 in. by 2 in., and 17 in. from centre to course. In both cases coarse wire netting is laid over the joists, so as to sag down between them to a depth of about  $\frac{1}{2}$  in.; the netting is then covered with brown paper, and on this the concrete is laid, the upper surface being flat and the lower surface in each bay being an inverted arch. The thickness of the concrete over the joists is about  $\frac{1}{4}$  in., and in the centre of each span about  $\frac{3}{4}$  in. The joists themselves are not protected in any way. J. B. Schroer, of Dortmund, shows at No. 26 some artificial stonework for chimneys, which are designed to prevent chimney fires. The stones for the shafts are about 18 in. square and 64 in. in height, and have a 10-in. circular flue and eight oval perforations around this forming air cavities. Stands 27 and 34 are also supposed to contain fire-prevention exhibits, but cannot yet be found. No. 25 contains a number of illustrations of the "Fris" partition walls, but the exhibit is not yet complete.

In the Queen's Palace, Stand No. 52 contains a large inscription—"Site of the Pavilion of the Fire Prevention Building Co.," &c.—but nothing more. No. 56 (left blank in the catalogue) is occupied by the exhibits of the Marmorite Artistique Syndicate; these consist of signboards of marmorite, very cleverly designed, the surface finished with glass of various colours and laid to form patterns in very low relief. At the next stand some brick partitions are shown, but the exhibitor's name is not stated either at the stand or in the catalogue. Some of the bricks are glazed, and measure 9 in. by 3 in. on the face and 24 in. thick; a shallow groove is formed in the beds and ends, and there are also two vertical oblong holes through each brick. The unglazed bricks are 11 in. by 6 in. on the face, and 14 in. thick, each brick having four vertical circular holes through it, and a semi-circular groove at each end. These bricks are made with plain surfaces, or with shallow sinkings to afford a key for plaster. The finished thickness of the plastered partition is only  $\frac{1}{2}$  in. The British Uralite Co. (No. 62) exhibit a pavilion—now in course of construction—with a framework of wood, covered with sheets of uralite. This is a fire-resisting composition pressed into sheets about  $\frac{1}{2}$  in. thick, and finished with paint or distemper or with wood veneers.

Another incomplete exhibit is that of Messrs. Drew-Bear, Perks, & Co., Ltd. (No. 64). There are two small steel trusses of ordinary type, and a floor with steel girders and wood joists—also of ordinary type and without any claim to fire-resistance. The model of the steel work of the auditorium of the King's Theatre, Hammersmith, is more interesting. The "Fram" fire-proof floors and partitions are shown by Mr. Rud. A. Stofert at No. 71. The floors have steel joists about 3 ft. 3 in. from centre to centre, and between these are fixed concrete blocks with flat tops and arched and corrugated soffits, jointed at the crown. The blocks are about 2 ft. long,  $\frac{7}{8}$  in. thick at the joists, and 4 in. thick at the crown, and may be finished with cement or covered with boards. The partitions are formed with solid pressed slabs  $\frac{3}{4}$  in. thick, which appear to consist principally of plaster of Paris; the ends are hollowed and rounded to form a

stronger joint. When plastered on both sides, the partitions are  $\frac{3}{4}$  in. thick. Messrs. Van der Vygh Bros., of Amsterdam (No. 73) exhibit the "Phenix" fire-resisting plates; some of these are 1 in. thick, and are nailed to wood studding and finished with plaster; others are  $\frac{3}{4}$  in. thick, and are fixed without woodwork, the slabs being united by  $\frac{1}{4}$  in. vertical iron rods. The St. Pancras Ironworks Co., Ltd., at No. 77, exhibit some well-made iron staircases, one of them having what are described as "safety concrete fireproof treads." The treads are 2 in. thick, and consist of steel and concrete, with lead embedded in the surface. The strings and risers of the stairs are of iron, and in a severe fire these would almost certainly fail.

At the next stand there is an excellent exhibit of jarrah and karri posts, beams, rebated plank flooring, match-boarding, panelling, block flooring, &c. Some of the posts tested by the British Fire Prevention Committee are also shown, the heart being thoroughly sound, although the outer portion had been burnt. In the test, the plank flooring, which was  $\frac{3}{4}$  in. thick, was proved to be the least satisfactory part of the construction, and even this did not allow the flames to pass through until the fire had been burning for eighty-four minutes; probably a double floor of the same total thickness would have given better results. The main timbers were reduced by the fire about  $\frac{1}{2}$  in., and were charred to a depth of  $\frac{3}{4}$  in. At stand No. 81 two French systems of "ferro-concrete" construction will be exhibited, but they are not yet on view. At No. 83 Messrs. Pilkington Bros., Ltd., show various kinds of glass, including their patent wired, rolled glass, which is certainly a better fire-resister than ordinary glass.

Mr. Jabez Thompson's exhibit is not mentioned in the catalogue, and there is no number attached to it, but we believe it to be No. 98. Mr. Thompson shows his "patent terrawode brickwork" blocks for partitions, some of which are  $\frac{8}{16}$  in. by  $\frac{3}{4}$  in. on the face and  $\frac{1}{4}$  in. on the bed, with two shallow grooves on each face to afford a key for the plaster; others are slabs 12 in. square and 2 in. thick, with V-shaped tongues and grooves at the ends. The material is very light and appears to be a good fire-resister. At No. 101 Mr. R. B. Boxby exhibits the "Koenens uniform resistance fire-proof flooring." We presume that this is a concrete and steel arch 24 ft. span, near the middle of the hall, but cannot be certain as this exhibit contains neither number nor name. The arch rests on four concrete-cased steel stanchions, and is constructed of concrete in which (as far as we could learn)  $\frac{3}{8}$  in. steel wires are embedded. The upper surface is flat and the thickness is 10 in. at the ends and  $\frac{5}{8}$  in. at the centre of the span. Mr. Howard R. Justice, M.I.M.E. (No. 103) exhibits the "Hayes patent fire-proof sheet-lathing" and various methods of applying it to partitions, floors, columns, &c. The lathing has ">" shaped slits cut through it, and the edges around the slits are curled back, affording an excellent key for the plaster. Messrs. Homan & Rodgers (No. 105) show some constructional steelwork, and two kinds of fire-resisting flooring. The first has steel joists 4 ft. 6 in. from centre to centre, through the webs of which transverse tension rods are passed, the whole being then embedded in concrete. In the second system the steel joists are 18 in. from centre to centre, and hollow fireclay bricks are laid between the lower flanges and then covered with concrete above and with plaster beneath. The exhibit of the New Expanded Metal Co., Ltd. (No. 108) is still incomplete, and much of it is concealed by a canvas screen; the principal feature appears to be a building about 30 ft. by 20 ft., constructed with a steel framework, to which expanded metal is attached, this being covered with ordinary plaster, or with cement, or with roughcast.

At No. 109, the Eavis Fireproof Materials Co. show ordinary fibrous plaster slabs, wire-laid slabs, and the "Hercules" partition blocks. The last are 36 in. by 18 in. on the face and 24 in. thick, and have smooth surfaces so that no plastering is required. Stiffness is obtained by interlocking beds, and by rope-like grooves in the ends, the grooves being run full of plaster in the course of construction. Glass-faced plaster bricks are also shown, measuring  $\frac{7}{8}$  in. by 3 in. by  $\frac{3}{4}$  in. thick; each brick has four vertical circular holes and a semi-circular groove at each end; the bricks are fixed by pouring plaster into the holes and grooves. Messrs. Visintini & Weingartner (No. 114)





"Haus Rüdigsheim," Thorn (Berlin). Messrs. Erdmann & Spindler, Architects.  
(From the *Berliner Architektur-Welt*)

exhibit what they term "lattice or truss girders of concrete with iron inlaid." These are of the Warren type about 21 ft. long, 10 in. deep, and 8 in. wide; in the bottom boom two  $\frac{3}{4}$ -in. rods are imbedded, and in the top boom two  $\frac{3}{4}$ -in. rods; each brace also contains two  $\frac{3}{4}$ -in. rods, which are attached to those in the top and bottom booms. The concrete of the bottom boom is about  $1\frac{1}{2}$  in. thick, that of the top boom  $1\frac{3}{4}$  in., and that of the braces 1 in. We were not able to obtain any particulars as to the strength of these girders.

Other exhibits of fire-resisting construction will be found in the Imperial Court, but these must be reserved for another article.

#### TWO GERMAN VILLAS.

THE two illustrations of villas designed by MM. Erdmann and Spindler, of Berlin, appeared in the last issue of the *Berlin Architektur-Welt*. They are curiously different, as coming from the same architect; the difference in the method of illustration may have something to do with this. The "Haus Rüdigsheim" is a pleasing and unpretentious design; the villa at Godesberg illustrates the modern German tendency towards restless and eccentric ornament.

#### ARCHÆOLOGICAL SOCIETIES.

**ANTHROPOLOGICAL INSTITUTE.**—At a meeting of the Anthropological Institute held on the 5th inst., Mr. A. L. Lewis, F.C.A., the Treasurer, read a paper on "Some Stone Circles in Derbyshire." Mr. Lewis first dealt with the Arborlow Circle which has recently been excavated by Mr. Gray under the auspices of the British Association. Like the Avebury Circle, Arborlow is surrounded by an embankment outside a ditch; the latter, therefore, was obviously not intended for defensive purposes. All the stones are now flat with the exception of one, which is leaning, and in consequence it is extremely difficult to fix the circumferential line or diameter. The general plan, however, is oval. Mr. Lewis was of opinion that in the

centre there was a group of three upright stones, opening to a point somewhat north of east and facing probably to the Beltane sunrise. A skeleton—apparently a late interment—was found in the centre, but part of the embankment on the south-east was formed into a tumulus in which was an interment of the Bronze Age. Mr. Lewis was of opinion that sepulture was no part of the original purpose of the monument. Mr. Lewis also referred to other Derbyshire circles, including the "Wet Withins" and the "Nine Ladies." With regard to the latter, he was of opinion that the term "nine"—as applied to standing stones—simply meant "holy," and in support of this view he cited several instances of the sacred or mystic significance of the number.

#### COMPETITIONS.

**UNIVERSITY OF THE CAPE OF GOOD HOPE.**—The following is the assessor's Report on the competitive designs for University buildings for the Cape of Good Hope:—"I have carefully considered each of the sixty-two designs submitted in this competition, amongst which are a large number of very excellent designs. A great variety of treatment is shown, both in the architecture and the planning. I am of opinion, taking plan and elevation together, and with a due regard to the conditions of the competition, that the design marked No. 35 is the best and entitled to the first premium. It is an excellent design, well and economically planned. And I place No. 30 as second, and No. 24 as third.—ASTON WEBB." The following are the names of the authors of the designs:—No. 35, Mr. W. Hawke, A.R.I.B.A., London; No. 30, Mr. J. Edwin Forbes, Birmingham; No. 24, Messrs. E. W. Wimperis and Hubert S. East, London.

**LIVERPOOL CATHEDRAL.**—It was freely stated in Liverpool on the 11th inst. that the assessors (Mr. G. F. Bodley, R.A., and Mr. R. Norman Shaw, R.A.) had given their award in connexion with the five competitive sets of designs for the proposed Cathedral. We were officially informed, however, that the award has

not yet been given, but that it will probably be delivered to the committee at the next meeting, which stands fixed for Friday.—*Liverpool Mercury*.

**WESLEYAN CHURCH, LEEDS.**—In a limited competition for the erection of Wesleyan church, Sunday school, and other buildings intended to be erected at Cross Flats, Leeds, the trustees have awarded the first premium to Messrs. Danby & Simpson, architects, Park-row, Leeds, and have appointed them to carry out the same; the estimated cost of the buildings is 9,000l.

**HOSPITAL, MANCHESTER.**—The competition for New Hospital, Quay-street, Manchester, has resulted as follows:—First premiated design, Messrs. Thos. Worthington & Son, Brown-street, Manchester; second, Messrs. C. K. & T. C. Mayor, 41, John Dalton-street, Manchester; third, Messrs. Mee & Hooley, 32, Victoria-street, Manchester.

**FREE LIBRARY, MUNICIPAL OFFICES, &c., RAWTENSTALL.**—The Rawtenstall Corporation have appointed Messrs. Butterworth & Duncan assessors in a competition for a free library, Municipal offices, and Town Hall, which they propose to erect on a site in the centre of the town, at a cost of over 30,000l., and for the plans of which they propose to offer premiums of 100l., 50l., and 30l.

**WESLEYAN CHURCH BUILDINGS, OTLEY.**—In a limited competition for the erection of Wesleyan church buildings, lecture hall, Sunday school, &c., at Otley, at an estimated cost of 5,500l., the design sent in by Messrs. Danby & Simpson, architects, of Park-row, Leeds, has been accepted. The buildings will be of stone and to harmonise with the adjoining chapel.

**STUDENT'S COLUMN.**—The articles commenced in this volume on "Builders' Tools and their Uses" have been unavoidably suspended owing to circumstances that could not have been foreseen. The subject may be taken up again on another opportunity. The "Student's Column" will be resumed at the commencement of next half-year's volume with the treatment of a very important constructional subject.





Villa, Godesberg-on-the-Rhine. Messrs. Erdmann &amp; Spindler, Architects.

(From the *Berliner Architektur-Welt*.)

[See opposite page.]

## ENGINEERING SOCIETIES.

**CIVIL AND MECHANICAL ENGINEERS' SOCIETY.**—At a meeting of the Civil and Mechanical Engineers Society, held at the Caxton Hall, Westminster, on the 7th inst., Mr. C. E. Strohmeier, M.Inst.C.E., chief engineer to the Manchester Steam Users' Association, read a paper on "The Choice of Steam Boilers." In the course of his opening remarks, the author pointed out that his predecessor, Mr. Lavington Fletcher, found it necessary some years ago to make careful examination of the different types of boiler then in use, with the result that the Lancashire boiler was decided to be the most suitable for general use. In the present day, the same type of boiler was still largely used, but the introduction of higher pressures had led to the introduction of many novel types of which the design was not always so safe as might be desired. The author said that, as an old sea-going engineer, he was favourably inclined towards the marine type boiler with return tubes. These boilers were less efficient than Lancashire boilers with economisers, but more efficient than Lancashire boilers alone; they were much more expensive, although only occupying about half the floor space. Water-tube boilers were difficult to deal with. To begin with, there were no less than fifty-eight different types. Another difficulty was that all such boilers were monopolies, and the patentees generally made the most of good points, and the least of any defects that had come to their knowledge. As a general rule, water-tube boilers were unsuitable with sedimentary feed, and where the water was not pure they should be accompanied by a water-purifying apparatus. Alluding to the claim that water-tube boilers were quick steam raisers, Mr. Strohmeier called attention to the fact that

no boiler responded more readily to modern demands for steam than did the Lancashire boiler, with its large water volume. An important matter, and one which should not be overlooked when selecting a type of boiler, was that of general economy. This part of the subject was said by the author to be somewhat intricate, so much so that he would be unable to do more than give a general summary of the chief points. After discussing heat losses by radiation and through the chimney, the efficiency of firing, the ratio of heating surface to water evaporation, the supply of air for combustion, and the question of double-combustion, the author expressed the opinion that, as matters stood at present, Lancashire boilers with economisers were, without doubt, the most efficient steam generators as regards economy and up-keep, but they occupied much floor space. Marine boilers without economisers were nearly as efficient, and seemed to require practically no repairs; they occupied about half the floor space required for Lancashire boilers, but cost considerably more. Economic and water-tube boilers were practically on a level as regarded economy and floor space, but in both cases the heavy brickwork was a constant source of expense not incidental to the two other types; and water-tube boilers had the additional disadvantage that, except when lightly worked with non-sedimentary and non-greasy water, troubles were experienced with the tubes, which, without counting the time wasted in stoppages, were a source of considerable expense.

**BIBLE CHRISTIAN CHAPEL, PLYMOUTH.**—A new Bible Christian chapel, Plymouth, has just been opened. The architect was Mr. H. J. Snell, and the contractor Mr. J. Paynter.

## APPLICATIONS UNDER THE 1894 BUILDING ACT.

The London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses:—

**Camberwell, North.**—A car shed at the Camberwell tramways depot on the south side of Medlar-street, Camberwell, at less than the prescribed distance from the centre of the roadway of the street (Mr. E. J. Edwards for the Highways Committee of the Council).—Consent.

## Lines of Frontage and Projections.

**Wandsworth.**—The retention of a house on the south side of Howard's-lane, Putney, abutting upon Upper Parkfields (Mr. J. C. Radford for Mr. C. S. Merreth).—Consent.

**Hampstead.**—Three houses with shops on a site on the eastern side of Edgware-road, Hampstead, to abut also upon Maygrove-road (Messrs. Done, Hunter, & Co. for Mr. H. Neal).—Consent.

**Hammer-smith.**—A building on the north side of Great Church-lane, Hammer-smith, westward of No. 47 (Mr. T. Kissack for Messrs. Fullers, Limited).—Consent.

**Hampstead.**—An iron and glass shelter over a portion of the enclosed forecourt of No. 143, Abbey-road, Kilburn (Mr. W. Daniell for Mr. W. Gunn).—Consent.

**Newington, West.**—A two-story coach-house and stable at the rear of No. 66, Camberwell-road, Newington, to abut upon Grosvenor-street (Mr. G. Trotman for Mr. W. Simmonds).—Consent.

**Wandsworth.**—A building on the western side of Roehampton-lane, Putney, northward of Manresa House (Mr. D. Blow for Mr. H. Smith).—Consent.

**Hampstead.**—Buildings on a site on the south side of West End-lane and east side of Mill-lane, Hampstead (Mr. C. H. B. Quennell for Mr. A. Bretzfelder).—Consent.

**Hampstead.**—Buildings on the east side of Fortune Green-road, Hampstead, to abut also upon Weech-road (Mr. C. H. B. Quennell for Mr. C. Pain).—Consent.

## Width of Way.

**Hackney, North.**—Two two-story additions to the rear portion of block of flats, Church-path, Albion-road, Stoke Newington (Mr. A. P. Osment).—Consent.

**Mill End.**—The retention of a temporary brick and iron church at the rear of 381, Mile End-road, Stepney, at less than the prescribed distance from the centre of Lawton-road (Rev. W. Donlevy).—Consent.

**Hampstead.**—New Hampstead hospital, Havestock Hill, Hampstead, with boundary fences at less than the prescribed distance from the respective centres of a footway known as Hampstead Green, and of a roadway leading to the North-Western Hospital (Messrs. Young & Hall for the Committee of the Hospital).—Refused.

## Space at Rear.

**Wandsworth.**—A modification of the provisions of Section 41 of the Act with regard to open spaces about buildings, so far as relates to the proposed erection of an addition to the stable building on the eastern side of Keswick-road, Wandsworth, southward of Upper Richmond-road (Mr. A. E. Chase-more for Mr. H. Kimber, M.P.).—Consent.

\* \* \* The recommendations marked † are contrary to the views of the Local Authorities.

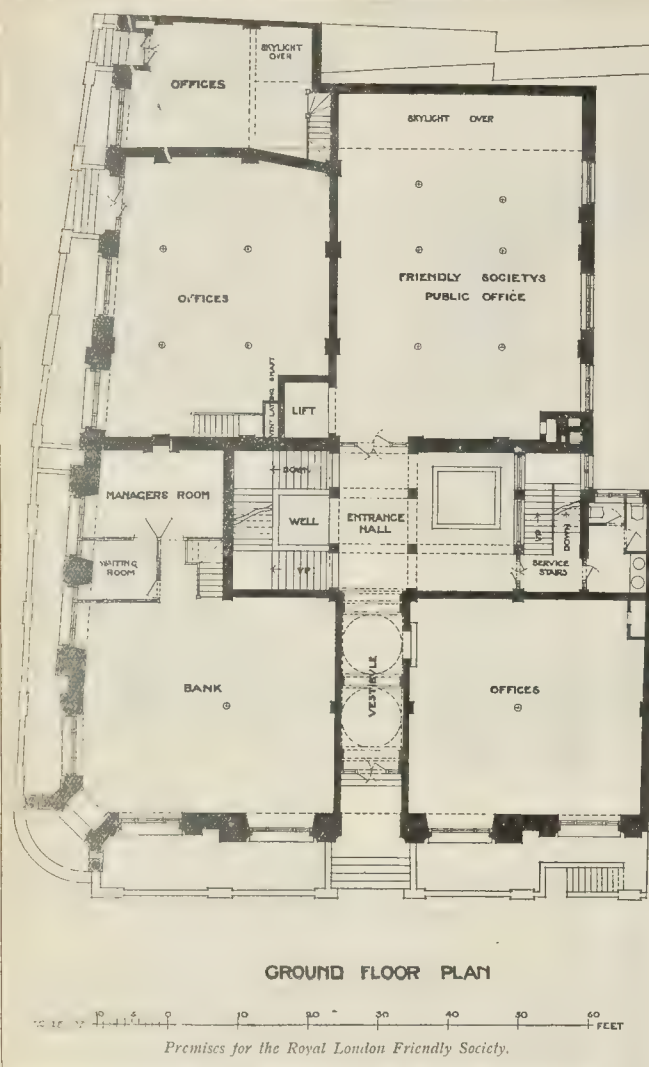
## LONDON SCHOOL BOARD EXHIBITION.

The Exhibition of Scholars' Work in the Examination Hall, Victoria-embankment, is excellent testimony to the efficient work of the London School Board. The scholars are trained in the day, evening continuation, truant, blind, deaf, and special instruction schools.

In the nature drawing section for day schools, the work done by scholars up to fourteen years of age is most creditable. The still life studies are an excellent show, some of the work reaching a high standard, notably the drawing of sea shells by Miss Florence Boydell, drawn with a rare feeling for form and line. The exceedingly clever studies of Master Fred. R. Tate of brush work on tinted paper have all the decision of advanced studentship. His use of the tinted ground, and the application of body colour for the high lights, seems at first sight to be too tricky for encouragement in elementary classes, but is saved from criticism by its excellence. It is satisfactory to note that stump shading has given way to line in most of these studies, a preference which has everything to recommend it.

In decorative studies a good deal has been attempted, and some have considerable merit.





The cretonne design by Master Francis Purdy is a creditable piece of work, with a good feeling for design and a colour treatment which would look better in execution than it does on paper. A considerable space is devoted to decorative work, and the work of the Alma School takes a prominent place. In many of the designs failure is due more to the want of a proper basis of design than to inability to draw, and much of the work seems to be greatly influenced by the catchpenny wall paper, which is so commonly recognised as "up to date." The modelling section gives much promise.

In the evening classes the work generally is more uneven. A delightfully modelled head from the hand of Mr. Archibald Cassell is one of the most successful works of these classes.

The work of the deaf schools is, relatively, up to the excellent standard of the others. Mr. Austin Spare (16) shows some astonishing glass designs (two of which are executed) and other decorative work. His figure drawing is, of course, still crude and untutored, but the breadth and power of his conception and use of colour are very remarkable for so young a student.

There are no architectural drawings of any merit, and little or no attention seems to have been given to this branch. Some of the work is pretentious and wanting in even the barest rudiments of good design, and it is surprising

to find it side by side with work in the sister arts of so good a standard.

An interesting item of the Exhibition is the contribution from the elementary schools of Germany, which compares rather unfavourably with the home work.

### Illustrations.

#### SCULPTURE FOR QUEEN'S HOTEL, SOUTHSEA.

THESE illustrations are photographed from the plaster models in the studio of the sculptor, Mr. F. E. E. Schenck, and show the sculpture designed by him for the Queen's Hotel, Southsea, of which Mr. T. W. Cutler is the architect.

The figures are purely decorative, and are not intended to express any symbolic meaning. The two large figures are to be placed to left and right of a window opening over the principal entrance, and forming part of the central feature; they are made up of partly in a constructional aspect, and carry architectural members above.

The smaller figures in low relief in the centre of the illustration are to be repeated on each angle of a bay, and connected by swags.

#### THE ROYAL LONDON FRIENDLY SOCIETY: NEW PREMISES, FINCH BURY-SQUARE.

THIS building is primarily intended for the head offices of the Royal London Friendly Society, but there is also a considerable area on the ground and first floors available for letting to public companies, &c.

It being necessary to provide a great extent of floor area on the site, the whole of the ground is covered by the building, there being no interior area.

The walls of the lower ground, ground, and first floors are all in Cornish granite; the basement being in blue bricks, and the rest of the building, including the tower, in Portland stone.

It is intended to make extensive use of the Greek marbles of Messrs. Marmor, Ltd., in the hall and corridor, and also in the public offices of the Society on the ground floor.

The contractors for the work are Messrs. E. Lawrance & Sons.

Mr. J. Belcher, A.R.A., is the architect. The drawing is exhibited at the Royal Academy, as also a model of the angle portion of the building.

#### NEW WING, CORNBURY PARK, OXON.

THE work illustrated in this drawing, which is exhibited at the Royal Academy, has been done with the object of providing a new main entrance to the house, the former front door being now used as a garden entrance. The original arrangements of the house having been considerably interfered with by the Late Renaissance wing added in 1750, the character of this late work has been kept up.

The stone, which is of a fine yellow colour, has all been obtained on the estate, the contractors being Messrs. Higlett & Hammond, of Guildford. The oakwork is by Messrs. J. Garvie & Sons.

Mr. J. Belcher, A.R.A., is the architect.

#### DESIGN FOR AN ORIENTAL ARCADE.

THIS is a drawing of a design by Messrs. Wimperis & Arber for an Oriental treatment of a subway, connecting two of Messrs. Liberty's premises in Regent-street, which it was proposed to carry out some time ago. The matter went off temporarily, and the subway has recently been constructed, but with a different treatment.

#### THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, Lord Monckswell, Chairman, presiding.

**Loans.**—On the recommendation of the Finance Committee, it was agreed to lend Camberwell Borough Council 8,870*l.* for housing purposes, and 4,000*l.* for paving works; Woolwich Borough Council, 1,000*l.* for sewer works; Stepney Borough Council, 1,535*l.* for electric light installation and street lighting; and Poplar Borough Council, 1,413*l.* for electric lighting purposes.

**Annual Financial Statement.**—Lord Welby, Chairman of the Finance Committee, made the annual financial statement. The expenditure for the past year was 36,806*l.* less and the receipts 8,492*l.* less than were estimated. For the current year there was a net increase of 209,071*l.* in the amount to be provided for by rate. The rate required to be levied to meet the estimated expenditure is *rs.* 4*3d.*, *rs.* 2*4d.* of which, producing 2,388,937*l.*, is for general county purposes, and the remaining 25*d.*, producing 389,680*l.*, is for special county purposes. This rate is 1*d.* higher than last year's rate. London's gross debt is 57,627,000*l.*, but the Council holds assets equal to 28,927,000*l.* of this, so that the total net debt is 28,700,000*l.* Lord Welby made some remarks on the question of municipal solvency. After some discussion the estimates were approved.

**The Council's Tramways.**—The Council then proceeded to go through the estimates *seriatim*. When the tramway estimates were reached Mr. Cohen made some remarks upon them which drew from Mr. Benn a statement as to the general position of the tramways. Mr. Benn said that no doubt the southern tramways had had a bad year, and their difficulties had arisen owing to the fact that they had been trying to carry through a very heavy work of reconstruction whilst they were

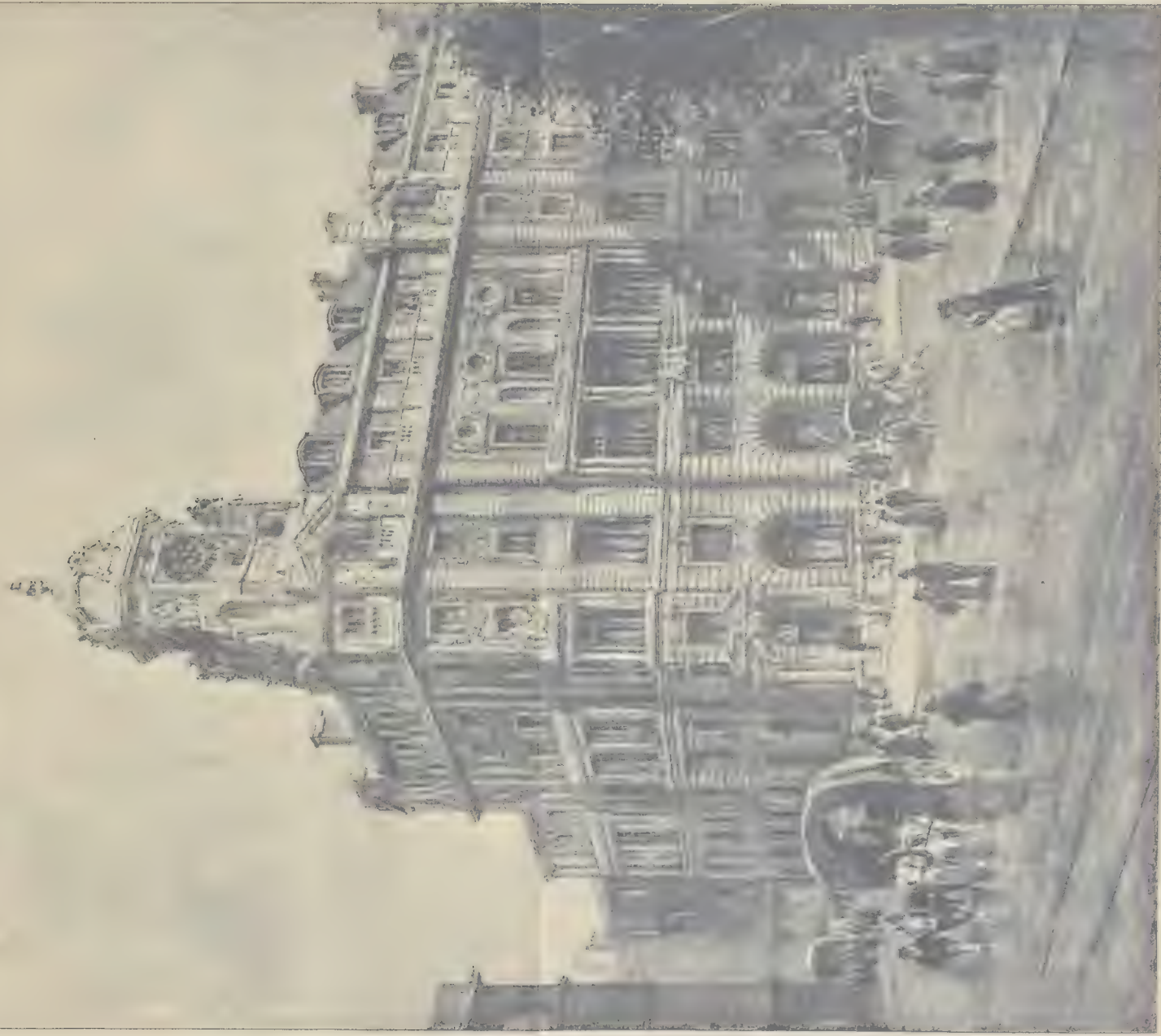










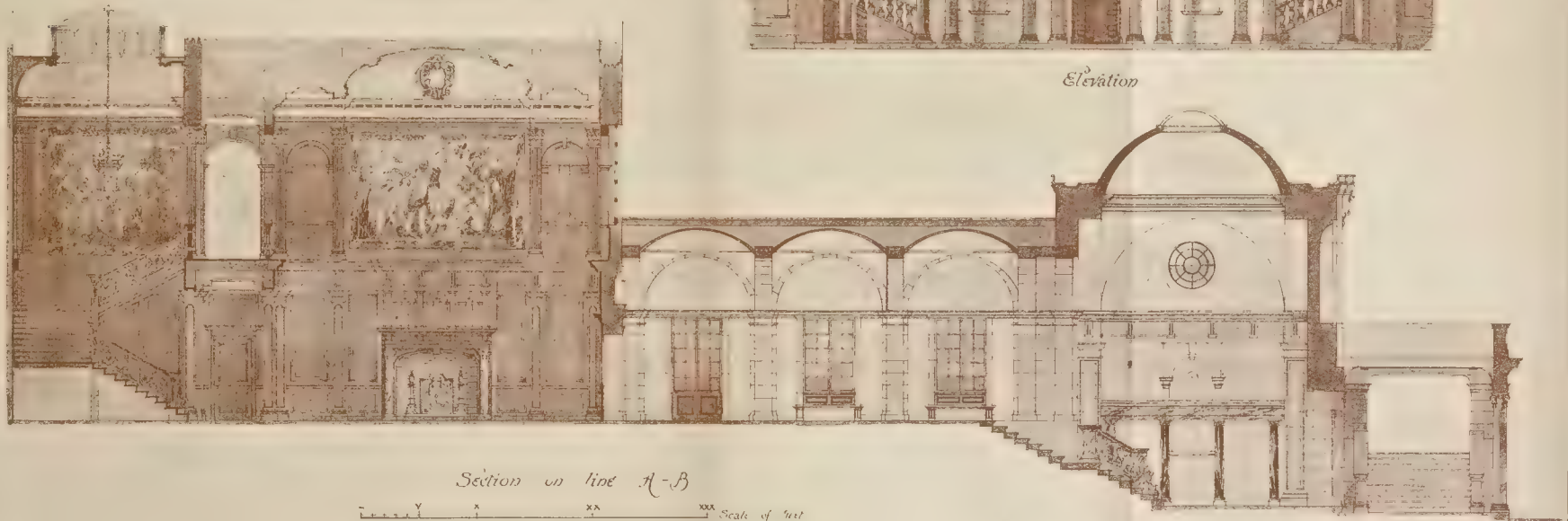
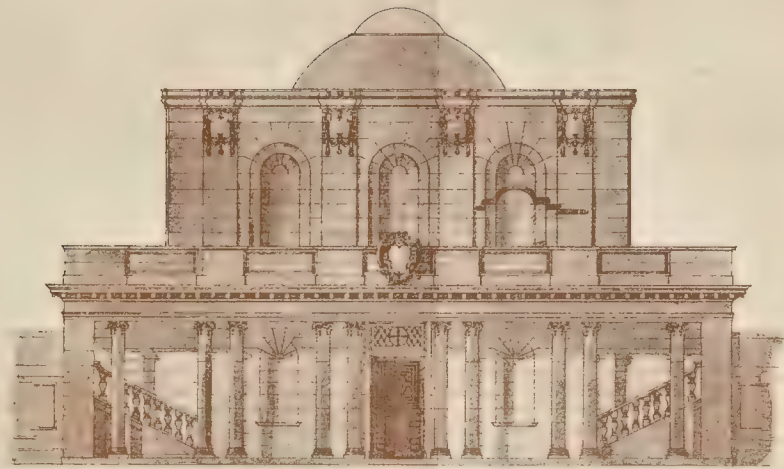
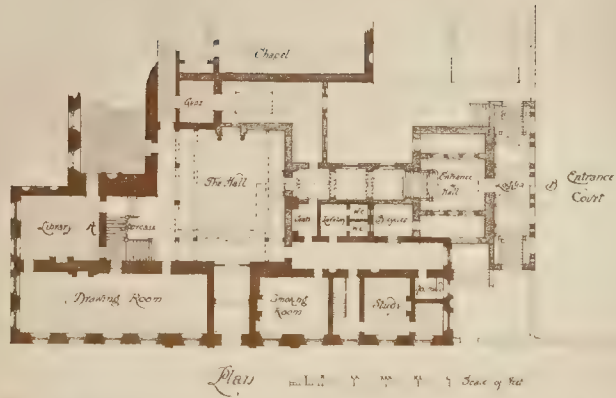


PREMISES FOR THE ROYAL LONDON FRIENDLY SOCIETY.—MR. JOHN BELCHER, A.R.A., ARCHTCT.







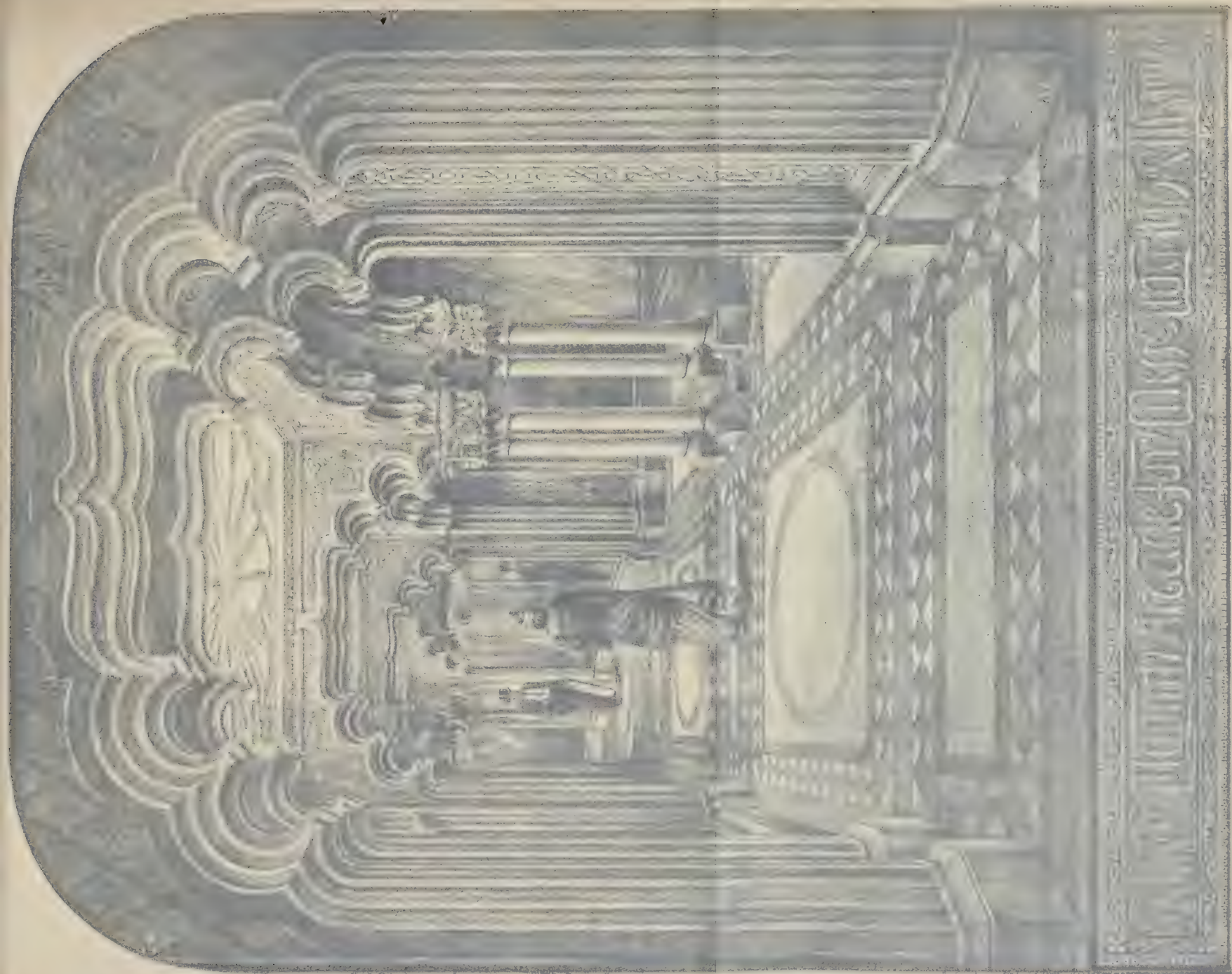


John Belcher, A.R.A.















running their cars as usual. But there had been experiments in other towns, and the tramway manager of Liverpool had informed him that that city had lost 95,000l. in two years, whilst its tramways were being relaid. The net annual average profit of the southern tramways since they had come into the possession of the Council had been 17,600l. When twelve months were over he hoped that they would have reached a harvest time. Besides this annual profit they had put aside a reserve fund of 40,000l., and paid off interest and sinking fund charges of 80,000l. They had given their men a ten-hour day, one day's rest in seven, and a general levelling up of labour conditions. This had cost them 14,900l. a year. Then each passenger on the northern lines paid 1.12d., and on the southern lines 0.88d., and the 110,000,000 passengers on the southern lines paid 120,000l. less than they would have done had they lived on the other side of the Thames. The position on the north was that they could make no progress. They had tried to buy the company out, and they had tried to ~~convince~~ them out. As to the southern lines, an attempt had been made to frighten London with the cost of alterations. He begged the attention of the Council to the following figures:—

Number of miles run by the 385 horse cars.....	10,400,000
Number of miles which would be run by the electric cars.....	13,750,000
Receipts at 1s. per car per mile ...	£687,500
Working expenses at 6d. per car per mile .....	343,750
Estimated profit .....	£343,750

The total capital expenditure on this part of the line had been 1,900,000l., on which interest and sinking fund had to be paid. This would leave a balance of 210,000l. a year in relief of rates.

**New By-laws.**—The Council meeting then became special and three new by-laws were adopted unanimously:—

"(1) No person shall (1) sweep or otherwise remove from any shop, house, or vehicle, into any street any waste-paper, shavings, or other refuse, or being a catermonger, newsvendor, or other street trader, throw down and leave in any street any waste-paper, shavings, or other refuse; (2) throw down and leave in any street any bill, placard, or other substance intended for the purpose of advertising; throw down and leave in any street any bill, placard, or other paper which shall have been torn off or removed from any bill-posting station.

No person shall throw, place, or leave any bottle or any broken glass, nails, or other sharp substance (not being road material) on or in any street or public place in such a position as to be likely to cause injury to passengers or animals or damage to property.

Any person who shall offend against any of these by-laws shall be liable for each offence to a fine not exceeding 40s.

2. Every person who in any street, to the obstruction, annoyance, or danger of residents or passengers, orders or permits any person in his service to stand or kneel on the sill of any window for the purpose of cleaning or painting such window, or for any other purpose whatsoever, such sill being more than 6 ft. in height from the level of the ground immediately below it, without support sufficient to prevent such person from falling, shall for every such offence forfeit and pay a sum not exceeding 5l.

Every person who in any street, to the obstruction, annoyance, or danger of residents or passengers, stands or kneels on the sill of any window for the purpose of cleaning or painting such window, or for any other purpose whatsoever, such sill being more than 6 ft. in height from the level of the ground immediately below it, without support sufficient to prevent such person from falling, shall for every such offence forfeit and pay a sum not exceeding twenty shillings.

3. No person shall spit on the floor, side, or wall of any public carriage, or of any public hall, public waiting-room, or place of public entertainment, whether admission thereto be obtained upon payment or not.

Any person who shall offend against this by-law shall be liable for each offence to a fine not exceeding 40s."

**Fire Station, Old Kent-road.**—It was agreed that an expenditure of 10,650l. be sanctioned for the work of erecting the proposed new fire station in Old Kent-road; that the work be executed by the Council without the intervention of a contractor; and that the drawings, quantities, specification, and estimate be referred to the Works Committee for that purpose.

**Main Drainage Extension: Deptford Pumping Station.**—The following recommendation of the Finance Committee was agreed to:—

"That the estimate of 95,000l. submitted by the Finance Committee, in respect of the enlargement of the main drainage system on the south side of the Thames at or near the Deptford pumping-station, be approved, and that the Main Drainage Committee be authorised to have the necessary drawings, specifications, and bills of quantities prepared."

**Rotherhithe Tunnel: New Street.**—It was agreed to spend 4,805l. in connexion with the formation of the new street from Swan-lane to Brunel-road, Rotherhithe Tunnel. The work is to be carried out by the Works Department.

**Vauxhall Bridge.**—The Bridges Committee reported as follows:—

"The Council on November 25, 1902, approved a design showing the superstructure of the new Vauxhall Bridge to be constructed wholly of steel, with elliptical arches, and in connexion therewith sanctioned an expenditure of 170,000l. When the elevation was submitted the Council was informed that the ornamental portion of the design was not to be regarded as in any way final, that the design was only intended to show the lines on which it was proposed that the bridge should be constructed, and further that the artistic treatment would form the subject of subsequent consideration. This has proved to be a problem of considerable difficulty by reason of the fact that the piers and abutments were built to carry a masonry and not a steel bridge, which, as a necessary consequence, has involved the task of reconciling these two diverse methods. The design of Vauxhall Bridge which we have had hung up in the Council Chamber, and on which we comment in detail below, has been prepared by the Engineer, the Architect having, in accordance with our instructions, advised as regards its artistic treatment.

It will be remembered that when this subject was before the Council on the above-mentioned date, two designs submitted to us by the engineer, one with elliptical curves and the other with segmental arches, were exhibited in the Council chamber. Although there was very little to choose between the two designs, we were of opinion that the elliptical curves would give a somewhat better appearance to the bridge, and accordingly recommended their adoption. In considering the ornamental features of the bridge, to which we have given most careful consideration, we have come to the conclusion that a segmental arch structure, for which the engineer in the first instance expressed a preference, lends itself more readily to the architectural treatment which we now submit to the Council for adoption. In addition, a segmental arch bridge will give more headway for navigation close to the piers.

The chief point in the design now submitted is that the constructive metal work is carried through continuously from end to end of the bridge, the masonry piers being used as supports, and not carried up to form decorative features above the point of support. The gradient of the bridge is shown, as on the design originally placed before the Council, as one continuous curve, the elevations being finished by a high balustrade in metal broken by the introduction of a pannelled treatment over each pier, which the space between the front edge of the masonry and the external face of the girders affords. Turning to the approaches, the masonry on the Vauxhall side will be constructed as a simple abutment. On the northern or Westminster side, however, the suggested design is proposed to accommodate the eventual possible continuation of the embankment along the river wall. For this purpose arches are provided under the approach to the bridge. The difference in level, however, between the embankment and the bridge approach road being insufficient to permit of carriage traffic on the embankment, gradients on the latter down to and underneath the bridge would be necessary. Broad flights of steps on either side of the approach would be arranged to connect the upper roadway with the lower. Whilst the proposed approach upon the northern side will eventually necessitate the acquisition of additional land, we consider the scheme is one which should be worked up to, and the masonry on the approach constructed as far as possible in the manner suggested on the design now brought to the Council, and this will in no way militate against the value of the design now presented. In order to give dignity to the approach from what may be termed the City side, it has been urged by the architect that oblong pylons should be built, as shown upon the cartoon. The cartoon shows the pylons considerably reduced in size from those originally proposed, this reduction being rendered necessary to enable them to be erected on the foundations already built. On the other hand, we have been advised not to entertain the erection of pylons at the opposite end of the bridge, but simply to finish the balustrade on the approach road at the level of that on the bridge itself.

The idea in developing the scheme has been to depend for the most part, on the simplicity of the engineering lines of the bridge, and to secure dignity by emphasising them and treating the approaches in a substantial manner. We advise the Council to

adopt the design, with the exception of the pylons, and have no hesitation in expressing the opinion that it is one of architectural value to London, and suitable for a structure of such importance as Vauxhall Bridge. Our reasons for deciding to omit the pylons are on account of the additional cost which these erections will entail, and also of the amount of space which they would occupy, and the consequent interference with traffic. We also understand that very probably His Majesty's Government will erect on the Crown property adjoining the approach large blocks of high-class dwellings, which would have the effect of overshadowing the pylons. The architect, however, is still strongly of opinion that the omission of the pylons would be a fatal error.

We have considered the probable cost of carrying out the works which remain to be done at Vauxhall Bridge on the completion—most probably in June next—of the present contract with Messrs. Peilick Brothers, and in view of the ornamental features of the design, desire to increase our estimate of 170,000l. by 22,600l. The proposed extra expenditure is made up as follows:—

For decorative masonry work in connexion with the inside of the arches, and the broad flight of steps which represent the deferred portion of the north approach, irrespective of the cost of the land .....	£4,600
For panels over the piers .....	8,000
Addition to engineer's estimate of 170,000l. rendered necessary in consequence of the alterations of design.....	10,000
	£22,600

The construction of pylons over and above a simple finish to the balustrade which, however, as above stated, we do not recommend, would involve an additional expenditure of 10,000l. We recommend:—(a) That the resolution of the Council in so far only as it directs that the new Vauxhall Bridge shall be an elliptical arch structure be rescinded. (b) That the design submitted, showing a steel segmental arch structure and the proposed architectural and artistic treatment of the same, be adopted, with the exception of the pylons. (c) That the supplemental estimate of 22,600l. submitted by the Finance Committee be approved, and that the Bridges Committee be authorised to incur such additional expenditure in connexion with the construction of the new Vauxhall Bridge."

Mr. J. E. Sears, Chairman of the Committee, moved the Committee's recommendations, with the exception of recommendation (b). He said that the design for the bridge was the joint design of the engineer and the architect, and the work of those two gentlemen was quite distinct. The engineer was solely responsible for the constructive part of the bridge, whilst the architect was responsible for its decorative treatment. The architect had given a good deal of thought and time to the preparation of the design, and that there might be no question of the suitability of the bridge for the position it was to occupy, the architect had taken advantage of the friendly advice of an eminent architect, Mr. Norman Shaw, R.A. This was not the first time that Mr. Shaw had placed his great ability at the service of the Council and London without fee or reward, except the satisfaction which he must feel in adding to the artistic beauty of the Metropolis. The parapet and details of the bridge had been treated in harmony with the general construction. There was one feature which had been introduced, i.e., at the northern end, where it was suggested the Council should prepare for a possible future extension of the Embankment, and with this intention the design showed a roadway and steps leading down from the bridge to the Embankment, and with two pylons at the end of the bridge. They would all be agreed as to the desirability of this extension of the Embankment—the only question would be the expense. The question for the Council now was whether the design as prepared should be accepted, or whether the two pylons should be omitted. They were asked what was the use of the pylons? First, they were of structural use, for the weight of the pylons in the position shown depressed the thrust of the arch, and when the roadway was constructed at some future time—[The speaker was proceeding, when his remarks were ruled out of order. On the suggestion of Mr. Burns, M.P., consideration of the matter was adjourned owing to the lateness of the hour.]

**The Brick-making Experiment.**—The Housing of the Working Classes Committee reported as follows, the recommendation being agreed to:—

"We have received an offer from Mr. Spencer, a builder of Croydon, to purchase some of the bricks made by the Council at the brickfield on the Nor-



bury estate. Mr. Spencer wishes, in the first instance, to take 50,000 of the 2nd quality of bricks, known as grizzles, and 50,000 of the 3rd quality, known as place bricks, and offers 30s. per 1,000 for the grizzles and 28s. per 1,000 for the place bricks. As pointed out in our report on April 7, 1903, the actual cost of the bricks to the Council has been at the average rate of 20s. 7d. per 1,000, and in view of this, we think that the offer of Mr. Spencer for the 2nd and 3rd quality bricks may be regarded as satisfactory. We recommend that, subject to the result of inquiries proving satisfactory, the offer of Mr. Spencer to purchase 50,000 grizzles, at 30s. per 1,000, and 50,000 place bricks, at 28s. per 1,000, from the bricks made by the Council on the Norbury estate, Croydon, be accepted."

**Housing Progress.**—The Chairman of the Committee, Lord Carrington, said that last year they had housed 4,576 persons, at a cost of 217,676l., which would impose no charge on the rates. During the three years 1898, 1899, and 1900 provision had been made for 2,795 people. During the three years 1901, 1902, and 1903 the number was 10,794. The Committee, in accordance with the suggestion of the Queen, made when her Majesty was visiting the Millbank estate, that the Council's tenants required more cupboards in their dwellings, obtained a vote of 320l. for this purpose in the Ann-street houses at Poplar.

**Theatres, &c.**—The following applications were agreed to:—

Alterations to the stage at the Cripple-gate Institute, Golden-lane, E.C. (Mr. F. Hammond).

A hinged screen at the foot of the staircase from the Hall of the Cripple-gate Institute to Cripple-gate-street (Mr. F. Hammond).

Alterations to the Grosvenor Galleries, New Bond-street (Mr. W. Cave).

Arrangements for a representation of an Assouan village at the London Exhibitions, Earl's Court (Mr. A. O. Collard).

Structural improvement of St. George's Hall, Langham-place (Mr. Buckle for Mr. J. N. Maskelyne).

The Council adjourned at 7.30 p.m.

## Books.

**The Construction of Roads, Paths, and Sea Defences.** By FRANK LATHAM, M.Inst.C.E. London: The Sanitary Publishing Co. 1903.

**W**HEN the title of a small book is large, it is a very fair inference that the value of the matter must suffer. Of the present volume less than 177 pages are devoted to a discussion of the subjects suggested, and the remaining thirty pages are occupied with unnecessarily lengthy extracts from Acts of Parliament and suggested specification clauses. Roads in themselves afford quite enough matter for a good book, and sea defences for another. Not content with two such subjects, the author has wandered away to discuss embankments, retaining walls, steel bridges, street railway tracks, and the manufacture of artificial stone. He has really attempted too much, and the result is a mere book, rather than a scientific treatise. We do not deny that there is much useful and interesting matter in the book before us, but much of it has been said before by the many authors, ancient and modern, so liberally quoted by Mr. Latham. This volume constitutes one more proof that the kind of matter which may be admirably suited for the readers of a weekly journal, is not necessarily worth reproduction in a permanent form. The author has, however, taken pains to present accurate information, and his work may be of service to those desiring little more than superficial information.

**Colonial and Camp Sanitation.** By GEORGE VIVIAN POORE, M.D., F.R.C.P., &c. London: Longmans, Green, & Co. 1903.

WE are so much in sympathy with Dr. Poore's efforts in the cause of sanitation that we turned to this volume with some eagerness, believing that it would be both interesting and instructive. So it is, but there is nothing new in it except a preface of eight lines and a final note of five lines. The first chapter on "The Sanitation of Camps" appeared in the *Lancet* in 1901, and was reprinted last year in Dr. Poore's book, "The Earth in Relation to the Preservation and Destruction of Contagia." The first part of the second (and last) chapter consists of an article from *Country Life* of July 6, 1901, subsequently reprinted in the book already referred to; and the second part of the

chapter has appeared in another book of Dr. Poore's entitled "The Dwelling-house." To those who do not possess the author's previous works the new volume will be useful. It contains valuable practical hints on domestic sewage disposal, the application of faeces to land, the storage of rainwater, earth-closets, and other details of sanitation.

**Continuous Current Dynamos and Motors and their Control.** By W. R. KELSEY, B.Sc., A.I.E.E. Manchester: The Technical Publishing Co. 1903.

THE beginning of this book consists of a collection of articles which originally appeared in the *Practical Engineer*. These have been revised and enlarged by Mr. Kelsey, who has also completed the work. The object of the book is to teach the engineer how to design dynamos and motors, for the author considers that this is now the work of the mechanical engineer. With this object in view definitions and explanations are given of the electrical units, and the reader is gradually introduced to the consideration of the main problems which arise in designing dynamos and motors.

A careful study is made of tramway motors and their gearing and the curves illustrating the relations between flux, speed, and torque are clearly drawn and fully discussed. A fairly successful attempt has been made to explain the Arnold and Mie theory of commutation, but this theory is, in our opinion, a much overrated one. The initial suppositions made about self-inductance, &c., are wholly unjustifiable, and the mere fact that the final results explain roughly what happens in practice is no proof that the theory is correct.

The equations describing the method of separating the hysteresis and eddy current losses in dynamo machines (p. 433) are very awkwardly expressed, and would probably mislead any one seeing them for the first time. The method is, we believe, due to Mr. Swinburne. It goes on the supposition that the mechanical friction is the same with the field magnets excited or unexcited. In many cases, however, this is far from being true, and the limitations of the method ought to be pointed out. There is a misprint in the formula given for the Hopkinson efficiency test, and Kirchhoff's name is spelt with one "h."

We consider, however, that this book forms an excellent introduction to the subject, and we recommend it to mechanical and electrical engineers.

**Electric Light in Cottages and Small Houses.** Manchester: R. J. Nicholson & Co.

THIS booklet discusses the advisability of wiring workmen's cottages rented at from 5s. to 10s. 6d. per week for the electric light. The introduction of "gunny-in-the-slot" meters gets over the difficulty caused by quarterly accounts to the working classes, and examples are given where wiring cottages has apparently increased their value, and where the cost has been no greater than gas. "A builder has a block of thirty cottage houses consisting of six rooms each—sitting-room, scullery, and three bedrooms. The floorboards are not laid, and no plastering has been done. The price for fitting this block for electric light would be 65l., or 2l. 2s. per cottage. This estimate is for work executed in compliance with the Rules and Regulations of the Various Corporations and Fire Offices." We think that the suggestions put forward by Messrs. Nicholson are worth considering. In some cases they could be adopted with advantage.

**Model General Conditions for Electricity Works Contracts.** Recommended by the Institution of Electrical Engineers. London: E. & F. N. Spon.

THE model general conditions given in this pamphlet were drafted by a Committee of the Institution of Electrical Engineers, and were discussed at an ordinary general meeting last year. As the Committee consisted of both consulting engineers and contractors, we may presume that these conditions are acceptable to both, and hence they will be very useful in connexion with contracts for plant, mains, and apparatus for electricity works. The drafting of the clauses has been very carefully done, and several of them, such as those discussing "patent rights," "method of making tests," &c., are very suggestive, and will be invaluable to those drafting electrical specifications.

**Rating of Electricity Undertakings.** By W. G. BOND. London: The Electrician Printing and Publishing Co.

MR. BOND discusses briefly in this little book the difficult problem of the rating of electric lighting and tramway undertakings. He gives a clear explanation of the principles underlying the modern systems of rating, and points out the ordinary methods adopted by rating surveyors. The samples of assessments of electric tramways and lighting companies given at the end of the book show some curious anomalies. It looks as if the ingenious hypotheses invoked "to make twentieth-century practice square with Elizabethan principles" lead in some cases to inequitable assessments.

**Specification for a Lancashire Boiler and Boiler Scating.** By "INSPECTOR," M.I.Mech.E. Manchester: The Technical Publishing Co., Ltd. 1903.

WITH a few preliminary observations the author of this pamphlet introduces the specification of a 30ft. by 8ft. Lancashire boiler, which is accompanied with drawings of various details making clear some of the essential constructional points. The writer does well in remarking that it is a mistake to employ "any local builder" to carry out the boiler setting. Some builders are quite familiar with such work, and may safely be entrusted with its performance; but in a general way the author is right in saying that "boiler-setting is in itself a special branch of the brick-setting trade." The specification and drawings of the seating should be of service to architects and others who may be responsible for the installation of steam-generating plant. A useful hint is contained in the last paragraph, to the effect that the covering of the boiler and steam pipes should be deferred until the plant has been at work for a few weeks.

**The American Vignola. Part I.—The Five Orders.** By W. H. WARE. Boston: American and Building News Co. 1902.

THIS is a short illustrated treatise on the Five Orders, by the Professor of Architecture in Columbia University. It is admirably done; a brief introduction suggests a kind of philosophical reason for the Orders, as representing the essentials of architecture, and they are then successively analysed and illustrated. The drawings are not as fine or nearly as numerous as those of Mauch and Normand, but they represent typical examples, and the book is a good and useful résumé of the subject within narrow limits and in a cheap form.

**The Law affecting Building Operations and Architects' and Builders' Contracts.** By ISAAC CONNELL, S.S.C., Edinburgh. Edinburgh: William Green & Sons. 1903.

THIS is an excellent book, and it has a kind of piquancy, if we may use the word of a law book, since it contains both English and Scotch law. The foundation of Scotch law is Roman law, and it is not uninteresting to note decisions by Scotch lawyers on questions relating to building operations. Both the English lawyer and the English practitioner will find the book useful and suggestive, since the English decisions are very well treated, and are regarded with a more critical eye than is usually cast on them in this country. To the Scotch practitioner the book will be especially valuable, and we wish it every success.

**The Employers' Liability Act, 1880, and the Workmen's Compensation Acts, 1897 and 1900.** By ALFRED HENRY RUEGG, K.C. Sixth Edition. London: Butterworth & Co. 1903.

IN the Law Courts Mr. Ruegg, K.C., is well known to be a leading authority on the subject of the above book. It is therefore not surprising that the work has reached a sixth edition. It contains 558 pages, and the price is 15s., and it is a more important work than many others on this subject. Any one who desires to have what may be called a full work on the Employers' Liability Act cannot go wrong if he obtains this book.

**The Workmen's Compensation Acts, 1897 and 1900.** With Notes by W. ADDINGTON WILLIS, Barrister. Eighth Edition. London: Butterworth & Co. 1903.

THE fact that this is the eighth edition is



sufficient evidence that this book is useful, and it is sufficient to chronicle the fact of the new edition of 185 pages.

*The Consumers' Handbook of the Law Relating to Gas, Water, and Electric Lighting.* Second Edition. By LAURENCE DUCKWORTH, Barrister. London: Effingham Wilson, 1903.

This excellent little book has, we are glad to see, passed into a second edition. It is unnecessary to refer to this new edition in detail, but any one who wishes to obtain a general idea of the law in regard to the subjects dealt with in this book will find it clear and reliable.

*Wilson's Equivalent of English Pounds and Kilogrammes.* London: Effingham Wilson, 1903. 2s. 6d.

THIS is simply a small book of tables of weights in pounds and the corresponding weights in kilogrammes and decimals of a kilogramme, ranging from 1 lb. to 1,540 lbs. by units; thence proceeding by tens up to 2,240 lbs., and thence by tons from 11 to 100. The other half of the book gives the reverse order—kilogrammes with their complements in pounds and decimals. It will be very useful for those who have frequently to convert French measures into English and vice versa. It may also serve to remind people of what a kilogramme is, and prevent their making the mistake of the lady who astonished a French shopkeeper by ordering "half a kilometre of sausages."

*Gardens Old and New.* Vol. II. Edited by JOHN LEYLAND. London: Offices of Country Life.

THIS is a handsome volume of illustrations from photographs of gardens. The illustrations are beautifully produced; but the book is one for the drawing-room table rather than for the architect's library.

*The City of London Directory for 1903.* London: W. H. & L. Collingridge. Price 12s. 6d.

THE thirty-third annual issue of this excellent Directory contains all the useful features of previous editions, and several new features in addition. The work includes a streets guide, alphabetical directory, trades guide, Livery Companies guide, a biographical directory, Corporation directory, public companies directory, and a large coloured map of the City of London, which, however, might with advantage be strengthened by a linen back. The Official Section contains a list of the Aldermen and Members of the Court of Common Council, with the Chairmen and Members of the Committees of the Corporation, and details of the officials connected with the various executive bodies of the City. In addition to the information given in previous years is a list of the Members of the new Metropolitan Water Board, and also of the Council of the City and Guilds Institute for the advancement of National Education. The Livery Companies Guide supplies the names and addresses of the Masters and Courts of Assistants, engravings of the arms, historical accounts of the Companies, their ancient powers and present privileges, particulars of fees and their charities, &c. There is a section relating to the public buildings of the City, and this contains details as to the history and structure of the bridges, and the better known of the City churches, and a brief account of some of the halls of the Livery Companies. The street improvements of the year are indicated in the map. Among the principal additions may be mentioned the opening of Broad-street-place, the erection of the New Baltic in St. Mary Axe, the new Birkbeck premises in Holborn, buildings in Old Jewry, King William-street, and Threadneedle-street, and the further extension of Lloyd's Avenue. The Directory is well-arranged and printed, and the information it contains appears to be as reliable as that to be found in the Post Office London Directory. Indeed, the City of London Directory must be as indispensable to City people as the Post Office Directory.

*WESLEYAN CHURCH, PLEASLEY HILL, DERBYSHIRE.*—A new Wesleyan Church has just been erected at Pleasley Hill. The chapel is built of red brick, with stone dressings. The contract was carried out by Mr. J. Warner, Pleasley, from designs prepared by Mr. Goodacre, architect, Mansfield.

## BOOKS RECEIVED.

A BEAUTIFUL WORLD. Journal of the Society for Checking the Abuses of Public Advertising (John Bale, Sons, and Danielsson.)

THE LAW RELATING TO INJURIES TO WORKMEN. By F. G. Neave, LL.D. (Effingham Wilson, 1s. 6d.)

## Correspondence.

### BENGEO OLD CHURCH.

SIR,—Your correspondent, Mr. Albert Mitchell, has called attention to the interesting but dilapidated apsidal church of Bengoe, near Hertford. It appears to me typical of a class represented pretty largely up and down the country. Like many other churches of the same kind, at the first glance it wears an aspect of great antiquity, but when interrogated it reveals Norman rather than Saxon features. I could not see in the quoins any signs of Saxon work, and the most Saxon-looking detail of the building seemed to me the impost of the chancel arch. Apart from this, all the features agree with a Norman date. The plan, the proportions, the thickness of the walls, the form and technique of the original chancel windows (so far as preserved), and above all the method of construction of the chancel arch, are all characteristically Norman. If Bengoe were accepted as Saxon, we should have to include in any pre-Conquest list a large number of other examples that have really no claim, save a general look of age, to a Saxon ascription.

G. BALDWIN BROWN.

### "THE COST OF A MEDIEVAL MIRACLE."

SIR,—I have only just noticed "The Cost of a Medieval Miracle" in the "Notes" of your issue of 4th ultimo.

I know very little of Church history, but it is not probable that "The Holy Ghost (or Dove) appearing in the Kirk Roof" was merely part of a "mummery" or tableau representing a scene from the Bible?

HENRY W. ALLARDYCE.

## OBITUARY.

MR. E. F. WYMAN.—The death was announced on April 27 of Mr. Edward Franck Wyman, the youngest son of the late Mr. Charles Wyman, of the late firm of Messrs. Wyman & Sons, of Great Queen-street, which firm were the printers of *The Builder* for many years. Mr. Wyman was apprenticed to the late Mr. David Nutt, the foreign book-seller and publisher, and did not take an active interest in the practical part of the business until the retirement of his father. On the occasion of his silver wedding on March 10, 1888, Mr. Wyman was presented with a silver drinking cup and salver, together with a congratulatory address by the heads of departments and other employees of the firm, by Mr. Bate, the head reader, whose services extended at that time over a period of forty years, while many of those then present had been in the employment of Messrs. Wyman & Sons for from thirty to fifty years. Mr. Wyman was a member of the "Sette of Odd Volumes" from its foundation, and had filled the office of president of that society.

## GENERAL BUILDING NEWS.

**CHRIST CHURCH, MOSS SIDE, MANCHESTER.**—The work of completing the rebuilding of Christ Church, Lloyd-street, Moss Side, has been commenced. The building is of the late Decorated period, after designs by Mr. W. Cecil Hardisty, architect, of Manchester.

**MISSION HALL, GATESHEAD.**—On the 6th inst. the new Mission Hall, erected in Beech-street, Sunderland-road, Gateshead, for St. James's Parish, was opened. The hall will seat 500 people, and there are also two classrooms. The work has been carried out by Messrs. John Ross & Sons, of Gateshead. Mr. G. H. Martin, of South Shields, being the architect.

**UNITED METHODIST CHURCH, WHITLEY.**—The foundation and memorial stones of the Benson Hall and vestries in connexion with the United Methodist Free Church, at Whitley Bay, were laid on the 6th inst. The new buildings will have a frontage to Whitley-road. The ground-floor plan provides a covered way right through from Whitley-road to the Free Church Hall. On either side of the wide passage will be several rooms, suitable for church work, &c. On the right will be a minor hall, to seat from seventy to eighty persons, and behind there will be a kitchen. On the left of the passage will be a new vestry for the minister, with staircase behind, and an ante-room for the use of the Free Church Hall. Upstairs there will be three rooms. The architects are Messrs. Mould & Tasker,

of North Shields, and the contract is being carried out by Mr. Alfred Syman, of Whitley Bay.

**WESLEYAN CHAPEL, SHREWSBURY.**—The foundation-stone has just been laid of a new Wesleyan chapel in the Clee Hill District, Shrewsbury. The new chapel, which will be built of brick, will seat 200. It will have a frontage to the Ludlow road of 48 ft., with a depth of 28 ft., a porch and a vestry. The roof will be an open span, with pitch-pine principals, and will be covered with tiles. The seating will be pitch pine, and there will be a pitch-pine rostrum and oak communion rails. The architects are Messrs. Joyson, of Darlaston and Wednesbury, and the contractors are Messrs. Turford & Southward, Ludlow.

**CHURCH, ANNHAM, AYRSHIRE.**—A new church has been erected at Annham. The new church is built of Ballochmyle stone, and has been erected from plans prepared by Mr. J. B. Wilson, architect, Glasgow. The style is Gothic throughout. The body of the church consists of a nave 84 ft. in length, with a small gallery at the end, and of one low side aisle divided from the nave by a series of arches which carry the nave wall on this side; also a north and south transept, divided likewise from the nave by large arches. The pulpit platform, which is two steps up from the floor-level, is a continuation of the nave. A large three-light lancet window is placed at each end, one of these, the window over the pulpit, has been filled in with stained glass. The principal entrance to the church is by a doorway under the tower. The church is seated for between 400 and 500, and the cost is between 3,000 and 4,000, including manse. Mr. David Campbell, Ayr, was contractor for mason work; the contractors for joiner work being Messrs. Rome & Son, Kilmarnock. The other contractors in order were:—Alex. Dalrymple, Ayr, slater work; Renfrew & Newall, Glasgow, plumber; Elder & Son, Kilmarnock, plaster; William Anderson, Kilmarnock, painter; Cormack & Son, Glasgow, heating; Meikle & Son, Glasgow, glazier; Wylie & Lochhead, Glasgow, upholstery; Jas. Thomson, Ayr, railings; Howat, Ayr, grates and tile hearths. Mr. William Scott acted as clerk of works.

**NEW MISSION HALL, GATESHEAD.**—On the 6th inst. the new mission hall erected in Beech-street, Sunderland-road, Gateshead, for St. James's Parish, was opened. The hall is of one story, built of red brick. There is a big hall to seat 500 people and two classrooms. The work has been carried out by Messrs. John Ross & Sons, of Gateshead. Mr. G. H. Martin, of South Shields, being the architect.

**CHURCH, OLD BASFORD.**—The foundation-stone was laid on the 7th inst. of a new church in Arnold-road, Old Basford. For the present only the nave and aisles are to be erected, leaving the chancel, choir vestry, and organ chamber to be completed at a later period. The estimated expenditure on the contract now let is 5,000. The architects are Messrs. R. Evans & Son. The church, which is to be 80 ft. long and 24 ft. wide, will be built of Bulwell stone, faced with Coxhedge stone.

**ST. GEORGE'S CHURCH, WOLVERTON.**—After having been altered and repaired, St. George's Church, Wolverton, was re-opened recently. Mr. J. Chard Scott, F.S.A., was the architect.

**CHAPEL, PENGULAN.**—The memorial stones of a new chapel at Pengulan, between Miskin and Penrhynweiber, in connexion with the Welsh Calvinistic Methodists, were laid recently. The architect is Mr. D. Roderick, Aberdare, and the contractor Mr. T. Williams, Senghennydd. The contract price is 2,505.

**CONGREGATIONAL CHURCH, SHIREBROOK, NEAR MANSFIELD.**—It is proposed to build a new Congregational Church at Shirebrook, near Mansfield, Notts. The buildings will comprise a church to seat 400 persons, with a school at the rear. The architect for the scheme is Mr. C. Nelson Holloway.

**CHAPEL, COLBY, LINCOLNSHIRE.**—A new Wesleyan chapel is being erected at Colby. The new building will seat 150 persons, and there will be room for a further fifty in the adjoining schoolroom, which, by means of a revolving shutter, may at will be thrown into one with the chapel. The architect is Mr. J. R. Halkes, Lincoln, the contractors being Messrs. W. and M. Halkes, Lincoln.

**SCHOOL, NORWICH.**—The new "George White" Board school in Silver-road, Norwich, is approaching completion, the infants' department having been opened for use on the 4th inst. The elevations of the "George White" are of red brick, with terra-cotta dressings. The school provides accommodation in three self-contained departments for 1,114 boys, girls, and infants, as follows:—Boys, 386; girls, 386; infants, 342. Each of the three departments contains a lateral hall, together with six classrooms. At the "George White" the lateral halls in the boys' and girls' departments will accommodate a class; that in the infants' will not. The classrooms themselves are arranged to hold fifty-six children. Several of these rooms are shut off from the lateral hall by Wilk's patent screens. Extra rooms are provided in the central block on the first six classrooms and for cookery and laundry instruction, and also for the caretakers. The building is lighted throughout with the electric light. The heating is by hot-water pipes, and in the infants' department the pipes are supplemented by Bowes' wet fires. There is a covered playground for each department. The whole of the work has been carried out from the plans of Mr. C. J. Brown, architect to the Dean



and Chapter and to the School Board, by Mr. T. Gill, builder. The electric light has been installed by Messrs. Mann & Co., and the hot water by Messrs. Charles Payne & Co.

**AMBULANCE DRILL HALL, ACCRINGTON.**—The foundation stones for the new drill hall for the Accrington Corps of the St. John Ambulance Brigade were laid recently. The main entrance to the drill hall will be in King-street, by a passage 12 ft. wide, to allow the ambulance van to be brought in for drill and practice. The hall will be 68 ft. long and 5 ft. 6 in. wide, 14 ft. at the sides, and 20 ft. at the ridge. The offices and side entrance will be in Hyndburn-road, and will comprise a secretary's office, officers'-room, and two apartments for recreation which may be converted into one and used as a lecture-room. The ambulance van house will also be in Hyndburn-road, with access either from the interior of the hall or the street. The walls will be of brick and terra-cotta, and will contain two panels containing the device of the brigade. The architects are Messrs. Haywood & Harrison.

**RECONSTRUCTION OF ABERDEEN MUNICIPAL BUILDINGS.**—There has been issued to members of Aberdeen Town Council the report by Mr. John Rust, the City Architect, on the proposed reconstruction of the Municipal Buildings, plans for which he had prepared. Mr. Rust estimates the total cost at 10,000l. The alterations on the Town Hall, &c., would be carried out last, and while this was being done the Town Council could meet in the Town Hall, entering by the Town and County Hall staircase.

**NEW BUILDINGS IN ABERDEEN.**—The Plans Committee of the Aberdeen Town Council have passed the following plans of new buildings alterations on property, &c. Four dwelling-houses on the east side of Urquhart-road, for Mr. Joseph Corbett, builder, per Messrs. Walker & Duncan, architects; dwelling-house on the south side of Great Western-road, for Mr. James Mathieson, per Messrs. Cameron & Watt, architects; alterations in connexion with the Palace Hotel, Union-street, for the Great North of Scotland Railway Company, per Mr. A. M. Mackenzie, architect; three dwelling-houses on the east side of Mile End-avenue, for Mr. George Chalmers, per Messrs. W. Henderson & Son, architects; dwelling-house on the east side of Richmond-terrace, for Mr. John I. Murray, per Messrs. Cameron & Watt, architects; alterations and additions in connexion with factory on the south side of Union Glen, for the Aberdeen Match Manufacturing Co., per Mr. John Rust, architect; addition to engineering works on the west side of York-street, for Messrs. A. Hall & Co., shipbuilders, per Mr. John Rust, architect; and stockrooms and warehouse on the east side of Carmelite-lane, for the Imperial Hotel Co. and Messrs. Cruickshank & Sellar, iron merchants, per Mr. John Rust, architect.

**NEW POLICE STATION IN THE CITY.**—The foundation stone of the new police station in Moorlane was laid recently. The City Surveyor, Mr. A. Murray, under the direction of the Police Committee, prepared plans for utilising the site, with the exception of a portion of the ground floor, and the basement next to Fore-street. That area will be reserved at present for three shops. The tender of Mr. Porter, of Tottenham, was accepted at 20,000l. The building will include provision for sixty-seven men, with a messroom, reading and billiard-rooms, a clothing store department, and other offices. The new station will be fitted with an installation of the electric light.

**SCHOOL, CURRIE, EDINBURGH.**—At a meeting of Currie School Board the design sent in by Mr. William Baillie, architect, Glasgow, was adopted. The school is to occupy a site at the west end of the village, on the high ground at the junction of the Lanark and Curriehill roads. The plans show a design of square-dressed rubble masonry, with dressings of red Dumfriesshire sandstone, and roofed with green slates and tile ridge. The school provides accommodation for 260 pupils. The entrances are situated near the centre of the main front, facing the Lanark-road, and give access to corridors leading directly into a central hall. Four classrooms and the boys' and girls' cloakrooms are grouped around the three sides of the hall, and each opens directly off it. Two teachers' rooms, &c., form the remaining side of the hall, and look towards the back. The school will be heated throughout by means of hot-water pipes and radiators on the low-pressure system. Shelters and suitable lavatory accommodation are provided. The estimated cost of the buildings amounts to 2,676l.

**CLUB, SCOTSWOOD, NORTHUMBERLAND.**—A new social club has been erected at Scotswood. The building is of red brick with stone dressings, and contains two shops, a lounge bar, a billiard-room with two tables, a recreation-room, which can be partitioned off so that one half may be used as a reading-room; and on the top floor there are the stewards' premises. The building has been erected at a cost of 7,000l., from plans by Mr. A. Gibson Kyle, Newcastle, and the contractor has been Mr. H. P. Thirlwell, of Benwell.

**SCHOOLS, NEWCASTLE-ON-TYNE.**—The premises formerly known as Blenheim-street Wesleyan Chapel, having undergone structural alterations and additions, have been re-opened by the Newcastle School Board as a school for infants and juniors. Accommodation has been provided for 537

children in the classrooms. Each department has separate cloakrooms, lavatories, and teachers' rooms. The general contractor for the work is Mr. E. Weatherley, and the architect Mr. Charles S. Errington, both of Newcastle-upon-Tyne.

**SUNDAY SCHOOL, GARSTANG, LANCAHIRE.**—The foundation stone of the new Congregational Sunday School at Garstang was laid on the 6th inst. The building is to be constructed of Yorkshire stone. The school will contain a large room and two classrooms, and will embrace a caretaker's cottage and a heating chamber, which will also serve the chapel. The cost, exclusive of furnishing, will be a little over 1,000l. The building is to be constructed by Messrs. Collinson & Sons from the design of Mr. S. Wilson, architect, of Garstang.

**ABERDEEN UNIVERSITY EXTENSION.**—A meeting of the Sites and Plans Committee of Aberdeen University College was held in the Senate Room of Marischal College on the 5th inst., for the purpose of considering the offers and accepting the contracts for the extension of Marischal College in accordance with the University extension scheme, for which the plans by Mr. A. Marshall Mackenzie, A.R.S.A., Aberdeen, have been approved. The following are the names of the contractors whose offers were accepted:—Mason-work, Mr. John Morgan, 19,045l.; carpenter-work, Messrs. D. Macandrew & Co., Loch-street, 5,564l.; slater-work, Messrs. Adam & Co., Hutchison-street, 284l. 19s.; plaster-work, Messrs. James Scott & Son, John-street, 3,650l.; plumber-work, Messrs. Blaikie & Sons, Union-street, 795l.; painter-work, Mr. John Whyte, Union-street, 977l.; steel and iron work, Messrs. James Abernethy & Co., Ferryhill Foundry, 2,175l.; electric lighting, Mr. A. B. Robertson, Union-row, 1,139l. The total amount of the contracts accepted amounts to 34,487l. 19s. The cost of the whole scheme, including work already done in the removal of buildings, excavation of the foundations, fittings and full equipment of the classrooms, architect's fees, wages of the clerk of works, and certain special work, will amount to about 48,371l.

**HOSPITAL, COLINTON MAINS, EDINBURGH.**—The new Colinton Mains Fever Hospital is situated at the foot of Craiglockhart Hill. Some 75 acres have been utilised for the erection of the new fever hospital, which will accommodate 600 patients, at a cost of about 600l. per bed. The staff accommodation, besides doctor, matron, and assistants, will be for 150 nurses and sixty servants. There are two main entrances, one from Morning-side, and the other from the Colinton-road side. A dual system of drainage has been adopted, and the ventilating apparatus will allow of a change of air in the wards three times every hour, while the temperature is maintained at 70 deg. There is a bacteriological theatre, and each disorder is to have its special discharge ward. The arrangement with the laundry for disinfecting clothes applies to clothes and bedding from the city, and the bedding from any house in the city may be taken to Colinton Mains and purified. In connexion with every disorder there will be a private ward where patients may enjoy practically home comfort with greater hygienic security. The boiler-house, in a building to the east, is fitted with four Lancashire boilers. The laundry machinery will be driven by electric motors supplied from the town mains. The electric light is also from the town supply, and there will be emergency gaslamps also. The hot water will be produced by a steam main in an underground brick-built tunnel, so as to feed the calorifiers, and the baths, &c. The general offices, kitchen, dining-rooms, nurses' home and ward assistants' home are in the centre of the ward pavilions, which are in double rows to east and west, with 80 ft. between each; those to the east are for scarlet fever patients and those to the west for diphtheria, typhoid, erysipelas, measles, chickenpox, whooping cough, and typhus. These pavilions, though quite isolated, will be connected by covered ways. The whole of the work, including heating and ventilating, has been carried out under the superintendence of the City Architect, Mr. R. Morham.

**FREE LIBRARY, KINGSTON.**—A new free library in the Queen Anne style, in red brick and Bath stone dressings, has just been opened at Kingston-on-Thames. The new library has cost nearly 7,000l. The interior includes a lending library, a news-room, boys' and magazine rooms, and a reference library. Mr. Alfred Cox was the architect. The building was illustrated in our issue for June 14, 1902.

**BUILDING IN LEEDS.**—At the meeting of the Building Plans Committee of the Leeds Corporation on the 8th inst., 150 plans were submitted. The plans included 210 houses, the new Church of the Holy Spirit in Lodge-lane and Stratford-street, Hunslet, a set of Board Schools in Brown-lane and Lugman-road, Holbeck; and the extension of the nurses' home at the workhouse, Beckett-street.

**CHURCH HALL, WALTON, SURREY.**—The foundation stone has just been laid of the Church Hall now in course of erection on a site close to the Parish Church of St. Mary's. The honorary architect is Mr. A. E. Gough, and the builder Mr. H. W. Gaze.

**"THE PHOENIX," ST. ALBANS.**—Messrs. Ryder & Son, the penny-packed seed merchants, have purchased The Priory at St. Albans, which in the old coaching days, was known as The Bull, one of the most celebrated houses between London and Leicester. It is not proposed to pull down the

house, but to use it for offices, and to erect on the garden at the rear a warehouse containing some 170,000 cubic ft., and specially designed to meet the requirements of their business. Mr. Percival C. Elbow, of St. Albans, is the architect appointed to carry out the work; and Mr. Sharp, of the same city, is the builder.

**MID-CHESHIRE ISOLATION HOSPITAL.**—The Northwich, Winsford, and Middlewich Joint Hospital Authority have appointed Mr. Joseph Cawley, architect, of Northwich, to carry out the erection of the joint hospital. It is to comprise thirty-four beds, and it was decided that the cost, exclusive of the site and furnishing, should not exceed 8,500l.

**WESLEYAN SUNDAY SCHOOLS, APPERLEY BRIDGE, YORKSHIRE.**—The new school built for the Wesleyan Methodists of Woodhouse Grove, Apperley Bridge, was opened on the 9th inst. On the side nearest the road there is a hall, 50 ft. long by 27 ft. 6 in. wide, capable of seating nearly 300 persons. Opening out from the hall are five classrooms, while there are also an infants' room, a room for ladies' meetings, and attached to the main building is a kitchen. The hall has an open timbered roof. The principal contractors were Mr. Jonas Totty, of Bradford, and Messrs. Wilson & Son, joiners, Bramley, the architects being Messrs. Dainton & Simpson, of Leeds.

**THE RAILWAY HOTEL, NORTHALLERTON, YORKS.**—This hotel, situate immediately adjoining the North Eastern Railway Station, has recently been completed for Messrs. Plews & Sons, of Darlington, &c. A portion of the old house still remains, but this, together with the stable block and outbuildings, has been remodelled and brought up to date. The lower portion of the building to the level of the first floor windows, is faced with the Huncote Co.'s Accrington red "plastic-stamped" pressed bricks, relieved with Burnantof's buff terra-cotta. The bay-windows and principal doorways are entirely of terra-cotta, with enrichments. The upper portion, to level of overhanging eaves, is hung with red tiles, with intermediate courses of fancy tiles, and the lower portion of the roofs are covered with red tiles, supplied by Mr. J. C. Edwards, Ruabon. The bar and tearoom (32 ft. by 16 ft.), divided by a glazed screen 7 ft. high, is fitted out in stained and polished mahogany. The Bowes "Well" Fires have been used to all the principal rooms, and are in colours to match the decoration of the several rooms. The entrance halls, vestibules, and bar are laid with Maw & Co.'s black and white tiles to an approved design, the floors of tearoom and smokeroom being of wood-block on concrete, beeswaxed and dull polished. The bar and tearoom windows are of cut and embossed glass, with gilt lettering, supplied by Messrs. William Morris & Co., Fulham-road, Kensington, London. The stable fittings were supplied by Messrs. Young & Co., London. The building is lighted by electricity, the fittings to the principal rooms being of oxidised silver. The hanging sign of copper, with repousse lettering, the arc lamp brackets, and wrought iron gates were supplied by Messrs. N. & E. Spittle, Birmingham. The spandrils to porch and to frieze of oriel bay window are executed in modelled plaster by Messrs. G. Jackson & Son, London. The contract for the furnishing was placed in the hands of Messrs. Maple & Co., Mr. D. Oakley, Northallerton, was the contractor for the bricklaying, masonry, and plasterwork; Mr. R. T. Snaith, Darlington, the carpentry and joinery; Messrs. Baynes and Beck, Ripon, the tiling; Mr. Emerson Smith, Darlington, the painting; Mr. Thos. Alderson, Northallerton, the painting; and the Northallerton Electric Light and Power Co. for the installation of the electric light. The whole of the work has been executed from the designs and under the personal supervision of Mr. W. Hargreaves Bourne, architect, Darlington.

#### SANITARY AND ENGINEERING NEWS.

**RESERVOIR, MAESTEG.**—Mr. M. K. North, M.Inst.C.E., has just conducted a Local Government Board inquiry into an application by the Maesteg Urban Council for sanction to borrow 30,410l. for the construction of a reservoir to hold 30,000,000 gallons, at Blaencwmeryn, in the hamlet of Cwm-y-bwrdd, near Maesteg. Mr. Joseph Humphries, District Surveyor, prepared the plans. There was no opposition to the scheme.

**CLEVEDON WATER SUPPLY.**—A new pumping station has just been opened at Clevedon. The new station was designed by Mr. H. Dare Bryan, architect, Bristol. Local pennant stone, with white pointing, has been used for the walls except for the lodge, which is built of limestone, the upper part being tie hung. All the roofs are of Broseley tiles, the turrets being covered with oak shingles. The windows have Bath stone mullions and clear glass in wide lead frames. The work has been carried out by Messrs. Chancellor & Son, of Bath, under the superintendence of the architect, with Mr. W. H. Lewis, of Bristol, as clerk of works.

**EXPANSION OF KIRKCALDY HARBOUR.**—At a meeting of the Joint Committee of Kirkcaldy Town Council and Harbour Commission appointed to consider the question of the extension of Kirkcaldy Harbour, the sub-committee reported that they had made investigations as to the trade



which might be expected, and also the financial aspect. After considering the Report, the meeting agreed to recommend to the Town Council and Harbour Commission that 100,000l. should be spent on harbour extension, and that they employ Sir A. N. Randall, C.E., to report on the whole undertaking, taking into consideration the situation of the present harbour. They also proposed that he should be asked to prepare plans showing the best method of extending the harbour, and, if possible, to do so in such a manner that the harbour could be added to in detachments, so as to make, if desired, a large coal harbour at completion.—*Dundee Advertiser*.

**SKEGNESS SEWERAGE SCHEME.**—The Skegness Urban District Council have adopted the report of Messrs. Elliott & Brown, of Nottingham, upon the sewerage system, and have instructed them to prepare working drawings. The scheme embraces bacterial filters at the present sewage farm, new pumping-station, and the drainage of the Sacroft Estate. The estimated cost is 8,750l.

## FOREIGN.

**FRANCE.**—M. Postel-Vinay, architect, of Paris, has obtained the first premium in the competition for the church at Patras, the cost of which is estimated at two million francs. The second premium went to another Parisian architect, M. Robert. The jury in the competition at Tarbes for a new Hôtel de Ville have awarded the first premium to M. Gabarret, architect, of Pau; the second to M. Molla, of Tarbes.—A bridge is to be built over the Garonne, at Fortet, at the confluence of the Garonne and the Arège. The cost is estimated at 170,000 francs.—The Association Provinciale des Architectes Français will hold its general meeting at Pau, in June.—The Municipal Council of Besançon has voted the erection of a building, to cost 366,000 francs, to include a bourse and a gymnasium.—At Rochelle, in the course of excavations for the new École Supérieure, a number of coins of the fifteenth century have been found, some of them with the effigy of Henry VI. of England.—The Government have commissioned MM. Udenstock and Roger Bouvard to erect the official pavilion of France at the St. Louis exhibition of next year. The building, which will be a faithful reproduction of the Grand Trianon, will cost nearly half a million francs.—The Municipal Council of Commeny have approved the plans of MM. Duval and Robida for a new theatre. The parish church in the same town is to be rebuilt, on a new site to be selected by the municipality.—The Government intend to distribute among various public buildings of Paris the paintings which decorate the Galerie des Machines, all of which are the work of well-known artists.—M. Rodin has completed the model of the monument to be raised in Paris to the memory of Puvion de Lavallée. The work will be exhibited at the New Salon next year.—The Hospice Raspail is to be shortly opened at Arcueil-Cachan; it stands on the former property of the celebrated chemist Raspail. With it will be connected a museum of scientific pictures and a political and historical souvenirs left by the Raspail family.—The first stone has been laid of the English hospital at Monteboron, near Nice, to be called the "Victoria Memorial Hospital."—The museum at Delphi, designed by M. Tournaire, the architect connected with the exploration works at Delphi, has just been opened. Various works of art have been placed in it, the most important being the bronze of the "Auriga."—The congress of French architects, which this year is to meet at Nantes, will visit, on June 7, Guérande, Escoubac, Poulliguen, Batz, and Le Croisic. On Tuesday, the 9th, the congress will meet at Clisson, celebrated for its châteaux and the remains of a temple of Vesta. M. Salmersheim, Inspecteur des Monuments Historiques, has submitted to the Council of the Seine Inférieure his plans and designs for a new staircase for the Palais de Justice at Rouen. His scheme will reproduce the principal features of the staircase of 1493, as it appears in Starenbath's illustration.—The death is announced, at the age of 57, of M. Massiou, architect to the town of Rochelle, and diocesan architect under the Monuments Historiques. He was a pupil of Uchard, and member of the syndicate of the Caisse de Défense Mutuelle des Architectes.

**INDIA.**—The East Indian Railway Company is about to construct a new line from Ondal to Sainthia, and the Indian Government has sanctioned the expenditure for the survey.—Extensive buildings are about to be erected at the railway station at Howrah.—Dr. Viegas, of the Bombay Municipality, has suggested that land should be leased on moderate terms to such landlords as would be willing to build small houses for the working classes on ground lines. There is little doubt that, on sanitary grounds alone, this suggestion will be adopted.—The Roman Catholic cathedral at Moorcheehatta, near Calcutta, is to be enlarged, and the electric light installed.—The light cream-coloured building-stone so largely used in the Central Provinces seems to be prepared for delicate traceries in other parts of India, and is apparently very durable.

## MISCELLANEOUS.

**PROFESSIONAL AND BUSINESS ANNOUNCEMENT.**—The General Manager's office of the Simplex Steel Conduit Co. has been removed from 20, Bucklersbury to Westinghouse Buildings, Strand, W.C.

**COMMONS AND FOOTPATHS PRESERVATION SOCIETY.**—A meeting of the Executive Committee of the Commons and Footpaths Preservation Society was held at No. 25, Victoria-street, Westminster, on Thursday last week. The Right Hon. G. Shaw-Lefevre presided. Mr. E. N. Buxton reported that the City Corporation were proceeding with their opposition to the scheme for purchasing an open space of nearly 600 acres on the eastern confines of the metropolis. The following resolution was unanimously adopted by the Committee:—"That this meeting of the Commons and Footpaths Preservation Society desires to express its great regret at the opposition threatened by the Corporation of the City of London to the Hainault Forest Bill, and earnestly hopes that the Corporation, which in the past has done so much for the open-spaces of London and its environs, will withdraw its opposition to a scheme that, in the opinion of the Society, will be of great benefit to the metropolis." It was resolved to oppose on Second Reading in the House of Commons the old Bridewell Burying Ground Bill, which seeks to over-ride the clauses of the Acts providing for the protection from building of disused burial grounds; it was also decided to oppose the Hastings Harbour District Railway Bill, under which the East Cliff at Hastings will be subjected to grave disfigurement. The Chairman reported that the Charity Commissioners had now given effect to the Society's views with reference to 200 acres of Fuel allotment at Fimley in Surrey. A clause had been inserted in the scheme under which the charity will now be administered to provide that no part of the land shall be enclosed or built upon, and that reasonable access shall be allowed to the public. The Chairman also stated that the Society had assisted to defeat a proposal to sell for building purposes 75 acres of Poor Allotments at Burghclere in North Hants. It was further decided to inquire into the action of the War Office in forming an encampment on Watchet Hill, one of the most noted viewpoints in Dorset, notwithstanding the strong local opposition to the proposal. The Secretary (Mr. L. W. Chubb) reported that upwards of 150 cases of interference with rights of way, roadside waste and common land in various parts of England and Wales had been dealt with by the Society during the past month.

**THE PRESERVATION OF HISTORICAL BUILDINGS.**—In the House of Commons on the 7th inst. Mr. Yoxall having asked the First Lord of the Treasury whether, in view of the proposal to erect a building in a modern style close to Shakespeare's birth-place house at Stratford-on-Avon, he will consider the advisability of appointing a committee to inquire into the propriety of establishing a national trust for the conservation of buildings of historical or biographical interest within the United Kingdom, Mr. Balfour said:—"I sympathise with the hon. member in what I take to be the hon. member's object, but I am not clear as to the methods by which he proposes to carry it out, nor as to the precise meaning he attaches to the word 'conservation.' If this is to include purchase, compulsory or otherwise, by the State of all buildings now in private ownership which are of historical or biographical interest the scheme seems to be impracticable. If it falls short of this it will hardly be efficacious."

**THE SANITARY INSTITUTE.**—At an examination in practical sanitary science, held in London on May 1 and 2, 1903, eighteen candidates presented themselves. The following six candidates were awarded certificates:—O. Rosalie Adkinson, A. E. Battle, S. F. Corby, F. E. Glover, W. H. Hubbard, and J. W. Pearson.

**MEMORIAL STATUE, GATESHEAD.**—At Saltwell Park, Gateshead, a bronze statue has been erected to the memory of the late Alderman Lucas. The statue is 11 ft. in height, the figure itself being 6 ft. It shows the late Alderman in his Mayoral robes, with the cloak drawn up over one arm. The statue is the design of Mr. W. Grant Stevenson, R.S.A., of Edinburgh.

**WAR MEMORIAL, SWANSEA.**—At a meeting of the sub-committee appointed by the subscribers to select designs for the memorial about to be erected at Swansea to the fallen men who lost their lives during the recent war, five designs were chosen for a preliminary for final selection to the general body of subscribers. The design which received most support from the sub-committee was by Mr. Lindsay Clarke, the sculptor, who won the 100l. premium for the best design for the Queen Victoria Memorial at Liverpool. It is proposed to erect the monument inside the eastern entrance to the Victoria Park, and to surround it with cannon captured from the Boers.—*South Wales Daily News*.

**PRESENTATION TO A BOROUGH SURVEYOR.**—Mr. Albert Latham, M.Inst.C.E., was on Tuesday publicly presented by the Corporation and Burgesses of Margate at the Town Hall with an illuminated address, a valuable service of silver, and a diamond ring, on the occasion of his retirement from the Borough Surveyorship after twenty-nine years'

service, and on assuming the position of engineer to the new Wingham Water Scheme, which will supply the Borough of Margate and twenty parishes in East Kent with water. Mr. Latham was also recently presented with a valuable sterling silver rose bowl, and an address, subscribed to by 140 of the staff and employees of the Corporation.

**THE FOREIGN CEMENT TRADE.**—Mr. Consul Nugent, reporting to the British Foreign Office on the trade and commerce of Texas for the year 1902, writes from Galveston:—"There used formerly to be a large and paying business in cement from the United Kingdom, but this has gradually passed into the hands of German and Belgian traders. In 1893, out of a total of 15,810l. worth of cement imported, 8,614l. came from the United Kingdom. Last year practically none came from the United Kingdom, whilst Germany sent 23,103l. worth and Belgium 12,211l. worth. This year contracts were first offered by a British firm here, importing cement, to London dealers for some 400,000 barrels of cement for use on public works here, but on account of the price asked they went to Germany and Belgium."

## CAPITAL AND LABOUR.

**NEWCASTLE AND DISTRICT.**—At a special meeting of members of the Newcastle, Gateshead, and Wallsend Branches of the Operative Bricklayers' Society at Newcastle, on the 8th inst, it was reported that as the result of a conference the Master Builders' Federation had offered to withdraw their demand for an alteration of rates and reduction of a penny per hour in wages if the men in the district from the Tyne to the Tees would withdraw their counter demands. The Newcastle, Gateshead, South Shields, Stockton, and Middlesbrough men claimed an advance of a penny, making the rate 11d. per hour; and the Newcastle and Gateshead Lodges also asked for an alteration in rules. The meeting decided to accept the employers' suggestion, so that work proceeds as usual, and the threatened stoppage in the building trade is obviated.

**THE CARPENTERS' DISPUTE AT WALSALL.**—The dispute between the Walsall Master Builders' Association and the local branch of the Carpenters and Joiners' Society as to working rules and increase of wages having been submitted to arbitration, the Board of Trade sent down Mr. A. A. Hudson, of the Inner Temple, to hold a local inquiry. His award has now been given. This provides that the rate of wages is to remain as hitherto, viz. 8½d. per hour, that the hours of labour shall be for the two winter months 7.30 and 6 to 4.30, and that the other working hours shall not be altered. Overtime at the request of the master is to be paid for as time and a quarter for the first two hours and time and a half for additional hours. Overtime on Saturdays after 1 o'clock is to be at the same rate.

## LEGAL.

### ACTION BY AN ARCHITECT AND SURVEYOR.

**THE case of Thompson v. The Burnham-on-Crouch Urban District Council** came before Mr. Justice Darling and a common jury this week in the King's Bench Division—an action by the plaintiff, Mr. Wm. M. Thompson, an architect and surveyor, to recover from the defendants the sum of 121l. 12s. 6d. for surveyor's fees due from defendants to plaintiff for services rendered and money expended. Defendants admitted the claim so far as it related to items for money expended, but with regard to the claim for services rendered they pleaded that the services of the plaintiff were included in plaintiff's duties as surveyor for them. In the alternative, defendants said they did not order the work, and further, that the plaintiff's charges were not fair and reasonable.

Mr. Tindal Atkinson, K.C., and Mr. Hart were counsel for the plaintiff, and Mr. H. F. Dickens, K.C., and Mr. Jones for the defendants. Mr. Atkinson, in opening the case, said the plaintiff's claim was made up of two items, i.e., 53l. 11s. 6d. fees in connexion with a sewage scheme, and 68l. 12s. 6d. fees in connexion with the designing and carrying out of the supply of water for the district. Proceeding, Mr. Atkinson said the plaintiff was an architect and surveyor, and had been in the habit of visiting Burnham-on-Crouch, taking a house there and residing there with his family, and in that way he became acquainted with the district. In April, 1898, the defendants were in want of a surveyor and inspector of nuisances. The salary for the two offices was 50l. viz. 20l. for the surveyor and 30l. for the inspector of nuisances. Plaintiff, having some spare time on his hands, applied for the post and was appointed. When he was appointed it was explained to the plaintiff that it was unlikely that any new works would be carried out, but if new works became necessary the plaintiff would be entitled, if he was employed, to charge the usual remuneration of a professional man. His duties as surveyor were to be to survey works in existence, and to carry out the duties of the inspector of nuisances. Plaintiff discovered that the sanitary condition of the district was anything but desirable. He found that two or three sewer tanks at the mouth of the estuary were in a terrible condition. He made a report to the defend-



ants on the matter, and suggested that they should erect bacteria tanks similar to those at Sutton, which were found to work well. The Council were satisfied with the suggestion, and instructed the plaintiff to draw up plans for similar tanks. They then applied to the Local Government Board for a loan to carry out the work. It was found that the scheme would cost some 10,000*l.*, and as the population of the place was only some 1,000 the scheme was dropped, it being considered too costly. In February, 1901, plaintiff put forward an alternative and much more economical scheme, and he was instructed to prepare plans and specifications for the scheme, one involving some new sewage tanks. This work, which was carried out by the plaintiff, was completed in October, 1901, at a cost of 1,200*l.*, and upon that work the plaintiff claimed 53*l.* 11*s.* The other matter was about the water supply. During the autumn of 1898 there was a serious shortage in the supply of water. The supply the inhabitants had was from a well. The water being short, plaintiff called the Council's attention to the matter, and suggested that something should be done. But nothing was done till July of the following year, when the plaintiff suggested the sinking of a deep well to a water-bed some 400 ft. below the ground. Plaintiff made some trial borings into the existing supply, and he found that the then supply was only from surface water. In October the Council issued advertisements for sinking the deep well. In November plaintiff prepared plans for the water supply, and form of tender. Plans and estimates were prepared and forwarded to the Local Government Board. On January 30 the Local Government Board held an inquiry into the scheme, and in March, 1900, they approved of the scheme. Eventually a contractor's tender was accepted, and in May, 1901, the work was commenced. The contract with the contractors was settled by the plaintiff. The work was to be done to the satisfaction of the surveyor "appointed as surveyor of that contract." The work went on slowly, but at 385 ft. an excellent supply of water was found. In respect of that work the plaintiff claimed 68*l.* 1*s.* 6*d.* In consequence of some friction between the plaintiff and some of the members of the Council, many of them builders, who were, counsel said, erecting houses in contravention of the by-laws, he sent in his resignation in April, 1902. In the following July plaintiff sent in his account, which was disputed, and hence the present action.

The plaintiff was then called and gave evidence in substance bearing out counsel's statement.

Cross-examined: He was not a member of the Surveyors' Institution or of the Institute of British Architects, but he had served his articles with eminent firms who were. It was no part of his duty to do the work he had charged for under his original terms of employment. He made no special reports to the Council on the works in question, but embodied them in his ordinary reports. During the progress of the works he went there once a week or more. His contention was that it was no part of a surveyor's duty to construct and superintend new works.

Re-examined, the plaintiff said his view was that his appointment rendered him liable and responsible for all existing things, but not for work and labour in connexion with the creation of anything new. His appointment was a yearly one and was under the Public Health Act.

Mr. R. M. Chart, F.S.I., examined, said he had been in practice for twenty years, and for many years was with the Rural District Council of Croydon.

Mr. Tindal Atkinson proposed to ask the witness a question as to the duties to be done under the Act with regard to new work by a surveyor of a Local Authority.

Mr. Dickens objected to such evidence, and contended that plaintiff's work was covered by his appointment.

His Lordship (to Mr. Dickens): If it was stated by Mr. Croxon on plaintiff's appointment that he would be paid for new work, you say that would now be *ultra vires*?

Mr. Dickens: Yes, because the Council would be surcharged if they paid him for the work.

After a long legal argument his Lordship held that the duties of a surveyor were not defined by the statute, and that there was no agreement between the parties as to the duties. In those circumstances the evidence tendered could not be admitted.

Mr. Atkinson said he had other evidence, but would not call it.

Mr. Dickens submitted that there was no case to go to the jury.

His Lordship thought there was a case to go to the jury, assuming that the plaintiff was engaged as surveyor, to do all the ordinary work of a surveyor acting for a Local Authority under the Public Health Act, 1875. He did not think that the 193rd Section of the statute prevented the Local Authority from making an agreement with him that if he did certain work outside the work which he was engaged to do as surveyor, such as advising them about and obtaining a fresh water supply or about altering the existing system of sewage, nor did the cases cited render such an agreement or contract between the surveyor and the Local Authority illegal.

Mr. Dickens then called Mr. W. B. Croxon, the late chairman of the defendant Council. He said he was chairman of the Council when the plaintiff

was appointed. There was no special bargain that the plaintiff was to be paid for extra work.

Cross-examined: He could not recollect all that passed at the time of the plaintiff's appointment.

Mr. John Hawkins, chairman of the defendant Council, examined, said he was a member of the Council when the plaintiff was appointed. He heard all that took place and he was sure nothing was said about extra remuneration for any extra work.

Cross-examined.—There was extra work in contemplation at the time plaintiff was appointed. The new works were not mentioned for the first time when plaintiff brought them forward. He could not refer to any minute of the Council bearing out this statement.

The Rev. C. D. Gooding, Vice-chairman of the Council, corroborated.

Mr. R. Dinaway, Clerk to the Council, in cross-examination, said that casual references had been made of payment to plaintiff for extra work he had done. The late chairman, Mr. Croxon, once said, when some plans were wanted that they did not expect plaintiff to get the plans out for nothing.

The being of the defendant's case, and counsel having addressed the jury, his Lordship, in summing up, pointed out that defendants admitted the claim of the plaintiff, so far as 6*l.* was concerned.

The jury, after an absence of forty-five minutes, returned into Court, and found for the plaintiff for 100*l.*—viz., 58*l.* in respect of the sewage scheme, 50*l.* for the waterworks, and 6*l.* for the out of pocket expenses.

Mr. Jones asked for judgment for the defendants on the ground that the contract between the defendants and the plaintiff was void under Section 193 of the Public Health Act, plaintiff holding an appointment as surveyor to the Council. His Lordship said he should enter judgment for the plaintiff, in accordance with the verdict.

Judgment accordingly for the plaintiff for 100*l.* and costs.

A stay of execution was granted for fourteen days, pending an appeal by the defendants.

#### CASE UNDER THE LONDON BUILDING ACT.

At the North London Police Court, on May 5, before Mr. Fordham (adjuvanted hearing), the Wyngem Syndicate Ltd. were summoned by the London County Council for erecting a building of a temporary character without their licence.

The structure, which was about 40 ft. by 30 ft., was entirely constructed of, and covered with, wood, the roof being covered with felt, and it contained a combined boiler and engine, with an iron chimney-shaft.

The defendants had obtained a licence from the Islington Borough Council under Section 84 of the London Building Act, and the powers transferred to them in reference to that section by the Local Government Act, 1899.

Mr. Daldy for the Council contended that this was a wooden building, to which Section 84 did not apply, and quoted the judgment in the case of the London County Council v. Westminster City Council in support of this contention.

Mr. Bramall, solicitor for the defendants, contended that it was a structure coming under that section, and that the Borough Council were right in licensing the same, and Mr. J. P. Barber, the Islington Borough Surveyor, gave evidence that the licence had been granted and the question had not been raised whether there was any doubt as to his Council having the power to license such a structure.

The Magistrate decided that this was a wooden building, and therefore came under Sections 82 and 83, and required the consent of the London County Council, and was not a structure within the meaning of Section 84, which section did not mention "building" except in connexion with a temporary structure erected by a builder for his use during work to a building.

He also (after visiting the *locus in quo*) made an order for its demolition, with a fine of 20*s.*, and 5 guineas costs.

#### NEWCASTLE ANCIENT LIGHTS' CASE.

THE hearing of the case of Cowper v. Laidler concluded, before Mr. Justice Buckley, in the Chancery Division, on the 14th inst.—an action by the plaintiff, Joseph Cowper, residing at 18, Deno-street, Newcastle, to restrain by injunction the defendant, Mr. George G. Laidler, of Northumberland-street, Newcastle, from erecting any building upon, or adjoining, premises belonging to the defendant in Northumberland-street so as to darken, injure, or obstruct any of the ancient lights or windows of the plaintiff's cottage in Dove-court. The plaintiff also sought to stop the defendant from pulling down any part of the cottage.

Mr. Astbury, K.C., in the course of opening the case for the plaintiff, said that the plaintiff's cottage was a very old one, but the site would be valuable for building purposes later on. The cottage was situated down a passage, and defendant had deposited certain plans with the Town Council, under which he proposed to narrow the passage-way and put up certain buildings which would have interfered with plaintiff's eaves, but these plans

were altered. The only two points in dispute now were the obscuration of the lights of the cottage looking to the south, and the question of whether that part of the cottage situated over the west passage and consisting of a lumber-room or chamber did or did not belong to the plaintiff. Defendant had cut the roof of the cottage and proposed to build a boundary wall which would take away the lumber-room part of the premises. The large buildings which defendants proposed to erect would take away the whole of the western light to the cottage, and the result would be that although the cottage was in a dark passage, it would, if defendants' buildings were put up, be in an absolute pit or hole. The light obtained from the skylight would also be interfered with.

In reply to his Lordship Mr. Buckmaster, K.C. (for the defendant) said he did not admit that the plaintiff's lights were ancient.

Mr. Astbury, proceeding, said that the cottage in question was about 100 years old, plaintiff having been in possession over fifty years. Defendant's predecessors brought an action of ejectment against the plaintiff over twenty years ago, and it was dismissed with costs. Plaintiff had always excluded defendant from any right to the lumber-room.

Evidence having been given in support of the plaintiff's case,

Mr. Buckmaster, on behalf of the defendant, denied that the plaintiff's light would be materially affected by the buildings proposed to be erected by the defendant. He also contended that the plaintiff had no title to the lumber-room.

Several witnesses were called on behalf of the defence, and in the result his lordship in giving judgment, said the plaintiff sued on several causes of action, but there were only two which had been argued, and upon which alone he proposed to adjudicate. First he had to consider whether the plaintiff was entitled to what he would call the disputed roof, and, secondly, whether he was entitled to an injunction to restrain defendants from erecting certain buildings so as to obscure his lights. He would deal first of all with the question of the disputed roof. After reviewing the evidence, his lordship held that the lumber-room was part of the Northumberland-street property, and never was in adverse possession of the plaintiff. He also held that there would be a material obscuration of the plaintiff's light by the defendant's proposed buildings, but he would give no judgment then as to the relief the plaintiff should have. This he would reserve for consideration on a future occasion. As both parties were wrong on certain points he would make no order as to costs.

Judgment accordingly.

#### PATENTS OF THE WEEK:

##### APPLICATIONS PUBLISHED.\*

17,827 of 1902.—W. L. WISE (The Salubra Wall-cover Co.): *Manufacture of Wall paper.*

Wall-paper, the rear surface of which is smooth, while upon its front surface a damask-like effect is produced by flutings which run in different directions or are of different patterns, and are formed in a suitable substance with which the front surface of the paper is coated.

5,317 of 1902.—H. KOLSTER: *Siphon Flushing Cisterns.*

Siphon flushing cisterns in which the flushing action is produced by the raising of the water-level above the inlet to the flush pipe, the arrangement being characterised by the fact that the float actuating upon the admission cock is of such volume that the displacement of water caused by its complete immersion results in an overflow of water into the flush pipe, thus starting the siphon action.

12,833 of 1902.—G. V. EVERS: *Bricks for Furnaces, Crowns, or Arches, the Fireholes of Kilns and Ovens, and other like Purposes.*

This consists of an arrangement whereby, when placed in position, the bricks interlock or mutually support each other.

1,231 of 1903.—R. LLEMMANN: *Method of Manufacturing and Composition for the Manufacture of Artificial (Plain or Corrugated) Slates or Roof Tiles.*

Artificial slates or roof tiles composed of a mixture of cement and coke breeze, tufa, ground clinkers, and sharp sand.

2,096 of 1903.—G. WRUCK: *Slabs for Wall Constructions.*

A slab for the construction of fireproof and sound-proof walls consisting of a porous or cellular artificial stone, two flaps with slanting sides projecting from the lower edge of the stone, two recesses corresponding in size and position to the flaps at the lower edge, a feather along the upper edge and one vertical side of the stone and a groove along the bottom edge and the other vertical edge of the stone.

4,331 of 1903.—E. FUNKE: *Sanitary Corner Plates.* A corner plate for the corners of stairways, halls, rooms, and the like, comprising a main body provided with a disinfectant receiving-chamber adapted to retain the disinfectant upon the back of said main body.

\* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.



9,935 of 1902.—A. HARDWICK: *Separators for Sifting Cement and Other Goods.*

Separators for sifting cement and other goods, in which a blast of air is driven to the base of a vibrating sieve, said sieve having an additional jerky motion imparted to it, and a dust collector comprising corrugated baffle plates.

22,480 of 1902.—F. KALWEIT: *Building Blocks.*

A building block consisting of a metal frame of suitable cross-section containing cement.

9,932 of 1902.—C. W. KREUSSLER: *Combination Folding Bath and Bedstead.*

This consists in the combination of a folding bath and bedstead, with flexible outlet and overflow pipes or tubes and provided with a hot or cold water supply, means for adapting the said bath for use as a bedstead when not in use as a bath, and when out of use capable of being folded into a vertical position, and having the appearance of a wardrobe or like cabinet.

10,240 of 1902.—E. W. LANCASTER: *Baths.*

A collapsible bath composed of a suitable waterproof material sheathed with metal at one end, if necessary, a jointed metal or other extensible frame work to support the top of said bath, and a cabinet or cupboard into which said bath and frame can be collapsed when not in use.

12,092 of 1902.—W. DREYER: *Ventilating Windows.*

This consists in the combination of a light frame secured to the roof, a top frame and one or more intermediate frames, with a lever system consisting of two pairs of levers, of which the ends facing each other are pivotally connected by a joint arm or link, supports or arms connecting the outer ends of the levers with the top frame, and like supports connecting a point or points of the levers between their outer ends with one or more of the intermediate frames.

12,295 of 1902.—H. W. HANWELL: *Glazing Rafters and Structures.*

This invention relates to rafters or bars in one piece of wood and supporting strips of lead by which the sheets of glass are held. The top of the rafter or bar is formed with a central projection and is slotted on each side. The strip of lead has its sides doubled back upon themselves as is usual, and is bent so as to cover the projection. The edges formed by the doubling enter the slots, whilst the edges of the strip lie one on each side of the projection. The sheets of glass rest on the top of the rafter or bar, having the projection between them, and when they are in place the edges of the strips are bent down on the glass.

17,230 of 1902.—J. MOSS: *Window Sashes and Frames.*

A combination top and bottom window-sash and frame, consisting of a top and bottom sash, in the styles of which are pivot-pins, said pivot-pins turning in slides, said slides having a wedge-shaped petical surface on the inside of the building and capable of moving vertically between the parting beads of a window-frame, and a box-frame having an upward extension above the lower or inner sash, said slides being lifted by a sash-line passing over a pulley and supporting a weight, in combination with a fastener secured above the meeting-rail of the bottom sash and a combination dust-excluding strip and lock on the inside of each style, said strip and lock having a series of oblong holes and a finger-hole, and held to the style by screws.

6,806 of 1902.—W. PICKERING, S. A. PICKERING, and J. BROMLEY.—*Apparatus for Sanding Tramway Lines.*

This consists of a tube, on the delivery end of which is a slot covered by a sliding-door, in which is also a corresponding slot. It also consists of a lever connected to one end of the sliding-door, and the lower end of said lever is attached to a transverse rod, or rocking-shaft, which is moved round by a rod, or chain, extending along under the car to the platform, where it is connected to a lever, which is held in position by a spring-catch and actuated by a treadle. A spring is fitted so as to cause the sliding-door to be moved in the opposite direction when the aforesaid rod is released. When it is required to sand the tram-rails, the treadle is pressed down, causing the lever to pull the rod or chain, thereby bringing the slot in the tube and the corresponding slot in the sliding-door directly opposite each other, and thus allowing the sand to flow out. The flow of sand is regulated by a series of notches cut, or formed in the spring catch. When sufficient sand has been allowed to flow, the catch is knocked off, and the door slides back by the action of the spring and closes the slot.

8,744 of 1902.—F. TRIER: *Machinery for Working Stone and the Like.*

In machines for dressing stone with circular roller cutters, the construction of machines and tool-carriers in which the stone is placed on a crank-driven reciprocating table is acted upon by two sets of cutters on the cutter-carriers, mounted on slides, sliding on a vertical adjustable slide, each set of cutters consisting of two, or more than two, cutters placed side by side in the direction of the travel of the stone, and capable of being adjusted to work on different levels for the purpose of working the material by the process called step-cutting.

11,235 of 1902.—W. POWELL: *Paving-blocks and Vulcanising and Preserving Timber.*

A process of vulcanising and solidifying timber, consisting in boiling the timber in a solution of syrup of sugar, or sugar liquor, then heating such timber saturated with the syrup of liquor by hot dry air, and driving off the moisture and solidifying or caramelising the sugar therein.

11,781 of 1902.—J. B. LAWRIE: *Bricks for Arches.*

This invention relates to bricks for arches, and is especially applicable to arches in furnaces, kilns, and the like, which are subject to great variations in temperature. The invention consists in making only about half (preferably the lower half) of the sides radial, while the upper half of the side surfaces is not in the same plane as the lower half, but is above it on one side, and below it on the other side. If the radial lines of the lower surfaces be produced to the top of the brick, they will give approximately the points from which the other planes commence. On one side of the brick the plane is carried from its corresponding point outwards, a certain amount to about the middle of the brick, where it is joined to the radial plane by another plane either at right angles, or at an acute angle, or at an obtuse angle, to the radial surface. The other side of the brick is arranged in a manner exactly opposite to the above—that is, the upper plane is carried inwards to about the middle of the brick; therefore, approximately parallel to the plane on the other side, and joined to the radial plane by another plane either at right angles or at an obtuse angle, or at an acute angle to the radial surface. The bricks forming the arch will thus be locked together, and there will be no liability for any of the bricks to get so loose as to fall out owing to the expansion and contraction of the arch.

28,332 of 1902.—J. FERGUSON: *Fire-resisting Floors, Ceilings, Roofs, Lintels, and the Like.*

This relates to the provision of straight or bent tee-irons or bars of any suitable shape and strength, inserted and embedded in a concrete slab of which they form a part, and the application of hoop iron or wire rods, straight or bent, of any desired width and thickness laid on the top or bottom, or partly over and partly under the aforesaid tee-iron bars. The tee-iron or bars may be bent to any suitable shape for the purpose, and the flanges may be either at the top or bottom. The hoop-iron or wire rods may be laid crosswise, lengthwise, or intersecting each other, and may be bent to any shape suitable for the purpose. The tee-iron or bars may be supported at the ends on a piece of iron, steel, or other material, which may be plain, notched, or otherwise treated. Iron, steel, or other bars, or any other form of the same material may rest on or be fixed to the bottom flange of the joist for the purpose of attaching a suitable arrangement for forming a flat ceiling, or a flat ceiling may be formed by a concrete slab containing the tee-iron, or other bars and hoop-iron or rods, and the space over this be filled in any manner and with any material that is suitable for the purpose. The tee-iron bars and the hoop-iron or rods may also be used in combination with concrete for the purpose of forming lintels.

## MEETINGS.

FRIDAY, MAY 15.

*Architectural Association.*—Members' supper, at the Hotel Great Central, Marylebone-road, 7.30 p.m.  
*Sanitary Institution.*—Annual Dinner, Richeieu and Medici Rooms, Hotel Cecil. 7 p.m.

SATURDAY, MAY 16.

*Edinburgh Architectural Association.*—Visit to Stirling (to Castle and Church).

MONDAY, MAY 18.

*Royal Institute of British Architects.*—Professor Sir Martin Conway on "The Beginnings of the Egyptian Style of Architecture." Lantern slides. 8 p.m.  
*Society of Arts (Cantor Lectures).*—Mr. W. W. Beaumont on "Mechanical Road Carriages." IV. 8 p.m.

TUESDAY, MAY 19.

*Royal Institution.*—Professor G. H. Darwin on "The Astronomical Influence of the Tides." II. 5 p.m.  
*Society of Arts (Applied Art Section).*—Mr. Cyril Davenport, F.S.A., on "Mezotints." 4.30 p.m.  
*Society of Designers.*—Mr. J. J. Brownson on "The Form and Features of the Human Head." 8 p.m.  
*The Archaeological Institute.*—Exhibit of Antiquities from the north-west frontier of India, by M. Longworth Dames. (a) Ancient Pottery Kilns at Savankalak, Siam, by Mr. H. Lyle; communicated by Mr. C. H. Read, F.S.A. 8.15 p.m.

WEDNESDAY, MAY 20.

*Builders' Foremen and Clerks of Works' Institution.*—Ordinary meeting of the members. 8 p.m.

THURSDAY, MAY 21.

*Glasgow Architectural Association.*—Annual excursion: Falkland Palace.  
*London Master Builders' Association.*—Council Meeting. 4 p.m.

SATURDAY, MAY 23.

*Incorporated British Institute of Certified Carpenters.*—Visit the new Gaiety Theatre in course of erection. 3 p.m.

## SOME RECENT SALES OF PROPERTY:

### ESTATE EXCHANGE REPORT.

April 25.—By FRANK LLOYD & SONS (at Chester).	
Stamford Bridge, Cheshire.—Milton Brook Lodge and 30a. 2 r. 1 p. f. p.	£4,025
Malpas, Cheshire.—Cuddington Woods, area 29 a. 1 r. 28 p. f. p.	1,570
April 27.—By W. H. SHINER & WINTER (at Askrigg).	
Axbridge, Somerset.—The Court and o. a. 3 r.	2,500
Three freehold cottages and o. a. o. r. 13 p.	340
Freehold garden ground, o. a. 1 r. 9 p.	410
Freehold house and o. a. 1 r. 13 p.	410
Stable, buildings, and yard, o. a. 1 r. 20 p. f.	370
Various enclosures of land, 58 a. 3 r. 36 p. f.	5,095
Cheddar, Somerset.—Enclosures of pasture, 12 a. 3 r. 7 p. f.	1,330
Orchard lands, 5 a. 3 r. 35 p. f.	885
Farm buildings, yard and o. a. o. r. 18 p. f.	850
Freehold garden ground, 10 a. 3 r. 28 p. f.	1,388
April 28.—By W. H. SHINER & WINTER (at Yatton).	
Compton Bishop, Somerset.—Enclosures of land, 9 a. o. r. 36 p. f.	650
Barton, Somerset.—Nut Tree Farm, 31 a. 3 r.	1,150
19 p. f.	4,250
Barton Farm, 110 a. 1 r. 3 p. f.	160
Two cottages and orchard, 1 a. o. r. 4 p. f.	185
Orchard lands, 2 a. 3 r. 17 p. f.	835
Various enclosures, 22 a. 2 r. 16 p. f.	835
April 29.—By A. W. TAYLOR & CO. (at Putney).	
Barnes, 1 to 5, High-st. (S), ut. 54 yrs., g. r. 261.	3,325
Putney.—4, Kedgrave-rd., ut. 63 yrs., g. r. 54 ss.	300
Wandsworth.—Burr-rd., two freehold building plots.	515
May 1.—By ROBERTS, SON, & TORY (at Yeovil).	
Maperton, Somerset.—Clapton Farm, 150 a. 2 r. 1 p. f. 1961. 158.	3,000
Clapton Barn Farm, 110 a. 2 r. 22 p. f. y. f.	1,825
110 a. 2 r. 22 p. f. y. f.	3,675
Bratton St. Muir, Somerset.—Church Farm, 154 a. 2 r. 3 p. f. y. f. 2071.	
By PARKINSON, ELLIS & CO. (at Kingston).	
Kingston, Surrey.—Burton-rd., seven plots of land, f.	530
Chesterfield-rd., twelve plots of land, f.	812
May 2.—By G. A. WILKINSON & SON (at Huntingdon).	
Broughton, Hunts.—The Manor Farm, 28 a. 3 r.	5,050
3 p. f. y. f. 2401.	2,800
Broughton Lodge (or the Hungry Hall Farm), 226 a. o. r. 10 p. f. y. f. 1501.	850
The Manor of Broughton, producing quit rents of 201. 13s. 4d. per annum.	475
Warboys, Hunts.—Two enclosures of land, 15 a. 3 r. 9 p. f.	750
May 4.—By ELCOCKS.	
Regent's Park.—4, Melcombe-pl., ut. 33 yrs., g. r. 51 ss. p.	760
Fulham.—479, Fulham-rd., ut. 50 yrs., g. r. 71 ss. y. f. 801.	1,075
By HILLIER & HILLIER.	
Holloway.—34 and 36, Bevensbrook-rd., ut. 64 yrs., g. r. 446 y. f. 901.	3,000
By CHESTERTON & SONS.	
Kensington.—8, Upper Phillimore-gds., ut. 42½ yrs., g. r. 354 p. f.	10,000
Baywater.—1 to 19, Leinster-yard (stabling), f. y. f. 4571.	13,500
102 and 104, Westbourne-gr. (S.), f. y. f. 6001.	410
Clapham.—112, Clapham Pk.-rd., f. y. f. 261.	245
76, Park-pl., f. w. r. 201 ss.	1,230
Worcester Park, Surrey.—Hampton-rd., Stanley, Knighton, Livingstone, Maisonnelle, and Glynwood, ut. 95 yrs., g. r. 301, g. r. 1601.	440
By ALFRED RICHARDS.	
Winchmore Hall.—Vicar's Moor-lane, Forster's Cottages (three), f. y. f. 481.	860
By WALTER VINCENT.	
St. John's Wood.—49 and 51, Townshend-rd., ut. 31 yrs., g. r. nil, y. r. 841.	790
53 and 55, Townshend-rd., ut. 31 yrs., g. r. 81.	875
26, 28, and 30, Woronzow-rd., ut. 31½ yrs., g. r. nil, y. r. 1261.	1,270
121, Acadia-rd., ut. 31½ yrs., g. r. 101, y. r. 501.	440
By WEATHERALL & GREEN.	
Oxford-st.—Newman-st., l. g. r. 651, ut. 77 yrs., g. r. 281.	7,400
Newman-passage-mews, l. g. r. 351, ut. 77 yrs., g. r. 301.	550
Holborn.—37, Great Queen-st. (S), area 9.55 a. f. y. r. 1501.	4,500
Gray's Inn-rd.—4, Sidmouth-st., f. e. r. 651.	1,170
Teddington.—Broom Water West, Clavelly, f. e. r. 1001.	1,500
By CURTIS & SHARP (at Stratford).	
East Ham.—Rutland-rd., eight plots of building land, f. w. r. 541 ss.	360
West Ham.—26 and 28, Park-rd., f. w. r. 541 ss.	620
Plaistow.—1, St. Andrew-sd., ut. 661 yrs., g. r. 31 ss. e. r. 321.	600
May 5.—By DEBENHAM, TRENCH & CO.	
Hamstead-road.—Robert-st., l. g. rents 60 s. ut. 11½ yrs., g. r. 201, with reversion	280
Norwood.—Thurlow Hill, l. g. r. 91, reversion in 6½ yrs.	230
35, Belvedere-rd., ut. 54½ yrs., g. r. 111 ss. 4d. y. r. 501.	500
Belvedere-rd., a profit rental of 131. 6s. 8d. for 54½ yrs.	126
By HARTON & SONS.	
Wimbledon.—Southey-rd., a freehold plot of land	210
By MULLETT, BOOKER, & CO.	
Hyde Park.—4, Hyde Park-gds. and 4 Hyde Park Gardens-mews, ut. 301 yrs., g. r. 561. 14s. p.	6,300
By MARK LILL & SON.	
Mile End.—3, Halford-st., ut. 34½ yrs., g. r. 31.	235
71, Clinton-rd., ut. 30½ yrs., g. r. 41, w. r. 391.	290
Bow.—7 and 8, Landseer-rd., ut. 34 yrs., g. r. 81 ss. y. r. 641.	700



10 and 11, Rounton-rd., u.t. 59 yrs., g.r. 74, 10s., w.r. 52.  
 81 and 83, St. Paul's-rd., u.t. 64 yrs., g.r. 104, y.r. 77, 10s.  
 Bromley-by-Bow—35 to 104 (even), High-st., to 17 (odd), St. Leonard's; and 1 to 11 (odd), Priory-st., u.t. 74 yrs., g.r. 1504, w.r. 5104, 14s.  
 Wanstead—35, Grove-rd., l., g.r. 404.  
 Forest Gate—29, Tower Hamlets-rd., and two plots of building land adjoining, f., c.r. 554.

By MADDISON, MILES & MADDISON (at Halesworth).

Chediston, Suffolk.—The Duke of Wellington p.h. and 10 a. st. 22 p. f., y.r. 284.

By E. & H. LUMLEY.

Battersea—24 and 26, Meyrick-rd., f., w.r. 624, 8s.

59 to 103 (odd), Meyrick-rd., f., w.r. 2374, 18s.

Meyrick-rd., f.g.r.'s 324, reversion in 40 yrs.

945

111 and 113, High-st., f., w.r. 444, 4s.

Tooting—29 to 45 (odd), Trevelyan-rd., f., w.r. 2454, 14s.

Westminster—Rochester-row, f.g.r. 204, reversion in 53 yrs.

By E. & H. LUMLEY.

Pimlico—Vauchall Bridge-rd., f.g.r. 204, reversion in 53 yrs.

May 6.—By BOVTON, PERGRAM, & BUCKMASTER.

Fulham—48 to 84 (even), Parson's Green-lane, with yard and buildings in rear, area 19,000 ft., f., w.r. 3744, 2s.

10, Parson's Green-lane, area 15,000 ft., f., p.

657 and 661, Fulham-rd., u.t. 12 yrs., g.r. 204, w.r. 844, 10s.

58, Laundry-rd., u.t. 834 yrs., g.r. 54, w.r. 334, 16s.

106 to 112 (even), New King's-rd. (S.), u.t. 78 yrs., g.r. 444, y.r. 177.

1 to 6, Droynton-mews, u.t. 78 yrs., g.r. 124, w.r. 934, 10s.

Notting Hill—108, Golborne-rd. (S.), u.t. 63 yrs., g.r. 104, y.r. 64.

Wandsworth—Point Pleasant, Langholm Laundry, area 7,000 ft., f., y.r. 604.

Mortlake—Orchard-rd., a range of stabling premises with cottage, u.t. 64 yrs., g.r. 274, y.r. 704.

Hammersmith—100, Greyhound-rd., laundry premises, u.t. 844 yrs., g.r. 104, 10s., y.r. 604.

By J. G. DEAN & CO.

Tooting—3, Francis-rd., f., y.r. 404.

Merton—2 and 4, Avenue-cottages, f., w.r. 294, 18s.

By FOSTER & CRANFIELD.

Putney—20, Dryburgh-rd., u.t. 84 yrs., g.r. 54, y.r. 704.

5, Attney-rd., u.t. 74 yrs., g.r. 84, 8s., c.r. 554.

By FRANK JOLLY & CO.

Clapton—6, Munton-rd., u.t. 704 yrs., g.r. 24, 13s., y.r. 384.

By GEO. E. LUCK.

Stroud Green—171, Mount View-rd., u.t. 884 yrs., g.r. 104, c.r. 64.

Crouch End—17, Weston-pk., u.t. 784 yrs., g.r. 94, c.r. 604.

By NOTT, CARTWRIGHT & ELLIOTT.

Pimlico—3, Hugh-st., u.t. 24 yrs., g.r. 54, 10s., y.r. 54.

By D. SMITH, SON, & OAKLEY.

Hackney—Horton-rd., f.g.r.'s 204, reversion in 544 yrs.

Elcator-rd. North, f.g.r.'s 254, reversion in 544 yrs.

By VICTOR VAUGHAN.

St. Pancras—124, Euston-rd. (Turkish Bath), f., y.r. 1154.

Regent's Park—45, Clarence-gdns., and 76, Little Albany-st., u.t. 20 yrs., g.r. 84, 8s., w.r. 1194, 12s.

By DOUGLAS YOUNG & CO.

Brixton—57, Ralston-rd. (S.), u.t. 634 yrs., g.r. 84, y.r. 404.

Battersea—4, Kenley Mews, u.t. 74 yrs., g.r. 54, w.r. 274, 6s.

City of London—35 to 41, Upper Thames-st., area 22,920 ft., building lease for 80 yrs., let at per annum.

Upper Thames-st., a riverside site, area 21,600 ft., building lease for 80 yrs., let at per annum.

By WYATT & SON (at Chichester).

Newfishbourne, Sussex—Willow Cottage, f., p.

By W. BROWN & CO. (at Berkhamstead).

Dudswell, Herts.—Cottage Farm, 1 a. 3 r. 20 p. f.

The three-curved field, 3 a. 2 r. 11 p. f.

Three enclosures of pasture, 11 a. 3 r. 38 p. f.

By A. E. GREEN & CO. (at Horsham).

Horsham, Sussex—2 to 5, Barrington-rd., f., w.r. 704, 4s.

130, Barrington-rd., and 6, Depot-rd., f., w.r. 374, 14s.

7, 8, 13, and 14, Depot-rd., f., w.r. 704, 4s.

6, 7, 8, 9, 10, 11, 12, 13, 14, Depot-rd., f., w.r. 1094, 17s. 4d.

By W. BRADBURY & SON.

Canonbury—129, Fetherston-rd., u.t. 464 yrs., g.r. 74, 7s., c.r. 684.

14, Grosvenor-rd., u.t. 464 yrs., g.r. 84, 10s., c.r. 604.

By E. H. HENRY.

Clapham—188, Clapham-rd., u.t. 49 yrs., g.r. 164, c.r. 904.

Tooting—Brightwell-cres., f.g.r.'s 724, reversion in 91 yrs.

Himley-rd., f.g.r.'s 324, 10s., reversion in 91 yrs.

By J. & K. KEMP & CO.

Regent's Park—82, Osnaburgh-st. (S.), u.t. 91 yrs., g.r. 204, p.

By KEMBLE.

Romford, Essex—Horchurch-rd., four freehold residences, y.r. 1184.

1 and 2, Burchell-villas, f., w.r. 414, 12s.

1 and 2, Edith-villas, f., w.r. 414, 12s.

By C. C. & T. MOORE.

Poplar—17, 19, and 21, Carment-st., f., w.r. 664, 6s.

22, 24, and 26, Charles-st., u.t. 474 yrs., w.r. 614, 6s., w.r. 784.

61, 62, and 63, Charles-st., u.t. 474 yrs., w.r. 614, 6s., w.r. 784.

63 to 69 (odd), Upper North-st. (S.), u.t. 45 yrs., g.r. 204, y.r. 1404.

3 to 7, Andrew-st., u.t. 36 yrs., g.r. 134, w.r. 1194, 12s.

Linehouse—1 to 9, Silver-st., u.t. 42 yrs., g.r. 274, w.r. 2564, 3s.

Plastow—48, Barking-rd., u.t. 564 yrs., g.r. 564.

Harlesden—39, St. Mary's-rd., u.t. 864 yrs., g.r. 614, y.r. 404.

Whitechapel—7, Whitechapel-rd. (S), c., y.r. 1254.

By R. W. MANN & SON.

Paddington—148, 156, and 160, Blomfield-ter., u.t. 394 yrs., g.r. 304, y.r. 1254.

Richmond, Surrey—5, Park-rd., u.t. 564 yrs., g.r. 444, y.r. 704.

By NEWBON, EDWARDS, & SHEPHERD.

Clapton—2 to 14 (even), Rushmore-rd., u.t. 84 yrs., g.r. 124, 12s., and 27, Knowle-rd., u.t. 1,580.

Forest Hill—130, Woodvale, u.t. 74 yrs., g.r. 614, 10s., y.r. 364.

By STIMSON & SONS.

Lewisham—Loam Pit Hill, f.g.r. 484, reversion in 83 yrs.

Loam Pit Hill, f.g.r. 404, 10s., reversion in 83 yrs.

Brixton—11, 12, 13, and 17, Knowle-rd., u.t. 59 yrs., g.r. 224, 4s., w.r. 2324, 4s.

59 to 73 (odd), Knowle-rd., u.t. 59 yrs., g.r. 424, 8s., w.r. 4864, 4s.

Canterbury—13 and 55, Westmacott-st., f., w.r. 674, 12s.

Walworth—42, East-st. (S), f., y.r. 404.

Kilburn—9 and 11, Aldershot-rd., u.t. 804 yrs., g.r. 124, y.r. 704.

Walthamstow—74 and 76, Vallentin-rd., f., w.r. 1054, 6s.

Vallentin-rd., two plots of land, with stabling, &c., f.

Vallentin-rd., two plots of building land, f.

Victoria-rd., three plots of building land, f.

North Bank-rd., eighteen plots of building land, f.

Wood End-rd., six plots of building land, f.

Corleston, Suffolk—77 to 80, Cliff Hill, f., q.r. 424, 12s.

By W. W. WILSON.

Notting Hill—385, Ladbroke-gt., u.t. 64 yrs., g.r. 104, 10s., w.r. 744, 2s.

Paddington—2 and 4, Alfred-rd., u.t. 45 yrs., g.r. 124, y.r. 704.

Walthamstow—Grove-rd., corner plot of building land, f.

Maida Vale—150, Elgin-av., u.t. 80 yrs., g.r. 154, 10s., p.

By G. A. WILKINSON & SON (at Penny Stratford).

Simpson, Bucks.—Parts of Bodley's Farm, 4 a. 8 r. 4 p. f.

Walton, Bucks.—The Pine Tree Inn and a o. 3 r. 20 p. f., y.r. 144.

Five enclosures of pasture, 14 a. 1 r. 26 p. f.

Two enclosures of woodland, 2 a. 3 r. 2 p. f.

The Manor Farm, 306 a. 2 r. 37 p. f.

The Walnut Tree Farm, 191 a. 3 r. 28 p. f.

Mount Pleasant and 25 a. 2 r. 32 p. f.

Sixteen freehold cottages and 1 a. 2 r. 38 p. f.

By BATCHELOR & SON (at Croydon).

Kenley Common, Surrey—Kilm-gt., and 1 a o. r. 30 p. f.

Thornton Heath, Surrey—35, Bensham Manor-rd., f., p.

May 8.—By BRADLEY, WOOD, & CO.

Rettenford, Essex—Hyde Hall Farm, 7 a. 3 r. 18 p. f. and 6 a. 3 r. 12 p. f.

The Manor of Hyde Hall, with its rights, fines, &c.

By DRASON & PERRY.

Harlesden—45, Craven Pk., u.t. 73 yrs., g.r. 104, y.r. 424.

73, Fortune Gate-rd., u.t. 86 yrs., g.r. 64, c.r. 324.

By HARRIS & BROWN.

Reigate, Surrey—Wray Pk., Laurel Bank and 1 a. f., p.

Wandsworth—5, Winton-rd., f., y.r. 264.

Leytonstone—17, Harrow-rd., u.t. 444, 4s.

By HENRY HOLMES & CO.

Holloway—9, Wedmore-st., with factory, area 4424 ft., f., c.r. 204.

33, Hampden-rd., u.t. 64 yrs., g.r. 104, w.r. 414, 12s.

By BRADSHAW, BROWN, & CO.

Westcliff-on-Sea, Essex—St. Helen's-rd., St. Aubyn's, f., y.r. 384.

Poplar—132, High-st., f., y.r. 304.

11, Cotton-st., f., y.r. 234.

4, Wadest., f., c.r. 264.

Bromley-by-Bow—70 and 72, Teviot-st., u.t. 62 yrs., g.r. 84, 10s., w.r. 674, 12s.

116 to 122 (even), Teviot-st., u.t. 62 yrs., g.r. 124, w.r. 1224, 4s.

81, 83, and 85, Blinco-st., u.t. 78 yrs., g.r. 124, 15s., w.r. 964.

Poplar—49, Garford-st., f., y.r. 274.

57, Garford-st., u.t. 30 yrs., g.r. 34, w.r. 314, 4s.

33, Morant-st., u.t. 124 yrs., g.r. 304.

By A. PREVOST & SON.

Commercial-road, East—No. 81 (S), u.t. 34 yrs., g.r. 44, w.r. 664, 8s.

Poplar—122 and 124, East India Dock-rd., y.r. 1004, also l.g.r. 24, u.t. 124 yrs., g.r. 84, 10s.

By ROBERT RAU.

Regent-street—No. 224 (S), area 843 ft., u.t. 174 yrs., g.r. 674, y.r. 304.

No. 225 (S), area 865 ft., u.t. 174 yrs., g.r. 444, 24s., y.r. 404.

Chelton—1 to 16, Paradise-walk, area 11,460 ft., w.r. 3664, 12s.; also f.g.r. 54, reversion in 244 yrs.

Tottenham—6, Whitfield-st. (S), c., y.r. 374, 10s.

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; p. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lease st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beer-house; p.h. for public-house; o. for offices; s. for shops.

## PRICES CURRENT OF MATERIALS.

\* \* \* Our aim in this list is to give, as far as possible, the average prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

### BRICKS, &c.

	£	s.	d.	
Hard Stocks	1	15	0	per 1,000 alongside, in river
Rough Stocks and Grizles	1	12	0	" "
Facing Stocks	2	12	0	" "
Shippers	2	5	0	" "
Flettons	1	7	6	at railway depôt
Red Wire Cuts	1	12	0	" "
Best Fareham Red	3	12	0	" "
Best Red Pressed Ruban Facing	5	0	0	" "
Best Blue Pressed Staffordshire	4	5	0	" "
Do. Bulnose	4	11	0	" "
Best Stourbridge Fire Bricks	4	8	0	" "
GLAZED BRICKS.				
Best White and Ivory Glazed Stretchers	3	0	0	" "
Headers	12	0	0	" "
Quoins, Bullheads, and Flats	17	0	0	" "
Double Stretchers	19	0	0	" "
Double Headers	16	0	0	" "
One Side and two Ends	19	0	0	" "
Two Sides and one End	20	0	0	" "
Splays, Chamfered, Squints	20	0	0	" "
Best Dipped Salt Glazed Stretchers and Headers	19	0	0	" "
Quoins, Bullnose, and Flats	14	0	0	" "
Double Stretchers	15	0	0	" "
Double Headers	14	0	0	" "
One Side and two Ends	25	0	0	" "
Two Sides and one End	25	0	0	" "
Splays, Chamfered, Squints	24	0	0	" "
Second Quality Whitened Dipped Salt Glazed	2	0	0	less than best,
Thames and Pit Sand	6	9	0	per yard, delivered.
Thames Ballast	6	0	0	" "
Best Portland Cement	30	0	0	per ton, delivered.
Best Ground Blue Lias Lime	20	6	0	" "

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime—10s. 6d. per yard, delivered. Stourbridge Fire-clay in sacks 27s. 6d. per ton at rly. depôt.

### STONE.

		£	s.	d.	
Ancaster in blocks	1	12	0	per ft. cube, deld	rly. depôt.
Bath	1	7	0	"	"
Farleigh Down Bath	1	8	0	"	"
Beer in blocks	1	6	0	"	"
Grinhill	1	10	0	"	"
Brown Portland in blocks	2	0	0	"	"
Darley Dale in blocks	2	4	0	"	"
Red Corshill	2	5	0	"	"
Clovelly Red Freestone	2	0	0	"	"
Red Mansfield	2	4	0	"	"
<i>YORK STONE—Robin Hood Quality.</i>					
		£	s.	d.	
Scrapped random blocks	2	10	per ft. cube, deld	rly. depôt.	
in, sawn two sides landings to sizes (under					
40 ft. super.)	.....	3	per foot super.	"	
in, Rubbed two sides					
Ditto, Ditto	.....	2	6	"	
in, Sawn two sides					
slabs (random sizes)	.....	0	11½	"	
in, in 24 in. Sawn one					
side slabs (random					
sizes)	.....	0	7½	"	
4 in. to in, ditto, ditto	.....	0	6	"	
BEST HARL YORK—					
Scrapped random blocks					
in, sawn two sides,					
landings to sizes (under					
40 ft. sup.)	.....	2	8	per ft. super.	
in, Rubbed two sides					
Ditto	.....	—		"	
in, sawn two sides					
slabs (random sizes)	.....	2	8	"	
in, self-faced random					
flags	.....	0	5	"	
Hopton Wood (Hard Bed) in blocks					
"	"	6	in, sawn both	deld rly. depôt	
"	"	sides landings	2	7	per ft. super.
"	"	deld, rly. depôt			
"	"	3 in. do.	1	24	"







(For some Contracts, etc., still open, but not included in this List, see previous issues.)

## CONTRACTS.

[illegible]

## PUBLIC APPOINTMENTS

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*Clerk of Works	Hampton U.D.C.	37 3/4 per week.	May 22
*Surveyor	Waltham-on-Thames U.D.C.	250.	May 23
*Clerk of Work-	Waltham Union	Not stated	May 26

Those marked with an asterisk (\*) are advertised in this Number

*Competition.*

*Contracts*, iv, vi, viii, & x.

*Public Appointments*, xviii.



TENDERS (Continued).—

CLAREMORRIS (Ireland).—For the erection of a fever hospital, for the Guardians. Mr. John Ritchie, C.E., Ballinrobe:—  
Egan and Son..... £1,800 T. Moloney, Clare Frank Moore..... 1,095 Morris..... £799 T. T. Donnellan..... 900 P. McHugh..... 780

DURHAM.—For the erection of a house, Esh Winning. Mr. H. T. Gradon, architect, 22, Market-place, Durham:—  
G. T. Manners..... £1,167 0 0 J. G. Bradley..... £1,014 0 0 D. D. Hall..... 1,035 0 0 Jas. Robson, architect, 2, Simpson, 1,043 0 0 Waterhouses..... 940 0 0 C. C. Young..... 1,035 7 6  
Received too late for consideration.

EASTBOURNE.—For the erection of a fire station, Grove-road, for the Corporation. Mr. P. A. Robson, architect, 9, Bridge-street, Westminster, S.W.:—  
M. Hooker..... £5,939 0 0 F. G. Miner..... £4,557 0 0 Martin Wells & J. Martin..... 4,495 0 Co..... 4,917 15 J. Longley..... 4,489 0 Cornwell & Son..... 4,584 5 W. & E. Noakes..... 4,150 0

HEADINGLEY.—For the enlargement of Wesleyan Theological Institute, Headingley, Leeds. Messrs. Danby & Simpson, architects, Park-road, Leeds:—  
Masonry and Joinery.—W. Airey, Leeds..... £2,630 0 Plumbing—Slater & Son, Leeds..... 164 8 Plastering—J. Phillips, Hunsley..... 145 0 Painting—Carter & Frankland, Leeds..... 87 10 Slating—Atkinson & Son, Leeds..... 221 5 Heating—Holmes & Co., Leeds..... 240 0

KNARESBOROUGH.—For the erection of Wesleyan chapel, Scriven, Knareborough. Messrs. Danby & Simpson, architects, Park-road, Leeds:—  
Masonry.—Ridsdale & Son, Ribston Waterbury..... £669 15 6 Joinery.—Kitching & Son, Knareborough..... 325 0 Plumbing—A. Ellenger, Harrogate..... 83 0 Plastering—J. & W. Baynes, Harrogate..... 57 0 Painting—M. Bartholomew, Knareborough..... 42 10 Painting—Morley & Son, Knareborough..... 27 9 0

LARNE (Ireland).—For the erection of a sessions house for Antrim County Council. Mr. Samuel Robinson, Surveyor, Barnhill, Larnie:—  
Jas. Ferris..... £1,465 10 D. McGilgorn, Larnie..... £1,445

LONDON.—For the erection of warehouse in Vera-street, Clapham, S.W., for Mr. E. W. Bonekammer. Mr. Harry J. Capell, architect, 20, Lynette-avenue, Clapham Common, S.W.:—  
G. Garner..... £3,181 12 Garrett & Son..... £2,293 0 H. T. Bishop..... 2,872 0 Danford & Son..... 2,872 0 Tait & Appleton..... 2,330 0 Clapham..... 1,938 0

LONDON.—For the docking and repair of the s.s. Aurora, for the London County Council:—  
Reeder & Co..... £1,878 8 9 The Thames Ironworks, Shipbuilders, Ltd., & Co., Ltd..... 1,289 0 Brown's Dry Dock and Engineering Co., Ltd..... 1,043 10 Flather & Son, M. Bartholomew..... 998 0 Mills & Knight..... 770 4 6

LONDON.—For the erection of public baths and wash-houses, Old Kent-road, for the Borough of Camberwell. Mr. E. Harding Payne, architect, 11, John-street, Bedford-row. Quantities by Mr. R. C. Cleed:—

W. Lawrence & Son..... £48,300	Balaam Brothers..... 45,000	B. Nightingale..... 42,500	Shelbourne & Co..... 42,500	Gordon & Sons..... 42,254	W. J. Maddison..... 42,229	Shillito & Son..... 42,270	E. Lawrence & Son..... 41,975	Battley, Sons, & Holness..... 41,957	C. Ansell..... 41,500	James & Son..... 41,035	H. L. Holloway..... 41,000	H. Holliday & Greenwood..... 40,544	Pattinson & Sons..... 40,173	Greenwood, Ltd..... 40,086	W. Wallis..... 39,999	King & Son..... 39,739	Galbraith Brothers..... 39,675	Kilby & Gayford..... 39,633	N. N. Coles, Plymouth..... 37,433	
Extra and Wash-houses, Stone, Portland, Bath, and Portland Stone..... 1,119	W. Downes..... 1,100	Smith & Sons, Ltd..... 1,100	Marshall & Sons..... 1,100	Gregor & Son..... 1,100	T. L. Green..... 1,100	Holliday & Greenwood..... 1,100	Lathbury Bros..... 1,100	T. & H. F. Higgs..... 1,100	Mitchell & Son..... 1,100	W. Downes..... 1,100	Smith & Sons, Ltd..... 1,100	Marshall & Sons..... 1,100	Gregor & Son..... 1,100	T. L. Green..... 1,100	Holliday & Greenwood..... 1,100	Lathbury Bros..... 1,100	T. & H. F. Higgs..... 1,100	Mitchell & Son..... 1,100	W. Downes..... 1,100	Smith & Sons, Ltd..... 1,100

LYNN.—For additions to the Parish Church, Clench-watton. Mr. Herbert Tilson, architect, Railway-road, Lynn:—  
W. H. Brown..... £149 0 H. W. Reeder, Til-clench, Langley, & Co..... £119 18 T. W. H. Brown..... 149 0 Sam. Boon, Clench-watton..... 119 18 A. F. Foreman..... 138 0 Bardell Bros..... 134 10 J. S. Johnson..... 119 5 W. F. Smith..... 120 0 J. Medwell..... 105 0

NEWHAVEN (Sussex).—For the construction of a surface water sewer, for the Urban District Council. Mr. F. J. Rayner, C.E., Newhaven, Sussex:—  
A. C. Soan..... £799 10 E. H. King..... £573 18 4 P. & Co..... 757 17 Cooke & Co..... 564 15 H. Chambers..... 681 0 Roberts & Co..... 424 18 D. H. Porter..... 619 0 Wm. Smith..... 398 12 R. W. Swaker..... 610 0 Redman Bros., Newhaven..... 320 9 0 Peerless, Dennis, & Co..... 578 0 0

NEWPORT.—For eight semi-detached villas, Newport, Salop, for Mr. J. C. Brown, Shakespeare Hotel, Newport. Mr. Myles Morley, architect and surveyor, Charlton House, Wellington, Salop:—  
Treasure & Son..... £2,998 0 0 Thomas Healey..... 2,788 2 0 Waugh & Son..... 2,750 0 0 A. Roper..... 2,700 0 0 G. I. Muirhead, Newport, Salop..... 2,527 17 5 Sretton & Gibson..... 2,502 5 7 W. Skelthorne..... 2,591 0 0

NEWPORT.—For ten houses for the Fountain of Peace Lodge, Newport, Salop. Mr. Myles Morley, architect, Charlton House, Wellington:—  
Treasure & Son..... £2,850 0 0 Thomas Healey..... 2,530 10 11 A. Roper..... 2,520 0 0 Whittingham..... 2,400 0 0 Sretton & Gibson..... 2,383 13 0 W. Skelthorne..... 2,231 0 0 G. I. Muirhead, Newport, Salop..... 2,195 11 4 Waugh & Son..... 2,120 0 0

ST. AUSTELL (Cornwall).—For the erection of two houses, for Mr. H. Pearce. Mr. J. Mutton, architect, Charlestown:—  
Masonry..... £302 10 R. Richards..... 268 10 Lockett Bros., Bethel, St. Austell..... 225 0

Carpentry.....  
Bennett..... 178 0 Northcott..... 150 0 A. Mably..... 134 5 J. Harris, Mount Charles, St. Austell..... 129 0  
[Architect's total estimate, £350.]

TAMWORTH.—For additions to workhouse, for the Guardians. Mr. Jas. W. Goddard, architect, 4, Bole-bridge-street, Tamworth:—  
J. Evans..... £70,200 E. Williams, Tamworth..... £8,792 W. Shelborne..... 9,595 worth..... £8,792 Kelley & Sons..... 9,133 Gowing & Ingram..... 8,779 Harvey Gibbs..... 8,696 J. Dallow..... 8,779 Lowe & Sons..... 8,950 T. Mason..... 8,565 J. Herbert..... 8,797 Radford & Greaves..... 8,450

LONDON SCHOOL BOARD TENDERS.

At the last meeting of the London School Board the Works Committee submitted the following lists of tenders. Mr. T. J. Bailey is the Board's Architect:—

AMBERLEY-ROAD.—Replacing the iron railing next canal, including the return end, with a 9-in. brick wall:—  
General Builders, W. R. & A. Hide..... £148 15 10 Ltd..... £369 0 0 J. Neal..... 138 0 Brown & Sons..... 125 0 Church & Co..... 119 10 Marchant & Hirst..... 149 0 S. Polden..... 103 10

BLACKHEATH-ROAD.—Higher elementary school on two stories. Accommodation: Boys, 300. Hall, 48 ft. by 30 ft.; classrooms, 36, 32, 32, 30, 30, 24, 24, on ground floor; on first floor, 32, 30. Drawing classroom, 750 ft. area; science rooms, 1,950 ft. with balance room and stores; manual training centre for twenty children. Heating by low-pressure hot-water apparatus. An existing house is to be retained for the use of the school-keeper:—  
Thomas & Edge..... £14,000 Marland & Sons..... £11,715 Monday & Sons..... 12,603 Martin, Wells & Co., Ltd..... 11,617 Gregor & Son..... 12,521 Johnson & Co..... 11,578 T. L. Green..... 13,383 Johnson-Smith, J. & M. Patrick..... 11,453 Lathbury Bros..... 12,741 Garrett & Son..... 11,332 T. & H. F. Higgs..... 11,135 J. & C. Bowyer..... 10,988 Mitchell & Son..... 11,966 Longley & Co..... 11,966 W. Downes..... 11,921 Crawley..... 10,987 Smith & Sons, Ltd..... 11,809

CHILDREY-ROAD.—Providing and fixing additional heating surface on ground, first, and second floors, to bring existing low-pressure hot-water apparatus up to the Board's present standard; also increasing the power of the boiler:—  
Kite & Co..... £325 0 Mather & Platt, Ltd..... £163 0 Turner & Co..... 252 10 Duffield & Sons..... 152 0 Stevens & Sons..... 179 0 Rosser & Russell, Ltd..... 143 0 G. & E. Bradley..... 167 10 Defries & Sons, Ltd..... 123 0

CREED-PLACE.—Removing partitions and providing new glazed partitions in order to re-divide classrooms A and B into three rooms, including reversing the stepped flooring in two of the rooms in each case for left lighting, and forming new doorways, &c. Replacing four windows with larger windows:—  
Gibb & Co..... £245 H. Groves..... £235 Vigor & Co..... 620 A. J. Sheffield..... 490 Marland & Sons..... 593 Leney & Son..... 415 Proctor & Son..... 558 G. Kemp..... 405

DEANSFIELD-ROAD.—Erecting three brick structures for temporary accommodation available hereafter for (a) Manual Training Centre, (b) Cookery and Laundry Centre, (c) drawing classroom and science-room; also providing temporary water-closets, fuel-shed, fencing, drains, &c.:—  
Kite & Co..... £5,846 T. L. Green..... £4,889 Thomas & Edge..... 5,105 Smith & Sons, Ltd..... 4,731 Marchant & Hirst..... 5,075 Proctor & Son..... 4,440 H. Groves..... 5,039 Bullock & Co..... 4,300 T. D. Leng..... 4,692 J. & C. Bowyer..... 4,160

DUNT'S HILL.—Erecting a brick building for temporary school accommodation available hereafter for a manual training centre for forty boys; removing temporary offices now stacked on the Fulham Palace-road and Sankey-street sites, and re-erecting them on this site; also providing fuel shed and new system of drainage:—  
R. A. Jewell..... £1,691 E. Triggs..... £4,535 Marland & Sons..... 1,520 Garrett & Son..... 1,468 General Builders, Ltd..... 1,400 Lathbury Bros..... 1,400 Ltd..... 1,597 W. Hammond..... 1,383 Whitehead & Co., Ltd..... 1,545

EVERINGTON-STREET (All Departments).—Altering position of existing partition and providing additional glazed partitions in order to re-divide classrooms C, D, and E into four rooms, including reversing stepping for side lighting, also altering doorways, &c., in connexion with same:—  
W. R. & A. Hide..... £1,175 0 Maxwell Bros., W. Hammond..... 1,002 0 Ltd..... £99 0 General Builders, Ltd..... 0 0 G. Neal..... 924 0 Rice & Son..... 992 0 S. Polden..... 916 10 G. H. Sealey..... 981 10 E. Triggs..... 879 0

FARRANCE-STREET.—Refitting girls' lavatories with fireclay basins and providing open channels and new external ventilated waste pipes, &c.:—  
Pitcher & Son..... £57 0 Vigor & Co..... £78 0 Johnson & Co..... 85 0 A. W. Darby..... 73 0 Stevens Bros..... 73 0 Barrett & Power..... 67 6

HANOVER-STREET (Boys and Girls).—Altering position of existing partitions and providing additional glazed partitions in order to re-divide classrooms C and D into three rooms, including altering stepped flooring in the re-divided rooms for side lighting; also bricking up fireplaces and providing open fire portable stoves for warming these rooms, &c.:—  
Parrott & Isom..... £1,281 0 H. Bouneau..... £636 10 Belcher & Co., Ltd..... 694 5 McCormick & Sons..... 633 0 F. Bull..... 685 0 Dearing & Sons..... 625 0 Stevens Bros..... 684 0 Unigard..... 596 0 T. L. Green..... 657 0 Williams & Son..... 567 0

HAZELRIDGE-ROAD.—Relaying the old soil drains and part surface water, and forming the necessary access with several connexions to the existing trough latrines; also providing additional lavatory accommodation for girls:—  
Sanitary Lead-Lining and Pipe Banding Co., Ltd..... £1,776 6 0 Rice & Son..... 1,649 0 0 W. Hammond..... 1,649 0 0 E. Triggs..... 1,646 0 A. Porter..... 1,645 0 Lathbury Bros..... 1,610 0 Leney & Son..... 1,467 0 R. P. Beattie..... 1,537 7 6

HAZELBANK-ROAD.—Removing an iron building from Plum-lane and re-erecting it on this site, including foundations, drains, additional office accommodation, &c.:—  
T. Cruwys..... £731 Croogon & Co..... £560 Mitson & Co..... 650 J. McManus..... 537 Hawkins & Co..... 640 Humphreys, Ltd..... 398 Smith & Co..... 579 W. Harbrow..... 515

NEW PARK-ROAD (Enlargement).—Extending the existing low-pressure hot-water apparatus to six new classrooms and three cloakrooms; also altering and re-arranging same in three classrooms to suit the provision of three new variations:—  
Brightside Foundry and Engineering Co., Ltd..... £204 0 0 Clark, Bunnett, & Co., Ltd..... £131 0 0 Doull & Co., Ltd..... 122 0 Wippell Bros. & Row..... 100 0 0 Werner, Peridener, & Perkins, Ltd..... 93 7 2 Elson & Son..... 177 10 0 J. C. Christie..... 95 10 0 Gray & Co..... 135 0 Comyn Ching & Co..... 89 10 0

"PETERBOROUGH."—Forming additional entrances to school from Suddridge-street for all departments:—  
Lathbury Bros..... £1,379 0 General Builders, Ltd..... £349 0 Thompson & Beve-ridge..... 370 0 S. Polden..... 325 10 W. Hammond..... 349 0 E. B. Tucker..... 255 5

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THE INDEX (with TITLE PAGE) for VOLUME LXXXIII (July to December, 1902) was given as a supplement with the number for Saturday 10th.

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# The Builder.

VOL. LXXXIV.—No. 2345.

MAY 23, 1903.

## ILLUSTRATIONS.

The Latest Edition of Vauxhall Bridge .....	From the County Council Plans.
New Buildings for Hertford College, Oxford .....	Mr. T. G. Jackson, R.A., Architect.
Nottingham Castle: Proposed Adaptation of Gateway to Purposes of the Museum .....	Mr. T. G. Jackson, R.A., Architect.

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### Architecture at the Paris Salon.



THE criticisms which have been made in some quarters, for a good while, as to the too theoretical and academic character of the annual exhibition of

architectural drawings at the Salon, seem at last to be having some effect, for the representation of practical architecture—of buildings which are actually carried out to be carried out—is much larger in proportion than we remember it for many years back, and some of the new buildings illustrated are of considerable interest, as indicating a change of taste in a direction in which we, on this side of the Channel, think that a change was needed, *i.e.*, in the style and treatment of country houses, of which, as we shall see, there are some very pleasing examples.

The usual set of immense drawings of a restoration of an antique building, proceeding from the Villa Medici, is not however wanting. This year it is the restoration of the Acropolis of Anxur, by M. Chaussemiche, who has one room in the long range of galleries entirely to himself. We have of course an elaborate drawing of the actual state of the remains, from which not much is to be made out except a kind of retaining wall with a deeply set arcade, and another wall in front of it at a rather lower level. The arcade is fairly intact. The plan indicates some remaining walls which cannot be seen in the view, but nothing that is much above ground level. On these bases M. Chaussemiche proceeds to erect, as usual in these cases, an elaborate scheme of walls, towers, steps, and temples, the greater part of which is evolved from his inner consciousness, or at all events is but conjecture from existing fragments. A temple with an open colonnaded portico in front and a square *cella* in the rear, is backed by an immense battlemented fortress, placed obliquely to the axis of the temple, and

with square towers at the angles. The wide steps extending over great part of the front of the temple still exist in a dilapidated state, and there are enough remains to give the lines of the various walls; beyond that it must be mostly imaginary; but this does not, of course, lessen—perhaps it rather increases—the value of the restoration as a study in ancient architecture, and as a testimony of the diligence and insight of the author. The restoration shows the arcade before referred to as forming the face of a great platform upon which the temple and fortress are erected, and from which the rocky ground slopes away in every direction. The drawings are distinguished by the large scale and conscientious finish in every detail which has long been a tradition with the French students at Rome.

Another large restoration scheme, or perhaps we should rather say an archæological study, is comprised in M. Nodet's fine set of drawings relating to the palace of the Popes at Avignon, which is characterised in the catalogue as comprising an abstract (*relevé*) of the existing state of the palace, with researches as to its primitive condition, and a plan of its transformation into a museum. The drawings, however, fine as they are, do not show any distinction between what is merely illustrative of existing work and what is restoration. What we see in the drawings are vast piles of irregular but very well preserved masonry, with lofty un-moulded wall-arches with plain soffits, including beneath them in most cases traceried windows of later date, or occasionally small separate openings which may be of the same date as their surroundings. Altogether, though an immense amount of work has been put into these drawings, they do not convey much information except to a spectator who may have recently visited Avignon and has the details of the Papal palace fresh in his memory.

Among the drawings showing modern buildings the most interesting at the moment are those for the new Armenian church at Paris, to be built from the designs of M. Guilbert, the architect of the Bazaar Fire Memorial Church in Rue Jean-Goujon, in the same street; it was in fact the

memorial church which brought the architect the commission for this later building. The church shows a square plan with an apse, and a smaller square apartment as a vestibule. The central space is reduced (above) to a smaller one by four great intersecting arches springing from wall columns a little way from each angle of the main building. These arches have soffits the plane of which twists from a horizontal line at the springing to an angle of 45 deg. at the crown, the arches cutting each other at the point where the twist of the soffit of one arch is at the same angle as the main curve of the crossing arch. The system is ingenious, but one may doubt whether it will look very well in execution. The space left inside the crossing of the arches is covered by the central dome. The inlaid floor, however, does not follow the plan of the dome, but is treated in a horseshoe design with its open end towards the sanctuary. The style is Byzantine—modern French Byzantine, that is to say, with marble columns employed internally, and a great deal of carved ornament of Byzantine type, with gold and mosaic freely used. The worst point about the interior decoration is the colossal head in mosaic in the apse, representing we suppose the head of Christ, and which is 6 ft. or 7 ft. wide, while beneath it is a frieze of figures of saints or apostles of about natural size. The combination is shown again in a coloured model of the apse; and however this colossal head may appeal to the religious feelings of Armenian worshippers, in a decorative sense its effect is most unhappy. The church as a whole does not seem at all equal to the architect's Bazaar church; the fact being perhaps that he is more in sympathy with Classic than with Byzantine work, and understands better how to treat it.

Among other examples of church architecture the majority show that kind of French treatment of Byzantine or Romanesque suggestions which is at present the favourite style for church architecture in France. There is M. Rey's Church of St. Paul, Paris, in this case Romanesque rather than Byzantine in tendency, with a tower with a strongly



marked cantilever cornice and a spire over it; various decorative details, of a feeling between Classic and Gothic, are carefully and neatly executed in line drawing. There is M. Closson's church at Fliers—Neo-Romanesque, and very ugly in every way, both in detail and in general lines; so it appears at least to English eyes. Why this form of modern French architecture should seem so especially uninviting and unattractive it is difficult to say; it is perhaps that there is a certain clumsiness and heaviness about the detail which does not harmonise with the modern precision and finish of execution; it is Byzantine or Romanesque proportion entirely shorn of Byzantine or Romanesque feeling. This, however, has become so much the accepted type of modern church design in France that one rarely sees anything else in the church designs which find their way to the Salon. There are however two interesting exceptions this year. One is M. Lesquendieu's church at Roye-sur-Matz, a small very solidly built and very simple three-aisled church, in Early Gothic style, partly round openings and partly pointed, with a west tower with a saddle-back roof. This is the work of an architect who has studied Medieval Gothic in a sympathetic spirit, and it is far more suited for a country church than the pretentious modernised Romanesque erections that are so frequently put up on country village sites. The elevations are beautifully coloured to show the effect of the stonework, while the care with which the work has been studied is shown by the manner in which the varied widths of the stone courses are figured, from top to bottom, in decimals of a metre. Another exceptional church design is the remarkable one shown by M. J. E. Allard, in perspective view, plan, and elevation, of the Church of Asfeld, in the Department of Aisne. This is a design so curiously original that it is difficult to suppose that it can be really intended to carry it out, though in an architectural sense it is a very fine conception. We first come to an open colonnaded porch of elliptical plan—the longer axis of the ellipse at right angles with the main axis of the church; this gives access to a small porch, circular inside and square outside, which leads to a vestibule that spreads out fanwise, and joins on to a large circular nave divided into compartments on the lines of a hexagon, each compartment forming a tribune with convex lines, in its lower portion, while the attic above recedes in a concave curve. The architectural effect of this is of course very striking and effective, as far as general composition is concerned; it would be more so if the details were bolder; the style is a rather hard timid Classic, somewhat flat in treatment; but there is certainly no timidity about the general plan. The roofs are shown as domical and covered with lead. Altogether it is a most unusual and original conception in church architecture.

Among designs for public works is M. Lapeyrière's set of illustrations for a great new street for Bordeaux, cutting in a straight line through the existing streets to form a connexion between two important points in the town. The remarkable point about this is the way in which it is illustrated. Besides the plan of the town showing the line of the street, there is a whole series of finely executed perspective views showing the manner in which various existing buildings

would group with the proposed street; it is not often that one sees a street plan illustrated in so effective a manner. M. Léon Lautier exhibits a design for a new theatre at Coulommiers, a rectangular oblong block in Classic style, in which the auditorium portion is well distinguished from the stage portion, and in the latter the two high narrow doorways for the admission of scene-paintings, running from ground level to cornice, are made a feature in the design. M. Fortier exhibits the drawings of the Hôtel de Ville of Solesmes, in course of execution; it is in a rather coarse "Free Classic" style, with mullioned windows, immense metal crests on the ridge (an unfortunate weakness of French architects in this class of building), and a very ugly centre turret on the roof with a series of projecting eaves one over the other which has an unhappy effect. M. Esnault-Pelterie's "Hôtel Particulier," a Paris street house, is a good example of its kind, and is an executed building in a design mainly of Louis Quinze character; the stone details are simple, and the treatment of the iron-framed windows in lines curved on plan, projecting rather in the centre, gives an agreeable modelling to the front; the balcony ironwork also is in a fine flowing style. The bad point about the design is the curious trick of a kind of ragged ornament to the stone socles under the side panels of the elevation, as if icicles were dripping from them; one of those odd lapses into bad taste which are sometimes seen in otherwise very good French street designs. M. Noël's "Immeuble de la Société de Saint Gobain" is another example of the modern Paris street building, in a more solid Classic style and with less filigree ornament than usual. M. Gustave Rives exhibits a large frame of photographs from executed works, including the Pavilion of the Touring Club, too ornate, but clever in treatment; and a "Maison de Rapport" or business house in the Avenue de la Grande Armée, or rather just out of it (for we saw the building). This is a dignified specimen of a street building, sumptuous in the proportions of the stonework and not overdone with ornament; but in the semi-circular end, at the angle of two streets, there is rather a bad effect produced by the rusticated arch which is circular on plan, circular in elevation, and in which the voussoirs overhang in a concave quadrant section, so that the lines of the rustication are formed by the intersection of three curves on different planes. This forms, no doubt, an interesting study in stereotomy, but the result is by no means worth the ingenuity expended in producing it.

An interesting exhibit is M. Raimbert's "Etude de la Décoration d'un Pont sur la Seine à Passy," a design which was put forward by the Société Française de Constructions Mécaniques, but apparently not adopted. It is a bridge in two stories, so to speak; the lower bridge and the piers are excellent in design, on very simple lines; the bridge is a steel arch based on turning points at the apex of slightly pyramidal stone piers; in the upper bridge, which is carried on standards from the lower one, the design of the balustrade and decorative escutcheons is also very good; the weak point is in the decorative finish of the upper portion of the standards, which is ragged and uncertain in outline. The exhibition contains a good many of the usual ac-

demical studies for "Une Ecole Militaire," and other establishments of the kind, which all have a certain academical dignity and completeness, but which are so much alike, year after year, in their grouping of rustication and pilasters, that it is difficult to distinguish one from another, or to say anything about one of them which would not equally apply to all. The study which goes to produce this kind of design is good training in the sense of proportion and balance of design, and it must be added that the plans are generally meritorious; but it is essentially architecture of the atelier, lacking in life and interest.

But the house architecture this year is really very interesting. M. Marchand's "Maison de M. I. . . . à E. . . ." (there is a characteristic reticence about the title—in France it is bad form to drag in the name of your client in a catalogue) is not architecturally one of the best specimens, as far as the exterior is concerned; it is a type of modern château, but less pretentious than usual, though it is not without the usual rampant barge-boards, &c. But the first floor plan is a good example of the chamber planning of an upper-class French house. There are four large bedrooms, for Monsieur, Madame, two daughters (occupying one room) and a guest. Each bedroom has opening out of it a large "cabinet de toilette," or washing-room, the young ladies' room having two, with the entrance forming a lobby between them. Madame's "toilette" also has communication with Monsieur's bedroom, and forms the neutral ground or vestibule between them, for of course Monsieur and Madame do not occupy the same bedroom, which in France would be considered a very *bourgeois* arrangement. But the systematic provision of the separate room for ablutions in connexion with each bedroom is a point for note, and for imitation. There is a separate bathroom as well, for more serious operations. The "Hôtel de Mme. B. . . . ; Paris," by M. Bocage, is an important example of a Paris house, standing on a triangle at the junction of two streets; the plan is very clever; the outbuildings are kept on the street level at the extremity of the triangle, and a sloping staircase wing leads from the courtyard to the level of the principal floor, the main part of which is planned almost like a transept church, only that the transepts are apses. The exterior treatment is in the usual style of the Paris street mansion built in stone: the timber loggia in the upper story looks rather out of keeping, and would have been better of stone also.

In the designing of country houses there seems to be quite an awakening movement among French architects, so far as the Salon exhibits can be taken as an indication. The horrible kind of creation generally known as a "Maison de Campagne"—a building all spikes and ornamental barge-boards, is hardly to be seen this year; and in its place we are equally surprised and pleased to find specimens of country houses of simple and really picturesque character. M. Le Tourneau's "Maison de Campagne de M. G. . . .," for instance, is a kind of thing one has hardly met with at the Salon before. In plan it is a rather long parallelogram with two cross blocks or transepts, one of which forms the entrance hall. In outer appearance it is a long plastered or rough-cast building—probably rough-cast (it is not easy to tell exactly from the drawing), with red brick dressings to the doors and windows,



the larger windows having also flat-arch red brick transoms with square blocks of stone at the junctions; the windows simply treated in small panes, and a long red-tiled roof over all. There are no carved gimbcracks of any kind; the whole thing is a quiet picturesque country house, of a type hitherto almost unknown in modern French domestic architecture. Somewhat akin to this is M. Prudent's "Projet de Vignoble dans le Côte d'Or;" a principal building in two stories of somewhat similar style to that last described, with long red-tiled roofs and an upper story with a large open-timber roof—this is the "cuverse," the building for fermenting vats; behind it is what seems to be the residence of the manager, and in front of it nine small dwellings for the "vignerons" are symmetrically arranged *en échelon*, a centre one and four on each side. Then in another room we have a frame of "Maisons de Campagne au bord de l'Eau," by M. Bassompierre-Sewrin, an architect who comes of a good school, being a pupil of M. Ginain and of M. Scellier de Gisors. These are plain stone buildings in random or coursed walling, with a certain amount of simple timber structure erected on the stone base; one of them shows a loggia of two elliptical headed arches in plain masonry, with timber projecting balconies elliptical on plan, all treated in a perfectly simple manner, and more like an American seaside house than a French one. It is perhaps the influence of American taste which has produced this, as we know how American and French students are mingled in the French ateliers; the notable point is that we never remember to have seen before at the Salon any such designs as these, so unpretentious and so suitable to the situation. A similar tendency is discernible in the "Maison de Colon" in Algeria by M. Balleyguier (another pupil of M. Ginain); a white plastered or cemented building with white stone angle quoins and red brick dressings alternating with white stone to the windows, with red brick piers to the balustrade above the cornice; all of which has a very good and characteristic effect. In a different manner, but also an unusual one for a French country house, is M. Bernier's "Projet du Château des Châtelliers," which shows a plain low stone structure in a severe classic style, with slightly projecting wings and a columned porch; a country-house such as one might expect to find in an English park laid out in the eighteenth century, and quite different in character from the usual French château of the same period. All this shows that foreign examples are beginning to have their effect on French domestic architecture.

The "megalo-mania" of the budding French architect is illustrated in such a thing as M. Honegger's "Projet pour un Monument Commémoratif de la Fondation de la Confédération Suisse." M. Honegger indeed is Swiss by birth, but he practises in Paris. His design is of a type of which an example generally occurs in each Salon, and which reminds one of the ancient sculptor's offer to hew Mount Athos into a statue. A colossal seated figure, which outscals the largest sculptures of Egypt, is hewn out of the rock on an upper part of a hill; then there are the usual vast flights of steps and inclined planes, &c., and two equally colossal lions (the human figures are about the height of their paws) keep guard halfway up

on either hand. This kind of thing might be done, of course—it is only a question of money; but practically it is a merely visionary proposal, and perhaps one is hardly uncharitable in regarding it in the light of an architectural advertisement. A recent competition for a monumental fountain at Reims has led to the exhibition of various designs for this purpose. Of these that of M. Eichmüller (in collaboration with M. Girardon) is a pleasing design, consisting of a basin, quatrefoil on plan, with a circular stele in the centre with figures grouped round it; the whole is graceful in effect and composes well. M. Villemot's design for the same fountain competition has also a lofty centre stele, decorated with symbols and "attributes"; this spreads into an upper basin of quatrefoil plan, carried underneath by large boldly designed consoles, the composition expanding at the base into four radiating pedestals with recumbent figures. This is a design in which a sculpturesque freedom of line is combined with well-defined and symmetrical architectural form, contrasting with one or two others which are all twists and contortions. With these fountain designs we may group the design by M. P. H. Mayeux for a monument to Jeanne Darc, intended for a site in front of Notre Dame; but whether this proposal is a serious one or only an ambition of the sculptor we know not. It is a curious affair; the heroine is on horseback on the top of a lofty pedestal perpendicular in front and sweeping out in a somewhat tent-like form in the rear, the lower portion of it being actually carved into the semblance of folds or curtains. In the front is the inscription "Elle Ecrasa le Dragon," and in the rear is the dragon, which of course represents the English invaders. It is a curious-looking affair, and we cannot say we should like to meet it on the Place Notre-Dame. Much more satisfactory to contemplate is a decorative design for a fountain by M. Castex (architect) and M. Carlier (sculptor). This is illustrated in a plaster model showing a triangular fountain with a triangular open pavilion with columns and arches, decorated with sculpture in the spandrels, and with a single figure with a water-jar on her shoulder under it, the mouth of the jar evidently forming the fountain. There are two tiers of circular basins, very well profiled, and connected by gracefully-lined scrolls opposite to the three angles of the pavilion; altogether a very artistic and finished piece of work. The same architect exhibits a model of "Un Monument Commémoratif" which looks somewhat like a Jaina pagoda with the Gallic cock on the top; the base of this is also on triangular lines, with a bronze figure of a soldier at each extremity. It is not equal in merit to the fountain.

The collection includes of course, a considerable number of illustrative drawings and sketches. The latter, as a rule, are not equal to the work of our best English sketchers, but there are some very fine highly-finished drawings of existing buildings, among which may be specially mentioned M. Munier's splendid set of coloured drawings of the Mosque of Kismas-el-Sohaki, Cairo; a set of illustrative drawings of architecture such as we never see in England. Two water-colour drawings of the gloomy old prison of St. Pelagie, about to be demolished, have a historic interest; and M. Santerre contributes a large frame of sketches under the title "Italie."

## THE SCULPTURES OF THE PARTHENON.



DR. MURRAY has given us a delightful book,\* and one for which many have long eagerly looked.

The year 1903 sees the completion of the century during which England has owned the "Elgin Marbles." Since 1816 the British Museum has been their guardian. Europe had surely a right to ask that, sooner or later, the keeper of the classical antiquities of that museum should fully publish and authoritatively discuss the treasure committed to his charge. The lapse of a whole century is evidence that there has been no unseemly haste, and that lapse has been, on the whole, clear gain to science. Time has been allowed for three generations of savants from all parts of Europe to examine and discuss the sculptures in detail, to start and often abandon theories of their interpretation; time for sculptors to attempt restorations of missing figures, and, more important still, for the detection and identification of fragments brought to light by the Acropolis excavations, or scattered about in the various museums of Europe.

The question of adequate publication comes, of course, [first. And here everyone will turn at once to the splendid reproduction of the frieze which Dr. Murray has given in one long folding sheet. To use his own words, "the mere magnitude of the frieze as an artistic conception is thus apparent at a glance, and its extraordinary beauty in detail is readily recognisable in the process of photogravure which has been employed." The mutilated condition of many of the metopes and of both pediments prevents in their case a similar complete conspectus, but here everything that could possibly be done has been done. Carrey's drawings are reproduced, and the architectural framework he left unfinished is completed; individual figures still extant are reproduced in phototype. For the first time the student of the marbles has before him in one book the complete material for his work.

When we turn from publication to interpretation, archaeologists will be conscious of a certain shock. For this the preface has prepared them. Dr. Murray there states that the starting-point of his book was a series of lectures on the sculptures of the Parthenon addressed several years ago to the students of the Royal Academy. To the Royal Academy the book is dedicated. The experience of these lectures led Dr. Murray to enter upon a much closer examination of the sculptures "on artistic more than on archaeological lines."

It is no doubt disappointing that we are not to have a complete *Corpus* of sources, authorities, bibliography, &c., on the Parthenon and its marbles, but we are bound to remember that much of the purely archaeological material has already been compiled by Dr. Murray in the Official Guide to the marbles, much also in his "History of Greek Sculpture" (vol. II.). We may take the present book as an artistic supplement to these two previous works—anyhow we are bound to judge it from the point of view in which it is presented to us by the author.

Moreover, in one respect there is no doubt

\* "The Sculptures of the Parthenon." By A. S. Murray, LL.D., F.S.A., Keeper of Greek and Roman Antiquities, British Museum. London: Murray, 1903.



that, by adopting the artistic standpoint, by advisedly setting aside a whole mass of archaeological accumulations, Dr. Murray is able to come to his subject with a singular freshness, frankness, and directness of personal appeal. He has said to himself: "the students to whom I must speak are to be artists, they want to know what *as artists* they have to learn from the Parthenon marbles." To be compelled to envisage ancient monuments from this particular angle is, to the professed archaeologist, a very valuable compulsion.

A salient instance of Dr. Murray's method is his treatment of the vexed question of the interpretation of the two pediments—a treatment, we may say at the outset (though with some details we are at issue), unusually sane and large. "The name most appropriate to each figure," Dr. Murray rightly says, "may be argued interminably." But all these discussions revolve round the simple question, "Are the figures in the angles of both pediments deities of Olympus, or beings associated with the legendary history of Attica?" This simple question is of vital artistic importance, because "on that question turns the grandeur of the artistic conception as a whole." Therefore, this is a fundamental point "we must decide one way or the other. After that the names of the several figures are of less consequence. Therefore, we have dwelt briefly with matters of nomenclature all through." It is this large grasp of the essential, the artistically essential, the bones and sinews, the unity of a conception that distinguishes Dr. Murray's criticism throughout. Almost excessively cautious as to detail, he is emphatically dogmatic where a vital truth is at stake.

Dr. Murray, as between the two contending schools of interpretation, decides unhesitatingly for the second, that which sees in the angle figures of both pediments not Olympians, but local divinities, beings associated with the legendary history of Athens. This canon of interpretation is now, for the *west* pediment, adopted, so far as we know, by all sound critics. The shift of interest from the cosmic and Olympian to the *local* is, indeed, characteristic of the whole trend of modern mythological inquiry. It is when we come to the *east* pediment that the real issue begins. It is a commonplace among lecturers and critics to say that as the western pediment is local in itself, the angles bounded by local river-gods, so the east pediment is Pan-Hellenic, even cosmic, the angles bounded by sun and moon. At this point Dr. Murray makes an observation as characteristically acute and original as it is beautiful. "The sculptor has set as boundaries of the scene the sun rising from the sea in the left angle and the moon descending behind the hills in the right. The sun and the moon are doubtless cosmic powers common to mankind. Yet any little town or village knows them only as they appear to it. An Athenian standing at dawn before the east front of the Parthenon and looking towards the pediment might see the sun rising from the sea on his left, and the moon passing on his right away over the hills. He would know no other sun and moon but his own. . . . We think that the sculptor has distinctly meant to indicate sunrise at Athens. But what has sunrise to do with Olympus? And what interest could the Athenians be expected to take in any sun or moon but their own?"

Starting with this *local* sunrise, Dr. Murray decides that all the figures of both the east pediment as of the west are local personages. The so-called Theseus he names Kephalos, the so-called Demeter, Persephone, and Iris, the three local Horæ, Thallo, Auxo, and Carpo. The so-called Fates are the three daughters of Cecrops, Aglauros, Herse, and Pandrosos. With the utmost diffidence, we venture at this point to differ, and to offer for Dr. Murray's consideration a slightly, a very slightly, modified canon of interpretation. The west pediment is bounded by river gods of *purely local* significance, the figures contained are also purely local. The east pediment is bounded by sun or moon, also in one sense local, but susceptible also of Pan-Hellenic, even cosmic expansion. The birth of Athene, unlike the struggle between Athene and Poseidon, took place, according to universal tradition, not on the Acropolis but in Olympus. The genesis of the myth of that birth is due to the desire to give to the local Korè, the local *maiden of Athens* (*ἡ Ἀθηναία*), Olympian status, to rid her of local circumstance, and make her a Pan-Hellenic potency. All the intervening figures have, to our mind, a like significance and weight. They are local figures, but they are local figures transfigured to an Olympian significance. The figure Dr. Murray, following Dr. Furtwängler, calls Kephalos is, we believe, not the merely local Kephalos, but the mountain god Pan. Pan was on the Acropolis a local god, but one who emerged to Pan-Hellenic significance. The Horæ we accept; they are local, but also Olympian. The Three Fates are conceived in like manner. There are local Moiræ, but they are also the great cosmic potencies, the Moiræ of the sea, Thalassa, the Moiræ of the land, Gaia, and the eldest of the Fates, the heavenly Moiræ, Ourania. The keynote of the east pediment is, to our mind, not the purely local, but the *transmutation of the local into the Pan-Hellenic*—the keynote, surely, of the whole policy of Pericles.

None the less we thank Dr. Murray for his much-needed emphasis on what is purely local. We trust no student—and still more no archaeologist—will leave his book unread.

#### NOTES.

We print on another page the Report of the Assessors in this competition. Our readers will have already learned from the daily papers that the Committee have, so far at all events, expressed their intention of not accepting any of the designs; though we are not sure whether this resolution is entirely final. What is clear is that they will not accept the one which the assessors have placed first, and for good reasons. The Committee made it a condition that the plan of the cathedral should provide for a wide open space for a large congregation within hearing of the preacher. Four of the competitors have obviously had this in mind, and one or two of them have provided for it very completely. The fifth competitor has entirely ignored it, and his design has been selected by the assessors; a result which further illustrates the fact that very eminent architects may nevertheless be very ill qualified to sit in judgment on a competition.

What the Committee probably feel is that, as the assessors have chosen a design which ignores an important condition in their requirements, and as they do not wish to select another design in opposition to the assessors, they have no choice but to refuse them all. As the designs were only open to the Press on Thursday this week, we cannot review them in detail in the present issue; but we may say that we do not agree with the selection of design No. 1 by the assessors, even on grounds of architectural treatment, independent of the question of plan. One at least of the other designs is decidedly superior to it; but we will go further into their merits in our next issue.

AMONG the proposals contained in the Government measure now before the House of Commons, we note that provision is made for the establishment of a Port of London Commission, to which will be transferred the undertakings of the London and India, Surrey Commercial, and Millwall Dock Companies, and, with some limitations, the powers and duties of the Thames Conservancy and of the Watermen's Company. No transfer is proposed from Trinity House, and the powers and duties of the City Corporation as Port Sanitary Authority will also remain untouched. The river works to be undertaken by the new Commission include the dredging of a channel, at least 30 ft. deep at low water of spring tides, from the Nore to the Albert Dock, and of the greatest practicable depth as far as the old Thames Tunnel. The width of the channel is to be 1,000 ft. as far as Crayfordness, a length of about 29 miles, 600 ft. thence to the Albert Docks, 7½ miles further, and 300 ft. from the Albert Docks to the Thames Tunnel. These operations will probably occupy some eight or ten years, and to provide accommodation for vessels delayed by fog, or otherwise, basins are to be dredged at various points as soon as possible. It is also recommended that a training wall should be commenced without delay at Leigh Middle Shoals. There is no doubt that the trade of the Port has been severely handicapped by the inadequacy of the channels, especially in view of the ever-increasing tonnage of vessels, and it is therefore satisfactory to find that the new Bill contains such provisions as those which we have mentioned. If properly carried out, as we have no doubt they will be, the channels ought to become permanent, and it is morally certain that they will be kept open by the tidal currents of the river with comparatively little dredging. Considerable improvement is required at the various docks, but the new Bill gives no powers to the Commission beyond those already possessed by the Dock Companies at the present time. It will, of course, be within the power of the new Commission to consider what improvements and extensions are desirable at the docks, and to apply to Parliament for authority to execute such works as may be found necessary. In thus leaving the matter to the Port Commission the Government have acted wisely. The river works stand on a different footing, and, as the great water highway of London, it is important that the Thames should be placed in an efficient condition with the least possible delay after the passing of the Bill.



## Panama Canal Plans.

In a paper now under discussion by the American Society of Civil Engineers, Mr. Morison discusses the relative merits of a tide-level and a high-level canal for the Isthmus. Hitherto the control of the Chagres River has been the great difficulty in the way of a sea-level canal. The International Commission, under the leadership of De Lesseps, certainly decided in favour of such a work, but the practical details were never thought out, and the engineers who were sent out to control operations and to solve the problem finally gave up the idea in despair, and voted for a lock canal. This ignominious failure appears to have acted like a ban upon the project of a sea-level canal ever since. It is therefore refreshing to find an intelligible and feasible proposition for a tide-level canal on new lines. As outlined in the paper, the scheme is perhaps a little incomplete, but the main idea is worthy of every consideration. The day will certainly arrive when a sea-level canal will become an imperative necessity, but in the meantime it is questionable whether the delay necessary for its construction is justifiable. In the opinion of some engineers, a lock canal ought to be made first. Such a waterway would be adequate for several years, and when the time arrives its transformation could be accomplished without the stoppage of navigation. The question is chiefly one of policy and cost. A tide-level canal would take fully ten years longer to construct than a high-level canal, and would cost about double. These considerations will probably preclude the initial realisation of such a scheme.

## Buildings in Advance of Building Line.

We commented recently on the case of Blackpool Corporation *v.* Johnson, which is an authority to the effect that an innocent purchaser of a house which has been brought forward in advance of the building line is not the person who commits an offence against Section 3 of the Public Health (Buildings in Streets) Act, 1888, nor liable to the penalties enforceable under the section against the person who continues the offence. This section has again (May 8 and 9) been considered in the Courts in the case of Mullis *v.* Hubbard, and it has been decided that the section creates only one statutory offence, the erection and maintenance of a building beyond the building line, for which the sole remedy is provided by the statute, and that therefore the owner of a neighbouring house had no right of action in respect of an offence under this section. In the case as at present reported it is not stated what special damage the plaintiff alleged he had suffered. If it had been an interference with his light or air he no doubt would have had his remedy independently of this section.

## Projections over Pavements.

A CURIOUS contention was raised in the case of Winstanley *v.* London Joint Stock Bank, Ltd. The defendant bank had used certain reflector lights, which were fastened to the wall of the building by staples, and which were about 15 ft. above the pavement and projected some 4 ft. The Surveyor of the City of Westminster took out a complaint against the bank under Section 65 of the Metropolitan Paving

Act, 1817, which prohibits any person from "hanging out or exposing, or permitting to be hung out or exposed, any meat or offal, or other matter or thing whatsoever from any house." The magistrate dismissed the complaint on the ground that the reflector lights were not things *ejusdem generis* with those specified in the section, and the High Court affirmed his decision, but apparently on the ground that the section referred in any case to things temporarily exposed, as distinguished from those permanently attached. We think the ingenuity of surveyors might rather be expended in securing that sun-blinds shall be placed at a greater elevation than at present is the case. With an umbrella it is impossible to walk under these obstructions over the pavement, and Section 119 of the Metropolitan Management Act, 1855, contains powers enabling the authorities to obviate this nuisance.

## Restrictive Covenants in Conveyances.

In the case of Osborne *v.* Bradley, recently decided in the Chancery Division, a certain estate had been purchased by the plaintiff subject to covenants which were to run with the land, amongst which was one restricting the erection on the frontage of buildings other than private dwelling-houses of a certain value. The plaintiff had conveyed certain land on the frontage to a purchaser who had erected two dwelling-houses thereon, and these houses, after several conveyances to various purchasers, had been purchased by the defendant in this action. All the deeds conveying these houses had contained the restrictive covenant as to the nature of the buildings, but the character of the estate had changed, and a number of shops had been opened in close proximity to the houses in question. The defendant desired to convert the houses also into shops, but the plaintiff applied for an injunction to restrain him from so doing. It was held that the covenant was one taken by the plaintiff for his own benefit, and he was entitled to equitable relief as against the defendant and to an injunction. It may be presumed that the covenant was also capable of being enforced by the original vendor of the estate as against the plaintiff, and that if the plaintiff had granted leases not containing the same restriction, he would have been liable in an action to his vendor for not having secured the observance of the covenant, and thus it becomes somewhat difficult to see how land subject to such covenants is ever to be freed from the restriction, and purchasers should accept such covenants with caution. In this case the evidence was that at the time these premises changed hands no building scheme was in contemplation on the estate, and therefore, no doubt, this eventuality was not present to the minds of the parties.

## Ancient Buildings.

MR. YOXALL's question to the Prime Minister this week in regard to the care and custody of ancient and historic buildings in this country is satisfactory so far as it shows that some Members of Parliament are interested in the subject. Mr. Yoxall seems to desire that the historical buildings should be placed under the control of a Minister of State as in France under the Law of 1887. But it may be doubted whether the country would be better off. Neither a Minister of State nor

the Treasury will do more than the majority of electors demand, and as the mass of the population are little interested in historic monuments, neither Minister nor Treasury would trouble about the subject. Popular opinion needs to be formed, and if this can be done in favour not only of the preservation of historic monuments, but of public edifices of high artistic merit, those who are in charge of the public interests—whether the central or local government—will throw some energy into their administration. The County Councils have now power to take charge of historic monuments and to spend public money on their preservation, and they will do this quite as well as the central administration in London if there is influential public opinion on the question.

## Steamboats on the Thames.

THE decision of the Parliamentary Committee throwing out both the Bills promoted by the Steamboat Company and the County Council for establishing a service of passenger steamers on the Thames must be somewhat of a surprise to the promoters, and is certainly a cause of disappointment to the public. The congested state of our streets is worse than ever, and it is to be hoped that the Committee appointed to investigate the means of locomotion in the Metropolis will be able to consider and report on the question how this splendid water roadway, running through most congested districts, should be utilised to the best advantage. We would, however, draw attention to the statements of counsel made during the hearing of the County Council scheme. We are always being assured that municipal bodies do not undertake schemes which involve a burden on the rates, yet the Committee were assured that in matters undertaken with a view to public utility Parliament was not to regard the question of profit and loss, and an increase of  $\frac{1}{2}$ d. in the rates was to be considered as a trifling matter. Ratepayers are beginning to feel that they have had sufficient practical experience of the development of such theories, and when it is considered that the Council's scheme necessitated the carrying of 15,800,000 passengers at an average fare of  $\frac{1}{2}$ d. to render it remunerative, few people will regret its rejection. It can, however, hardly be doubted that if the public bodies concerned would only co-operate to assist private enterprise in the development of some scheme, this magnificent highway could be turned to useful and profitable account, and that not only would the ratepayers of London escape a further and unnecessary burden, but that they would participate with the general public in the advantages which would accrue from the opening of this rapid, easy, and healthful means of transport.

## The King's Sanatorium.

It is officially announced that the Advisory Committee for the King's Sanatorium have acquired from Lord Egmont a site of 150 acres at Lord's Common, Easeworth, in the vicinity of Midhurst and Haslemere. The ground, lying on the Lower Greensand formation, includes a fir wood, which shelters on the north side an open plateau more than 450 ft. above sea level, and commands a fine view over the South Downs. At the rear, northwards, the



ground rises to an altitude of 620 ft., so that shelter is obtained from the north and east winds; on the west side of the hospital site extends an open common. A supply of pure water has been secured by impounding some springs about a mile distant on the rising land to the north. The Advisory Committee instructed Mr. H. Percy Adams, their appointed architect, to study the plans of similar sanatoria in Germany and Switzerland, and he is now engaged in preparing the plans for King Edward VII.'s Sanatorium.

**Electric Traction Without Rails.** In many places it would be both useful and convenient to employ electric traction without the necessity for rails, and, as a matter of fact, two distinct systems of the kind are already in operation on the Continent. The Schiemann system incorporates a combination of the electric tramway and the omnibus, the vehicles receiving current from overhead wires, but running upon any ordinary road. This system is now at work between Königstein-Hütten and Königsbrunn, a distance of about 9 kilometres, and a speed of 12 kilometres an hour is easily maintained. Three classes of vehicle are used: omnibuses for passengers; light vans for parcels service; and cars, generally made up into trains, for coal and heavy goods traffic. As any vehicle connected with the overhead wire can be steered to a distance of about three metres to the right or left of the trolley line, no difficulty is experienced in passing other traffic; but when two trolley vehicles meet it is necessary for the trolley poles to be removed from one of them until the other has passed. This trouble could be avoided by having two sets of lines, but the expense would hardly be justifiable, except in populous districts. The Lombard-Gerin system is of different character, for the vehicles are not propelled, but are hauled along by an "auto-trolley" travelling on two overhead wires. Current from these wires is first fed to a combined transformer and motor on the vehicle, and thence to the overhead trolley. This system is employed on a line about 5 kilometres in length, between Fontainebleau and Samois, for an omnibus service, in which the average speed attained is 15 kilometres an hour. The comparatively inexpensive character of systems such as these renders them particularly suitable for country districts, while the absence of rails is advantageous for urban traffic, and especially in narrow streets.

**Electric Clocks.** WE had an opportunity last week of inspecting some novel electric clocks which have been devised by Messrs. R. M. Lowne & Sons, of Catford. The mechanism used is of the very simplest nature, and the results that have been obtained are very satisfactory. A free pendulum, suspended in the ordinary way by a spring, is the timekeeper, and the motive-power is furnished by ordinary Leclanché cells or dry batteries. The clock-dial can be detached from the pendulum and may be placed at any distance from it, and any number of clocks may be run by one pendulum. The life of the batteries is from two to four years, and they can be replaced without stopping the clock. Their initial cost, also, is only a few pence. It seems to us very surprising that electrically

driven clocks are not more generally used. It is not because the subject is seldom discussed, or because the public never see electrically driven clocks. As far back as 1846 Mr. Alex. Bain, of Glasgow, gave an exhibition of electrically driven synchronous clocks in Old Bond-street, and M. Breguet in 1856 installed seventy-two synchronous clocks in the streets of Lyons. The causes of failure in these cases were due to sparking when the circuit was broken, the troublesome type of battery used, and the poor insulating material used in the wires. With modern batteries and insulated wire there are practically no electrical difficulties in the way of obtaining an accurate time service, and Messrs. Lowne have availed themselves of this fact. The electric current in their system can be also used to operate bells or sirens in workshops or factories at the proper times, as well as to drive the clocks, and so will obviate in some cases the necessity of having a timekeeper. As there are only two wheels in the whole mechanism of Messrs. Lowne's clocks, there is practically nothing to get out of order.

#### Jerusalem Aqueducts.

As usual in Oriental countries, the admirable works constructed in ancient times for the water-supply of Jerusalem were long ago allowed to fall into a lamentable state of disrepair. The aqueducts no longer served their original purpose, or only did so when they happened to be in repair, and quite recently a serious water famine was only averted by the timely assistance of the railway company. Since then, a water system upon modern lines has been established, and water is now brought to the city from the so-called "Pools of Solomon," situated at a distance of about seven miles. A portion of the old stone aqueduct has been utilised in parts where it could be repaired without unnecessary expense, but for the greater part of the distance 4-in. iron pipes have been laid. Two public fountains have been erected for the use of the inhabitants, one within the enclosure of the Great Mosque, and the other outside the walls. The supply is still far from adequate, but the risk of water famine is much reduced. In connexion with this subject it is interesting to recall the inscription at Siloam referring to the rock-cut tunnel leading from the Ophel ridge to the Pool of Siloam. The most recent translation thus describes the construction of this ancient engineering work:—"Behold the excavation! Now this is the story of the tunnel: While the miners were still lifting up the pick towards each other, and while there were three cubits (to be broken) the voice of one called to his neighbour, for there was an excess in the rock on the right. They rose up—they struck on the west of the tunnel—the miners each to meet the other pick to pick. And there flowed the waters from their outlet to the pool for 1,200 cubits, and (three-quarters) of a cubit was the height of the rocks over the heads of the miners." From this account it appears to be clear that the tunnel was excavated by two gangs working in opposite directions, a method requiring a considerable amount of skill and accuracy.

**HOTEL, FELIXSTOWE.**—The new Felix Hotel at Felixstowe has just been opened. The architect was Mr. T. W. Costman, of Ipswich.

#### COMPETITION FOR BUILDINGS FOR THE UNIVERSITY OF THE CAPE OF GOOD HOPE.

THE designs submitted in this competition have been on view at the Imperial Institute this week. They were crowded into a small portion of one of the galleries, some of them being skied so high that it was impossible to see the details of the plans and elevations. With the exception of the three premiated designs, the authors' names were not given. The designs were numbered on the backs of the stretchers or mounts, and, as many of these were pinned to the walls, the numbers could not be ascertained. It is useless, therefore, attempting to review all the designs, as most of them cannot be referred to either by number or name.

The conditions of the competition appear to have allowed the competitors greater latitude as to style of draughtsmanship, size and colour of mounts, and other details than is now usually permitted. Perspectives are a conspicuous feature of the exhibition; some are in pencil, some are line drawings in ink, others in monochrome (brown, green, neutral tint, or Indian ink), and others in water-colour. The scale of the plans and elevations was fixed at 1/16 in. to the inch, thus considerably reducing the labour of the competitors. The problem was an interesting one—the design of a large hall (with a few smaller rooms) on a rectangular site, open on all sides, but with part of the site reserved for future extensions—and it is surprising that only about sixty designs were submitted, and that few of these were really worthy of the occasion.

The author of the design placed first is Mr. W. Hawke, A.R.I.B.A., of Stoke Cottage, Norbury. His plan has the great merit of simplicity, and gives promise of some pleasing internal effects. The principal entrance is in the middle of the principal front, and opens into an entrance-hall 22 ft. square, from which corridors extend to the right and left. Immediately opposite the principal entrance is one of the doors of the University Hall, which is the chief feature of the plan; this is a room a little larger than a semicircle, the chord forming the central portion of the back of the building. The platform is placed against the chord, and the seats of the hall are arranged in semicircles, struck from a centre a little in advance of the platform. A corridor sweeps around the curved wall of the hall on the ground floor, and unites with the right and left corridors already mentioned. The radius of the hall on the ground floor is 41 ft. In the upper part of the hall a gallery is formed over the concentric corridor, increasing the radius to 52 ft. The council chamber, committee-rooms, and offices are conveniently planned on the ground floor. Two staircases lead to the gallery from entrances placed near the rear angles of the two ends of the building. Each staircase has a single flight of steps with a wall on each side; this is not an effective method of treatment. The cloakrooms are not in the best position.

The hall itself will be a fine room, and from nearly every seat there will be a clear view of the platform, but whether it will be acoustically satisfactory is another matter. Externally the hall is the principal feature, rising well above the surrounding rooms, and being covered with a low segmental dome carrying a cupola. From the point of view selected for the perspective the dome seems to be a complete circle on plan, and the effect is satisfactory, but, seen from the side of the building, it will appear as it really is—about two-thirds of a circle—and will certainly have an appearance of incompleteness which will detract very considerably from the effect.

The second place has been gained by Mr. J. Edwin Forbes, 21, Waterloo-street, Birmingham, who has adopted a more ordinary type of plan. The large hall is a rectangular room measuring 90 ft. by 53 ft., the longitudinal axis being parallel to the principal front of the building. Two entrances are provided in the principal front, one at each end, and each leads into a hall 30 ft. by 24 ft. A corridor is continued entirely around the hall on the ground floor, and gives access to the hall and some of the smaller rooms. The council chamber and committee-rooms are placed on the first floor at the left-hand end of the hall, and are approached by a staircase at the same end. At the other end of the hall two staircases are provided, and the spectators'



gallery is placed between them over some of the ground-floor rooms. A loggia, with coupled Ionic columns, is planned on the first floor along the front of the large hall, above the ground-floor corridor, and forms the central feature of the principal elevation. A similar loggia runs along the back of the hall. The elevations do not reveal much originality, but the perspective is a striking piece of work, with its green sky, green and blue shadows, and gaudy figures. It is roughly drawn and does not tally with the elevations. The projection of the cornice is increased; the number of modillions is reduced about one-half, and their size nearly doubled; and the pitched roof of the hall is not shown, although from the point of view selected it would, we believe, be seen.

The same artist appears to have been responsible for another perspective submitted in the competition, but whether this is an alternative design submitted by Mr. Forbes or the work of another architect we do not know.

Messrs. Edmund W. Wimperis and Hubert S. East, 6, Vigo-street, W., have gained the third place. The hall is placed as in Mr. Forbes's design, but the entrance is in the middle of the principal front. There is no entrance-hall worthy of the name, but merely a kind of double corridor, leading to the corridor which runs along the front and ends of the large hall. All the rooms are on the ground floor the cloakrooms being arranged on each side of the principal entrance, and the committee-rooms being as far from the council chamber as they could possibly be placed. The hall measures 66 ft. by 60 ft., and contains tiers of seats instead of a gallery. The hall is unnecessarily lofty, and externally dwarfs the one-story rooms around it. The central portion is crowned by a dome, against which the pitched roofs of the side portions abut. A loggia, concentric with the dome projects from the central part of the hall above the one-storied entrance, &c., and the angles between this and the straight walls are masked by turrets of original design. The perspective is a line drawing by a well-known hand, and shows the building to advantage.

The same artist appears to have prepared the perspective of one of the few satisfactory Gothic designs submitted. Externally, this design is an excellent piece of work. The Perpendicular style appeals to the Englishman as being specially appropriate for buildings of this class, and the author of this design had, therefore, good reasons for ignoring the prevailing fashion. The plans are, however, less satisfactory than the elevations. The large hall and the council chamber are placed on the first floor, and the other rooms below. This position for the large hall has also been adopted by other competitors, but with less success: one competitor, not knowing what else to do with the space under the hall, has provided an "entrance loggia and waiting-hall," measuring 70 ft. by 40 ft.

One of the most striking designs is No. 53, which attracts attention by its clever perspective in greyish green. The Byzantine style has been adopted, and has been worked out in a very able manner. A saucer-like dome covers part of the large hall, which rises above the other portions of the building. Smaller domes of similar character crown the square portions at the ends of the principal front. The central feature of this front is an original piece of work. The building is of two stories throughout, and would be very costly, but the design is decidedly clever and interesting.

No. 45 is a good design in the Renaissance style. The large hall, 92 ft. by 54 ft., is placed as in the second and third premiated designs, but the smaller rooms are differently arranged, the cloakrooms being on the ground floor along the left flank of the building, and the offices along the right flank; the council chamber and committee-rooms are on the first floor, over the offices. Externally the front of the hall rises above the one-storied entrance-hall, and is divided into three wide bays, each containing a large semicircular headed window, across which an entablature is carried at the springing level, and supported between the jambs on two Ionic columns.

We noticed also two good Renaissance designs of a severer type, but were unable to ascertain their numbers.

Many of the designs are quite unworthy of the competition, and if they could be exhibited in Cape Town the architects of the Colony would not, we fear, be led to form a high opinion of English architects. Perhaps we do

our countrymen an injustice—it is possible that some of the unsuccessful designs were prepared in South Africa—but we fear that some of the worst are of home manufacture.

#### LIVERPOOL CATHEDRAL COMPETITION.

The following is the Report sent in by the assessors in the competition:—

##### "TO THE COMMITTEE.

GENTLEMEN,—We have carefully inspected the five sets of designs submitted, in competition, for the proposed Cathedral at Liverpool.

It is with much pleasure that we bear our testimony to the great care and pains that the competitors have bestowed on their work, and the admirable response they have made to the invitation of the committee.

The drawings, as drawings, are mostly excellent, and show skill in the working out of many difficult problems.

Almost without exception we see the hand of the master himself and not merely draughtsman's work. This makes the designs doubly valuable.

Out of the five competitors four of them had sent in designs for the Cathedral in the first and unlimited competition. We note with great interest that the new drawings embody much the same general design and character as previously delineated by each competitor. This clearly shows that from the commencement all the four had decided views, and that the second competition proved no temptation to any to deviate materially from their original conception. This seems to us good evidence that from the commencement they had formed of their best.

You may be sure that we, your assessors, feel the great responsibility of our judgment and the importance of this very rare occasion.

What we had to find was not the best, or the most beautiful, drawings, but the best idea, and the finest conception.

Many of the drawings are attractive. But we had to look much further than that. We had to look at the real effect of the building rising to its final completion, at the dimensions and proportions of the different parts, such as the piers and arches of the great nave. We had to look at the practical and feasible aspect of the designs. We had to look for a sufficiently original conception. We had to look for a fine and a noble proportion, combined with an evident knowledge of detail. Lastly, we had to look for that power, combined with beauty, that makes a great and noble building.

In the set of drawings marked 'No. 1' we find these qualities pre-eminently shown. We cannot but give it the first place.

We should recommend that the quasi east end should be drawn with the towers shown, and that a window of fine size and proportion should be shown for that gabled end, one suitable to receive the offered gift of stained glass, a gift that will greatly add to the beauty of the interior.—We are, Gentlemen, faithfully yours,

G. F. BODLEY, R.A.,

R. NORMAN SHAW, R.A."

No. 1 design is by Mr. Gilbert Scott, the grandson of Sir Gilbert Scott.

For our own comment on the report and on the present stage of the competition see under "Notes," p. 530.

#### THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE usual fortnightly meeting of the Royal Institute of British Architects was held on Monday evening, when the chair was occupied by the President (Mr. Aston Webb).

Mr. Morgan, President of the Cardiff Society, attended for the first time since his election, and was introduced to the Chairman.

The Chairman announced that at the "At Home" on the previous Monday they had a very interesting series of drawings on view of the late Mr. Eden Nesfield. He begged to propose that a very hearty vote of thanks be given to Mr. E. J. May, who lent the drawings and took a great deal of personal trouble in hanging and arranging them for their edification.

##### The Beginnings of the Egyptian Style of Architecture.

Professor Sir Martin Conway then read a paper, entitled "The Beginnings of the Egyptian Style of Architecture," of which the following is an abstract:—

The Egyptian style appears to have arisen about the time of the Fourth Dynasty, and to have rapidly developed during the Fifth. Its elements existed earlier, but not till the Fourth Dynasty were they definitely compounded into an architectural style applicable to buildings in stone. Until recently it was commonly believed that the early dynastic Egyptians employed wood for small and costly edifices. In fact, however, no such Egyptian wooden architecture ever existed. Pictures and models which

survive do look like representations of wooden structures—indeed, some of the slender columns depicted have more the appearance of metal than wood. It must be remembered that unpractised architectural draughtsmen, though for their day able artists, invariably represented columns with exaggerated slenderness. Numerous examples exist in the wall-paintings of Roman Italy; as a special illustration the lecturer showed a photograph of Giotto's painting of the façade of the Temple of Minerva at Assisi. The columns that represent tent-poles and the octagonal, or sixteen-sided, columns of the hieroglyphs, were originally of wood. The rest were of reed-bundles plastered over with mud. Both kinds had been copied into stone at the date of the pictures referred to, and those pictures may actually depict stone buildings, little though they suggest that material.

The earlier Egyptian stone buildings had no architectural features whatever. It was mere building, not architecture. The chapel excavated by Professor Petrie was the simplest kind of stone building conceivable. The neighbouring mastabas were similarly destitute of architectural quality; their false doors were inscribed with beautiful hieroglyphs, but there was no attempt to arrange them architecturally.

Down to the middle of the Fourth Dynasty, then, the craft of building in stone had been carried to a high degree of perfection, but it had developed no architectural art. Building whose forms and features were determined by the desire to give pleasure to the eye was only carried out in the old materials of mud and reeds, with which the Egyptians had been familiar from the earliest prehistoric days.

The lecturer described the characteristic features of a stone building in the developed Egyptian style. The walls have an external batter, are surrounded or edged by the torus moulding, and are crowned by the Egyptian gorge. The supports are either piers—square, octagonal, or sixteen or more sided—or clustered columns made in imitation of bundles of papyrus-stems or reeds, with a flat circular stone for base, and with a capital made in imitation of a group of flowers, buds, or palm-fronds. There are porticos and halls of columns, and there are dark chambers and passages. Only the piers, the porticos, and the halls of columns can have descended in direct sequence from the early stone buildings, and it is not to be supposed that such elements were lacking in contemporary or even prehistoric mud buildings. It may therefore be safely declared that all the features and principles of Egyptian architecture were invented by the mud builders, and were afterwards directly translated into stone. The outward batter of the walls of stone buildings had no meaning in stone; it was borrowed from mud-brick. The Egyptian gorge copied the old fringe of palm-frond tips with which mud walls once habitually terminated. The torus moulding was a translation of the bundle of reeds that protected the tender angle of termination of a mud wall.

Discussing the question as to when this translation took place, and in what kind of building, the lecturer said that the well-known sarcophagus of Khufu-ankh at Cairo throws a welcome light upon this problem. It represents a palace, apparently built of crude brick with wooden fittings. The vertical grooving along the top of the lower part was doubtless intended to represent the gorge. If at that time the gorge had actually begun to be imitated in stone as a cornice to stone buildings, the mason who carved this sarcophagus would have known better than to represent it by flat grooving. The fact that he flattened it seems to prove that, though at the time the gorge was in common use as top member of a crude brick building, it had not yet taken its place in stone building. The sarcophagus of Menkaura, as compared with that of Khufu-ankh, shows a development. Like the latter, it imitates a building, usually said to be of wood, but really of mud and reeds, or mud-brick, perhaps, with wood fittings. This building is surmounted by a fully-developed gorge cornice, whilst each façade is surrounded by a torus moulding. Here, then, is the Egyptian style completely formed. It must have sprung into existence between the days of Khufu and Menkaura.

The Fifth Dynasty has left us several actual examples of stone architecture containing decorative features, such as a mastaba at Sakkara, where the architrave of a portico is decorated with a stone gorge rather tentatively employed.



The Fifth Dynasty tomb of Ptah-Shepes at Abusir, excavated in 1893, when fragments of lotiform capitals and columns were brought to light, yielded results of the highest importance for the present inquiry.\*

The tomb was approached by a great court, which was surrounded by a colonnade of twenty square piers. At the end of the great court was a porch of two columns, whereof only fragments remained. In a lateral chamber, which contained the statues of the deceased, were fragments of the two columns that had supported the roof. The base and lower portion of the shaft of one were in place, and enough fragments of a capital were found to enable a complete restoration to be made. Column and capital in each case were hewn out of a single block of limestone. The circular base is simply bevelled off at a slope of about 45 deg. Its diameter is large in proportion to that of the shaft. Such large bases were required when they were used instead of a foundation to spread the pressure of a shaft over an area of ground large enough to support it. This column and capital are, beyond question, the finest that have come down to us from ancient Egypt, as far as workmanship and carving are concerned. The proportions of the capital are excellent. The abacus is a thin rectangular tablet. In the Middle Empire it was made thicker. It is only by comparing these Abusir fragments with later examples of the Lotiform order, such as the Middle Empire rose granite column in the British Museum, that its surpassing merit becomes obvious. The conclusion may be justified that the Memphite architecture of the Fifth Dynasty was highly meritorious, and may have been the finest ever produced in ancient Egypt, or even in the world before the great days of Greece. The date of the Abusir Column is about 3600 B.C.

The pyramid field of Abusir is being systematically explored by the German Oriental Society. They have already laid almost entirely bare the Pyramid Temple of the Fifth Dynasty King, Ra-en-user, which is earlier in date than Ptah-Shepes' tomb. In Ra-en-user's temple the gorge cornice and the colonnade of clustered columns were fully developed. The courts were floored with basalt. In the great court was a red sandstone cistern to catch the rainwater. A drain led this out to another red sandstone cistern. The base of the walls was also of basalt (in places of granite), which explains the black-painted dado so frequently found in tomb chambers of the Old Empire. The walls, above the basalt foot, were all covered with fine plaques of white limestone, delicately carved and painted, whereof only fragments remain. The side posts of the magazine doors were of red sandstone. The only fragment of sculpture found was a noble head of a colossal granite lion. There were also remains of an alabaster altar embellished with reliefs of the various nomes.

Throughout the period when true stone architecture was arising in Egypt, pyramid building steadily lost its charm for the kings. Khafra's pyramid was smaller than Khufu's, Menkaura's than Khafra's; their successors were yet smaller. The reason evidently was because, as time advanced, less of the mass of human energy under the command of the king was devoted to pyramid building, and more to building of some other sort.

The lecturer next considered the character of the divine temples of the Old Empire. Fragmentary remains prove that Khufu and Khafra built temples of granite. The shrine was the chief feature, and its fossilised likeness is preserved as the Holy of Holies of almost every later temple. All of them possess one marked characteristic. Entering through the great pylon, and proceeding inwards from court to court and from chamber to chamber, there is a steady diminution in height the further you advance. The reason for this is plain. The normal temple plan resulted from a series of accretions. An Ancient Empire shrine received additions, mostly in front, in the Middle Empire, and successive further additions in the New Empire. Often the old parts were ruinous, and had to be rebuilt, but, according to the general Egyptian way of doing things, the habit was to reconstruct the old parts on the old scale, and as far as possible in the old style, and to add the new parts in the new style. The Middle Empire built on a larger scale than the Ancient Empire, the Eighteenth

Dynasty on a larger scale than the Middle Empire, and the Nineteenth larger than the Eighteenth. Thus a big temple, resulting from the accretions of various building periods, naturally grew in scale from shrine to pylon, and this feature was adopted into the style of temple design, so that even a wholly new temple was built in that fashion. From these considerations we may safely conclude that the Ancient Empire temples were small in scale. The best of them, the important royal temples, were probably built of the hard and precious rocks, such as granite, diorite, porphyry, and alabaster. We have every reason to conclude that all the later types of column and capital were fixed at this time. The Lotiform, palmiform, and campaniform or papyrus orders are all represented in the painted reliefs of the Ancient Empire.

Describing the Fifth Dynasty divine temple revealed by the recent German excavation, the lecturer said that it was built near the Abusir pyramid field by the King Ra-en-user in honour of the sun-god Ra. Instead of a shrine its chief feature was an obelisk raised on a massive base covered with great blocks of granite at the foot, and with fine white limestone above. The outer walls were built of big blocks of hard, yellow limestone. The inner walls were badly built, but covered with plaques of finest limestone carved with delicate reliefs above a dado painted black. At important points the base of the decorated walls was of granite. The ceilings were painted with yellow stars on a blue ground. The relief carvings were admirable, in the style of the best reliefs in the almost contemporary tomb of Ptah-hotep.

The lecturer referred to the evolution brought about in temple building by changes in religious ceremonial, and by the gradual ousting of the laity from the temple services, and the rise of the priestly caste. Finally he considered the character of the sculptured decoration applied to old Empire temples, and the system of its distribution. No Egyptian sculpture in the round ever surpassed that of the Fifth Dynasty. The mural decorative sculpture of the Old Empire was correspondingly excellent as far as it went, but it suffered from a great defect that sculpture in the round escaped. It was governed by faulty Egyptian perspective. A figure in the round could be abso- lutely copied from Nature, but a figure in low relief could only be truthfully represented by the aid of conventions not yet invented. Quality of surface is the great test of bas-relief. The best Fifth Dynasty work in this kind is sometimes good, though seldom to any high degree. The best result is attained when the artist treats vegetable forms, especially thick growths of lotus and other luxuriously growing plants. It is evident that he relied strongly upon colour for decorative effect. Where the colours have survived an excellent effect is obtained. The Egyptians attained to perhaps the most perfect comprehension of how to design and carry out a decorative scheme in one logical style ever attained by any people. Every form they employed, whether in their architecture or their sculpture, their paintings, their writing, their decoration of every object large or small, employed for whatever purpose, was the consistent outcome of a single artistic ideal. All parts therefore harmonised together.

Egypt has impressed the prestige of its mighty name as a country of great buildings and noble art upon the imagination of succeeding generations. We are only now beginning to realise that the reputation of Egypt as an ancient artistic nation, so far from being exaggerated, does not attain the level it deserves.

Mr. R. Phené Spiers, in moving a vote of thanks to Sir Martin Conway, said the paper not only brought them up to date and took account of the latest discoveries, but he thought it was the first time that an attempt had been made to suggest a period approximately for the commencement of what Sir Martin Conway considered to be a style of architecture. Of course there might be some differences of opinion as to the point at which that was taken. The reader of the paper had mentioned the fact that the earlier tombs are intended imitations of the palaces or the residences of the deceased—that they were cut in stone in imitation of the houses or palaces which were built in a different material, whether of reeds or crude brick. The question arose whether when they translated the struc-

ture of another material into stone was that architectural work. It was symbolical, but how far did it constitute architecture? Because the gradual imitation of these forms had led to all architectural forms. They began by copying, and then they decorated, and it became an architectural feature. The only difficulty was to decide when, and at what period, the building should be looked upon as being of such good proportions and of such refinement in design as to constitute an architectural building, and not merely a building of ordinary character. It was difficult, of course, to grasp the whole paper, and he could only take certain paragraphs to refer to. First, as regarded the slender columns which Sir Martin Conway showed them, viz., the representatives of much larger features in the Temple of Assisi, but there were still in existence, however, columns of an extremely slender proportion in the tombs of Beni Hasan. He did not recollect that the subject had ever been taken up, but it occurred to him when he first saw it that it was an attempt at imitation of the interior of a tent. It was all carved in the solid rock, and the roof sloped out like the pent roof of a tent. The columns were, of course, quite insufficient to carry the stone roof, and they were carved in imitation of the tent poles employed in tents, and these columns were quite as slender as those which Sir Martin Conway had mentioned, and it seemed to be, so far as one could judge, of a more beautiful detail than the columns at Beni Hasan. In one of the temples discovered by the Germans, Sir Martin said, the columns were of papyrus, and not lotus. How could the difference be distinguished? He imagined that the series of columns bound together were all lotus plants, but that at times the capital, instead of being a series of lotus buds, had the papyrus flower on it. There was a good deal of discussion, of course, as to whether wood was used in the construction of these earlier tombs, and he thought Sir Martin Conway was right in saying there was no wooden construction, but it was a question whether the outside of the larger tombs were not covered with timber. After all, if they accepted the fact that they were of reeds, why were the reeds square?—as they were decidedly in the tomb of Mycerinus. Sir Martin Conway had given them periods of wattle and mud, and then of crude brick; but he should think that the crude brick would have been likely to have been equally as early as the other, but that was a question not possible to go into. Those who had not been in Egypt were not aware that almost all the modern buildings on the Nile suggested in the distance ancient temples. As they approached a village in the distance the houses looked like a series of large pylons. The huts and pigeon houses above were all built in crude brick, and required a wide base to support the brick above, and that accounted for the batter outside. He would say no more on the paper that night, but he thought it was a subject which would lead to a good deal more discussion and a great deal more inquiry. Sir Martin Conway had thrown an altogether new light on the subject, and had attempted to fix a period at which architecture began, and that was a subject which it would be of extreme interest to discuss.

Professor Beresford Pite, in seconding the vote of thanks, said he was afraid he could bring to the discussion but a certain spirit of inquiry, which he confessed was aroused on that interesting evening when Professor Petrie read what had been described as an epoch-making paper. If he remembered aright, in that discussion Sir Martin Conway interjected an observation, that the science of architecture proceeded upon the basis of imitation—the imitation of some anterior method of building in another material. He had prophesied to himself that night an interesting conflict between the Slade Professor of Cambridge and the editor of their best-known architectural journal, who, he believed, on that occasion took a very different view. Now, he did not know if he was right, but he had a suspicion that the paper had been prepared with that militant intention, and the thesis so clearly put before them had been prepared with a view to attack. He was not going to attack it. He would not say that the thesis appeared to be incapable of being attacked even in the presence of what they knew was the development of Greek architecture—in the strange delirium which they seemed to have taken in imitating in a glorious building material construction in

\* Sir Martin Conway eulogised Mons. G. Foucart for his labours in connexion with this important find, and passed high encomiums upon his "Histoire de l'Ordre Lotiforme."



an inferior material, following the lines which had been so clearly laid down for them with regard to the progress of the Egyptian style. But they turned their minds westwards and found that they were living in an empire—the Western Empire of ancient Rome, in which a magnificent architecture grew up in masonry and out of nothing but masonry. Only in a very indirect—he was going to say only in a very theoretical—manner could it be said that Gothic architecture owed anything to preceding methods of construction in any material. In some decorative details they traced illustrations of the forms seen in other countries. They traced representations of the Greek volutes in Gothic capitals, but the science and the early art of English architecture grew up and developed out of a delightful combination of constructive talent and aesthetic taste. There was a singularly perfect engineering in English Medieval architecture, and a singularly fine aesthetic taste combined. But in Egypt it seemed that there was a high constructive ability and a high technical ability in the working of stone, which was intensified in the Temple of the Sphinx. This was the only one he had seen, and his hair almost stood on end when he saw Sir Martin Conway put on his own drawing what he made years ago. As to the proportion of it, it was drawn from a French plate, and the proportion might be upset by the rather absurd sheikh standing in the foreground. But they found this very high dealing with stone without any relation at all to its aesthetic value, and apparently much later aesthetic taste harked back to it, as children delight to imitate one material in another. That expression of pleasure seemed to be the only *raison d'être* for the perpetration in masonry of the crude forms of rush and mud dwelling. There were a number of ideas that Sir Martin Conway had gleaned and put together for them which he found a little difficult to relate in a hurry. The relation to the tent was dissimilar essentially to the relation to the rush hut, and the rush building, again, was dissimilar in method to the sun-dried brick building. They had the tent-peg column and the batter wall, and the torus from the rush and mud, and then they had the niche or recess from the brick construction clearly. That all these methods of construction existed side by side and died; that they were replaced by the stone construction, and then that, at a later period, the aesthetic instinct went back and called for the rush and mud and tent and brick material for aesthetic expression, was a vastly interesting statement. He hoped it would not be attacked successfully. It opened up a new vista in the operations of the architectural mind. They lived in a period when the architectural mind was operated in very different ways. Sir Martin Conway skillfully drew their attention across the Atlantic, where they are building up with steel something of an American style of architecture to suit the expansive intellect and the expanding pockets of their American brethren. But that steel network had imitated and adopted—for it could do nothing else—the methods and details and forms of the effete architecture of the Western Roman Empire. It would be interesting to cast a prophetic eye forward to the day when some New Zealand Slade Professor of Fine Art would come along to the old world and wonder how our brethren across the Atlantic succeeded in putting their minds back behind the fine details of our own work and example, and lay hold of the decaying remains of stone architecture which had vanished, just as the rush and mud architecture of Egypt furnished an instance of the extraordinary workings of the architectural mind. He anticipated that day with much pleasure.

Mr. E. W. Hudson said he would like to refer to one or two points. One was as to the supposed similarity which they read in their younger days was shown between the temples of India and the temples of Egypt. He believed the temples of Elephantine had been often referred to as being their prototypes. It would be interesting to have any information on that matter, for he believed the similarity had been so great that natives of India, when confronted with monuments in Egypt, had been so taken with the similarity, that they at once scrambled to perform their religious duties in the sight of the ancient Egyptian remains. Another thing which struck him was in the paper which Professor Petrie gave when he showed a very interesting diagram of a domical structure in wattle and reed, and it

seemed to him that he had seen nothing of the kind translated into stone; any information as to that would be very interesting, and they found by that view that barrel vaulting was by no means an unknown thing, and yet the vaulting was never adopted in open buildings in the Egyptian period. If the representation, which he believed was carved on stone, really represented a wattle and mud structure, that had never passed into a stone form. Another thing which struck him was the great advance in the last few years in their knowledge of dates of structures in Egypt. They had nothing of that in the early books, and no alternative between the astonishing statements of the Egyptian priests as to buildings being 17,000 years before Christ. Those things seemed to be passing away, and they seemed to be getting much more accurate ideas of the epochs in which these different structures were put up.

Mr. R. E. Chisholm remarked that with regard to the similarity between the temples of India and the temples of Egypt he might say that there was the greatest possible similarity between them, but the subject was so large a one that he could do little more than refer to it. The temples were not only the same, but there was the same idea of the spirit of the departed visiting the tomb. In a tomb he had to go into at Baroda he found a couch, a dressed figure, and a plate of rice. The couch was for the spirit of the departed to recline on, the figure was to give it corporeality, and if it was hungry it would eat the rice. There seemed to be exactly the same idea; but to work the subject out and get at the real connexion would of course take a long time.

Mr. Hugh Stannus said he had been much interested in the subject of the paper. He had brought with him a few photographs which he had taken while in Egypt lately, thinking that they would perhaps help Sir Martin Conway in his demonstrations about the evolution of the columns. Mr. Stannus proceeded to deal with the photographs, which were arranged on the wall, and included views of the columns in the tomb at Beni Hasan, the Temple near Der-el-Bahri, and a number of other ruins near Karnak. He pointed out an example of the square piers which are used in the granite Temple near to the Sphinx, and said that no doubt the architect found the value of having the square piers, inasmuch as they gave such splendid opportunity for storiage. Referring to the photographs showing the lotus-bud treatment, Mr. Stannus hesitated to use the word "capital." He thought the word "capital" was almost a misnomer in the case of Egyptian architecture, for they had no idea of making a capital. The Egyptian architects did not set out to make what is called a capital; they knew nothing at all about it. He had the idea, after looking at the matter in all ways, that they used a square wooden pillar. He believed it was timber rather than a tree because they saw it square at the top. At certain festivals, such as the festival of the Great Overflow, they would decorate the shafts which supported their building with nosegays of this lotus flower, which, by reason of its great abundance at the overflow, became symbolical in the minds of the Egyptians of the goodness of the gods. Thus they decorated these shafts and tied it round with five-fold bands, but they had no idea of making a capital. Obviously the lotus sometimes was in bud and sometimes in flower, and the architect when he desired to perpetuate that in the House of the Gods would have to choose between the two. Now the buds require a less quantity of granite, and thus when they built in granite they chose the bud treatment rather than the open flower. He thought, perhaps, Sir Martin Conway would tell them, from his intimate knowledge of Egypt, whether there exists any granite shaft-head imitating the large open flower. There might be, but he knew of none. He knew that the open flower was used in the Eighteenth and Nineteenth Dynasties, but then it was cut in sandstone and not in granite.

The Chairman said they were most fortunate in having had the paper read that night, which he had no doubt would be called an epoch-making paper later on. They had two of such papers this session—one that evening and the other that of Dr. Evans on Crete. Personally he had no knowledge of the country, and had not given his study to it, so that he would be quite unnecessarily occupying their time if he made any remarks upon the paper. He would only therefore express their feelings

of indebtedness to Sir Martin Conway for the great research the paper showed, and for his coming to read it to them that night.

Sir Martin Conway, in reply, said the question about the papyrus and lotus column was one he would briefly answer. The difference between the bundle of papyrus stems and the bundles of lotus reeds was that the papyrus stems were, roughly speaking, triangular in section. It was not necessary to assume that wood was used because of the square shape of the façade decoration, because it naturally came from the use of brick. The square rectangular grooving was characteristic also of the early crude brick architecture of Chaldea. It was a common bond between the prehistoric architecture of Egypt and Chaldea. As to any connexion between the architecture of India and Egypt he would not like to make any answer. All the stone architecture in India was quite late as compared to the Egyptian, and there was probably no direct connexion between them. There was no instance of a stone dome, of course, in ancient Egypt. The dome in mud appeared to have been employed on a small scale in Egypt as well as in Mesopotamia—possibly in small cottages, but not in any building of any size that they knew of. The origin of the dome was one of the great unsolved problems of architectural history. He quite agreed with Mr. Stannus as to talking about "capitals." Strictly speaking they were not capitals, and in all the earliest columns the capital was part of the monolith, and was not a separate member—it was merely the upper part of the column. One called it a capital for the sake of convenience. In the Ancient Empire all the columns were monoliths, and also in the Middle Empire, but later they were built up. As to the nosegay decoration he would not like to say much. It would be very nice to agree with it, and one of the greatest authorities was with Mr. Stannus that the idea of these floriated capitals was taken from the decoration of columns on festive occasions. But on the earliest columns they knew of the weight was laid straight on the top of the bud, and that could not have been the result of directly copying any use of actual flowers. He thought they would have to wait before they could assert or deny that this was the origin of the capital. In the granite forms of the earliest period they had the lotus-bud, but there was also the palm-formed capital in granite of the Fifth Dynasty. He was afraid the subject had been put before them incompletely, but the object of the paper was rather to bring forward the subject for discussion than to solve a problem.

#### The Next Meeting.

The Chairman announced that the next meeting would be a business meeting, to be held on Monday, June 8, to receive the report of the scrutineers re the election of Council and Standing Committees, and to elect candidates for membership. The meeting would be preceded by a special general meeting, when the Council would move a resolution "that the words 'during five years from the date of this provision by the Privy Council' be omitted from the proviso of by-law 9."

#### THE ARCHITECTURAL ASSOCIATION:

##### MEMBERS' SUPPER.

THE Members' Supper of the Architectural Association took place on Friday evening last week, at the Hotel Great-Central, Marylebone-road, Mr. H. T. Hare, President, in the chair. The company numbered nearly 150, and among those present were: Professor Hulme and Messrs. C. le A. Adams, M. B. Adams, A. T. Bolton, G. B. Carvill, F. D. Clapham, Max Clarke, J. D. Crace, E. Guy Dawber, W. M. Fawcett, P. L. Forbes, Owen Fleming, Alex. Graham, E. Greenop, W. B. Gwyther, A. H. Hart, Francis Hooper, W. J. Locke, H. P. G. Maule (hon. secretary), Arnold Mitchell, J. Murray, W. A. Pitt, W. H. Seth-Smith (past President), S. Sparrow, Hugh Stannus, Leonard Stokes (past President), J. MacLaren Ross, H. Tanner, jun., R. H. Weymouth, W. H. White, W. Wonnacott, and D. G. Driver (secretary).

No speeches were delivered during the evening, but the following gentlemen assisted in making the evening a most pleasant and enjoyable one:—Dr. F. Byrd Page (con-juring) and Messrs. Hatrison Hill (humorous recitals and pianoforte sketches), Seth-Hughes (solo), and Haydn Wood (violin).



## METAL FINIAL, BRESCIA.

THE sketch of this metal finial was made at Brescia last year. It stands over the pedi-



ment of the beautiful façade of the church of the Madonna dei Miracoli. W. C. G.

## THE SANITARY INSTITUTE:

## ANNUAL DINNER.

THE dinner of the Sanitary Institute was held on Friday evening last week in the Richelieu and Medici Rooms of the Hotel Cecil. H. R. H. the Duke of Cambridge, K.G., President of the Institute, occupied the chair, supported by the Duke of Northumberland, K.G., Lord Monks- well, Chairman of the London County Council, Rear-Admiral A. Fitz-George, Right Hon. J. G. Talbot, M.P., Sir Francis S. Powell, Bart., M.P., Sir Henry Norbury, K.C.B., Director-General Navy Medical Department, Sir William Church, Bart., K.C.B., President Royal College of Physicians, Sir Henry Howse, President Royal College of Surgeons, Sir Homewood Crawford, Sir Alexander Binnie, Mr. W. Whitaker, F.R.S., Chairman of Council of the Institute, Professor

H. Robinson, Professor H. Adams, Messrs. T. W. Aldwinckle, T. W. Cutler, E. T. Hall, F. H. A. Hardcastle, A. Saxon, Snell, H. D. Searles Wood, H. Tanner, Dr. A. Wynter Blyth, Dr. W. Collingridge, Dr. Louis C. Parkes, Dr. J. F. J. Sykes, E. White Wallis, Secretary of the Institute, and others.

The toast of "The King" having been proposed by the President and suitably honoured, the Duke of Northumberland proposed "Queen Alexandra, the Prince and Princess of Wales, the Duke of Cambridge, President, and the other Members of the Royal Family."

The Duke of Cambridge, in the course of his response, said the Institute had no better friend than its present President. He considered the work of the Institute a most useful work, and he had gladly undertaken the duties of President, and though he was in his 85th year he hoped to be able to preside over the Institute dinner next year. No one in that room took a more lively interest in all that concerned the welfare of the Institute than he did.

Sir Francis Sharp Powell, Bart., M.P., proposed "The Navy, Army, and Auxiliary Forces," coupled with the names of Inspector-General Sir H. F. Norbury, K.C.B., and Lieut.-Colonel A. S. Jones, V.C., both of whom replied.

Lieut.-Colonel Jones said that the Army could profit very much from the teachings of the Sanitary Institute, which professed to teach practical scientific sanitation. In all our wars the loss by sickness and the want of care in the selection of camps and watering places had been far more disastrous than from wounds. The Army needed to pay more attention to the teaching of that Institute that cleanliness was everything in sanitation. If the soldier could be taught to be cleanly in his habits, to avoid foul water wherever he could, and to live as much as possible in the open, fresh air, he would be benefited immensely.

Sir Henry Howse next proposed "The Houses of Parliament." He said that the connexion between the Institute and the legislative assembly was shown in the fact that the Institute could bring a suitable amount of influence to bear upon Parliament in passing useful sanitary measures, and in opposing those of a pernicious tendency. To show what steps the Institute took to secure sanitary legislation, he might mention the various matters in which they had been interested during the last few years—i.e., a public health bill, a London water bill, a vaccination bill, an ice cream (Scotland) bill, and a plumbers' registration bill. This year they were interested in the Housing of the Working Classes Bill, the Prevention of Pollution of Rivers and Streams Bill—a most important bill, having regard to our water supply—a Public Health Bill, and the Vaccination Bill—which they would petition against, he was glad to say.

Lord Monkswell having replied for the House of Lords,

Mr. Talbot, M.P., in responding for the House of Commons, said that a limitation, which was not too strictly observed in these days, to improving the health of the people, was the cost: You cannot help spending the money of the people in improving the health of the people.

Subject to that limitation of expense, there is no project, well and fully considered, which bears on the health of the people, which the Houses of Parliament are not ready and anxious to promote.

Sir William Church then proposed "The Sanitary Institute." The condition of the Institute was most flourishing, as it had 3,000 members and associates, a capital of some 16,000l., and an income last year of 9,941l. It was quite true that in the early periods of the world and of our own country there had been rules and regulations for the preservation of health and the prevention of nuisances, but the last three or four decades of the past century saw more advance in medicine and sanitation than all the ages that had gone before. He would urge the Institute not so much to work for greater powers of law as to do, what he believed they were doing, i.e., to try and spread knowledge more widely among the people. The Congresses of the Institute must do much good in that direction, for they attracted public attention, and stirred up the corporate bodies of the cities in which the congresses were held. The Institute was also doing good in publishing a journal in which all the newest subjects of sanitary science were dealt with, and they also gave a large number of lectures and demonstrations on sanitary subjects throughout the country. Last year they held 470 such meetings, which were

attended by 22,000 people. He was glad to find that it was proposed to extend and rebuild the Parkes Museum at Margaret-street—a museum which was of great value to those who used it. He had paid frequent visits to that museum for his own personal information, and he had never gone there without learning something which he wanted to know.

Mr. Whitaker, Chairman of Council, in reply, said that an institute like theirs combined, in the work it carried out, various classes of the community, and among their members were 22 ladies and 107 associate ladies, while 261 ladies had passed the examination. The work of the Institute was also a good deal varied, and one important part of that work was the examinations. In most other countries those examinations would be conducted by the Government, but in this country a great deal of work was left to private endeavour, which, in this country, did a lot of good work, and while that was so there was no occasion for Government to interfere. The examinations were conducted by an excellent set of unpaid examiners, who did their work, and did it well, for the love of it. As to extending and rebuilding the Parkes Museum, while they hoped to do that they were not yet in a financial position to do so. How were they to get the money for the purpose? Perhaps the County Council, which seemed to guarantee expenses, would help them. Although a great many able men gave much valuable time and labour to the Institute, still it was necessary to have paid officials, and the Institute was to be congratulated on its staff, and especially on its secretary, Mr. Wallis. The Institute consisted chiefly of three classes, i.e., medical men, engineers, and architects, and the Council was chiefly composed of a tolerably equal number of those three classes. One great aim of the Institute was to apply knowledge to public good, and while it did that he thought it would succeed.

The proceedings then terminated.

## THE SURVEYORS' INSTITUTION.

A MEETING of the Surveyors' Institution was held on Monday evening at No. 12, Great George-street, Westminster, when the discussion was resumed on Mr. W. Trustram Eve's paper on "Modern Methods of Valuation of Manorial Residues."

The following is the result of the Professional Examinations, 1903, of the Institution—

The following Student Candidates have passed the Examination for the Professional Association—

B. G. K. Allsop, London; W. W. Batstone, Wandsworth Common; C. Beaven, Epsom; V. L. Berrie, Tooting; F. G. Bliss, Chislehurst; E. C. D. F. Broome, Highbury, N.; R. H. Burston, Hailsham; H. Clark, Balham, S.W.; C. J. Clements, Mansfield; L. C. Coates, West Dulwich, S.E.; C. A. S. Collyer, Woking; H. C. English, Folkestone; C. S. E. Evans, Haverfordwest; J. H. Fensling, Bedford; J. A. Flatt, Warrand, N.E.; A. H. Fleuret, Barnes, S.W.; M. S. Glasier, Wotton Park, S.W.; T. M. Glasston, Aspatia; T. K. Gloag, Clapham Junction, S.W.; F. H. Godding, Canonbury, N.; P. W. Goodwin, Hoxlake; J. C. Grierson, Liverpool; M. P. Hall, Hampstead, N.W.; E. R. Hawkins, Downham Market; P. G. Hay, Wallington; H. A. Hinton, Highgate, N.; N. L. Holbeche, Birmingham; E. Howard, Warrand; J. F. Ingram, Bedford; E. C. Jarvis, Upton, Tooting, S.W.; W. I. Johnson, Stamford; P. Kent, Colwyn Bay; F. W. Knight, Wimbledon, S.W.; H. G. Labdon, Paignton; S. Lancaster, Sandgate; J. C. Lucas, Lewes; W. Madge, London; E. Minors, Wolverhampton; H. H. Mitchell, Cheltenham; R. C. Moore, Stamford Hill, N.; J. E. Mundell, Lewisham, S.E.; O. T. Nettleton, Kensington, W.; H. P. Nye, Battersea, S.W.; R. B. Pargiter, Leamington; H. F. V. Parrott, Hayes; M. D. Parsons, Exeter; C. F. Pelle, Whetstone, N.; G. L. Pepler, Croydon; C. N. Phipps, Wickham, Hampshire; H. H. Poole, Kensington, W.; D. D. Porter, Hutton, Essex; W. P. Puddicombe, Swansea; E. D. Read, Uxbridge, G. A. Rowlandson, Penrith; H. G. Russell, Sutton; S. R. Sackett, Orsett; A. Salway, Broxbourne; P. J. Seale, Southborough; F. R. E. Sladdin, London; D. H. Smith, Southend-on-Sea; H. V. Smith, Reading; S. W. Smith, Cheshunt; C. T. Steward, London; N. D. Stewart, Downton; A. B. Thornton, Woodford Green, Essex; \*S. J. Tillyard, Norwich; W. Tomlin, jun., Andover; E. J. Turner, Salford; F. Le Conteur, Utertton, Lewes; A. A. Vigers, Hersham, Walton-on-Thames; J. W. B. Walker, Southsea; I. Wall, Huddersfield; S. J. Walter, New Winstead; F. W. Wheeler, Waltham Green, S.W.; \*H. Williams, Croydon; A. C. Willmot, Aspatia.

\* Institution Prize. † Special Prize.







excellent for driving gas engines, as well as for heating and lighting. A generator of this kind is an extremely useful apparatus in country houses, as it may be applied in cooking and other domestic operations, and for driving pumps or electric light plant through the medium of a gas motor. Mr. Sam Deards, of Harlow, has a stand wherein his self-locking system of glass roofing is exemplified, another system of glazing being shown by Mr. Deacon, of Northampton, in a conservatory fitted with Deacon's lead glazing. Mr. Gooding, of Holloway, exhibits his interchangeable rubber stair tread, which consists of a metallic keeper pierced with square holes through which blocks of india-rubber are placed. The blocks project above the metal and form the wearing surface. One advantage of this system is that any one of the rubber blocks can be replaced in a few minutes when worn out, and so the whole of the treads may be kept in a constant state of efficient repair. There are several fine specimens of gates of various forms, exhibited by the Bostwick Gate and Shutter Co., and examples of collapsible and wrought-iron gates by Messrs. Worral & Co., of Liverpool. The last-mentioned exhibit also includes portions of gates, railings, and hammered work made to the designs of several well-known architects. A space occupied by Mr. H. C. Slingsby, of London, contains a large selection of trucks of most varied types, and for many different purposes. Truck design has been raised almost to the level of a fine art by the fertile brain of this exhibitor. The bewildering multiplicity of special purposes to which the trucks are suited may be gathered from the statement by Mr. Slingsby that he keeps a thousand different varieties of trucks in his London show rooms. In concluding this notice, we may mention the exhibit of the Silicate of Limestone Co., of Westminster. Several samples of artificial stone are here shown, and they appear to possess excellent qualities, so far as may be judged from superficial inspection. This material is said to be "a true silicate of lime building stone," whatever that may mean. It is claimed for the stone that it is not a concrete cast in moulds, but a chemically combined stone, resisting city atmospheres and frost better than natural building stone, besides being cheaper. Practically no information as to the material is available for curious visitors, who are left to draw what conclusions they may from inspection of the samples on view.

#### COMPETITIONS.

**CONGREGATIONAL CHURCH, HITHER GREEN.**—The design submitted by Messrs. W. D. Church & Son, architects, of 12, South-place, Finsbury, in a limited competition, for this church, has been selected by the assessor, and adopted for execution by the committee.

**BATHS, CAPE TOWN.**—Eight sets of designs were submitted in competition for the City of Cape Town Public Baths, to be erected in Caledon-square. The assessor was Mr. F. R. Roberts, architect, Durban, and the successful architects are Messrs. MacGillivray & Grant, Cape Town, 1; Messrs. Sherwood, Pitts, & Holland, 2; and Mr. A. Wyatt Papworth, A.R.I.B.A., 3. The scheme comprises large swimming-baths, first and second class; ladies' and gentlemen's slipper-baths, first and second class; Turkish baths for ladies and gentlemen; and the usual laundry and other accessories of such an institution.

**PUBLIC LIBRARY, FENTON.**—For this building eighty-nine sets of designs were submitted, and the assessor, Mr. Ernest George, F.R.I.B.A., has awarded the premiums as follows:—First (60*l.*), Messrs. Short & Penty, of 11, Anley-road, West Kensington Park, London; second (30*l.*), Mr. J. Stephenson Stout, of Whitehaven. The cost of the building was limited to 4,250*l.*

**INFECTIOUS DISEASES HOSPITAL, CHELMSFORD.**—The first premeditated design in this competition was that sent in by Messrs. Pye & Bacon, 16, John-street, Bedford-row, W.C.; and the second was by Mr. J. Hugh Goodman, Town Hall-chambers, Reading.

#### BOOKS RECEIVED.

**POTTERY: a Handbook of Practical Pottery for All Teachers and Students.** By Richard Lunn. (Chapman & Hall.)

#### ARCHÆOLOGICAL SOCIETIES.

**ROYAL ARCHÆOLOGICAL INSTITUTE.**—A general meeting of this Institute was held on Wednesday, May 6, Sir Henry H. Howorth, President, in the chair. Mr. R. E. Gooden, F.S.A., exhibited a bronze spear-head with gold rivets found in the Thames near Marlow. Mr. E. Towry Whyte, F.S.A., read some notes on a certificate, kindly exhibited by Mr. M. H. Beaufoy, issued to Frederick Deminck, a merchant of London, as having visited the Holy Land. It is written on parchment and signed by two of the officials of the monastery of St. Catherine at Bethlehem, with the seal of the monastery attached. The date is 1688. Mr. H. Southam exhibited a small silver porringer, *temp.* late seventeenth century. Professor W. Boyd Dawkins, F.S.A., read a paper on the pre-Roman and Roman roads in south-eastern England. He described how the roads were for the most part confined to the higher ridges in pre-Roman times owing to the lower country being for the most part occupied by dense forest and morass, visited only in Neolithic and Bronze Ages by the hunter, and in prehistoric Iron age by the miners of iron. Under these conditions the population in prehistoric times was mainly centred in the North and South Downs, in which camps and tumuli abound, and in which tracks connecting one settlement with another, along lines of least resistance—sometimes on the crest of ridges and sometimes in the dry chalk valleys—give the beginning of the system of roads in this district. Professor Dawkins then traced the roads from Canterbury as the most important settlement in the district of the North Downs of clearly ascertained prehistoric Iron age. When the Romans conquered this part of the country they found the existing roads so well adapted to their purpose that the only straight road which they found it necessary to make in this district was the Stanes-street.—Mr. Talfourd Ely, F.S.A., contributed a paper on "A Roman Light-house." He prefaced his remarks by quoting evidence, both literary and from coins, to show that lighthouses existed in Roman times. He also described the Roman Pharos at Dover and at other places on the English coast. The Tower of Garreg, near Holywell, in North Wales, which is described by Pennant in his history of the parishes of Whiteford and Holywell, has been further investigated by Mr. Ely, and to prove that this is also a Roman Pharos he devoted the remainder of his paper. Although parts of the walls are modern, there is much which Mr. Ely considered as original. The building stands on the summit of Garreg Hill, and commands a splendid view over the estuary of the Dee. The general appearance is that of a Martello Tower; but the work is composed entirely of stone bedded in mortar. The only traces of openings appear to be on the northern side facing the Dee, and these consist of a blocked door with two windows above, and on a third stage three more windows. Although the tower may have been used in later times as a windmill or for other purposes, as has been suggested, Mr. Ely held that this example was a rare case of the survival of a genuine light-house dating from the Roman occupation of Britain. Discussions followed the above exhibits and papers, in which the President, Mr. W. H. Bell, Mr. Rice, Judge Baylis, Mr. Wilson, and Mr. Peers took part.

#### THE LONDON COUNTY COUNCIL.

The usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, Lord Monckswell, Chairman, presiding.

**Loans.**—On the recommendation of the Finance Committee it was agreed to lend Camberwell Borough Council 13,774*l.* for paving works; West London School District Managers, 6,000*l.* for erection of schoolrooms; and Hackney Borough Council, 20,570*l.* for electric lighting and other purposes.

**Tube Railway Amalgamation.**—On the adjourned Report of the Parliamentary Committee dealing with the Underground Tube Railways, Mr. Sidney Low pointed out that the result of the various amalgamations would create a complete monopoly over the tube railways of London. The position was serious, and the Council ought to pay close attention to it. At the proper time he trusted the Council's representatives would move in Parliament to get the postponement of the Bills until after the Royal Commission on London Local

motion had reported. If the Bills were carried the railways would be controlled by a company with its head offices in America.

Mr. W. H. Dickinson said if the Bills were carried it would mean the amalgamation of 103 miles of railway, and the total capital would be 35,000,000*l.* The most important thing was to get the rates and charges of the various amalgamated railways revised in the light of the amalgamation.

The subject then dropped.

**Vauxhall Bridge.**—The adjourned Report of the Bridges Committee was submitted dealing with the new Vauxhall Bridge. The Report was given in our last issue, p. 515. The Committee recommended:—

(a) That the resolution of the Council in so far only as it directs that the new Vauxhall Bridge shall be an elliptical arch structure be rescinded.

(b) That the design submitted, showing a steel segmental arch structure and the proposed architectural and artistic treatment of the same, be adopted, with the exception of the pylons.

(c) That the supplemental estimate of 23,600*l.*, submitted by the Finance Committee, be approved, and that the Bridges Committee be authorised to incur such additional expenditure in connexion with the construction of the new Vauxhall Bridge.

Mr. Beachcroft asked if a new contract was to be entered into with Messrs. Pethick for the superstructure of the bridge.

Mr. Sears, Chairman of the Bridges Committee, said the contract would be an entirely new one. The work would be put out to tender in the ordinary way.

Recommendation (a) having been agreed to,

Mr. F. W. Verney said he wished to refer back recommendation b, as he wished the Committee to report further on the pylons, the balustrade, and the piers. The design before them was a great improvement on designs which had been before the Council on former occasions and there was a great deal about it which made it worthy of such an important structure as a bridge over the Thames. But there was much feeling in the Council that the height of the pylons was out of proportion with other parts of the structure, and he thought that the bridge would be improved if a good deal of the pylons was removed, and if they were shortened and put at both ends of the bridge. He did not propose to remove the pylons altogether. As to the balustrade, he thought it was a great blot on the whole of the design. It was a clumsy piece of work and was not worthy of the rest, and he hoped that that part of the design would be reconstructed. As to the piers, he believed that those who were most acquainted with the finest specimens of bridge construction on the Continent would say that a long line, from one end to the other without any break, such as the design for the bridge showed, was lacking in imagination and effect. He suggested that the piers should be carried up so as to break the line of the balustrade and so as to get a better architectural effect. The piers were poor and flat and low and he ventured to show a design which had been prepared which showed how the piers might be carried up. The construction of a bridge over the Thames was an opportunity for beautifying London, and the beautifying of London was part of the betterment of London. They could not have poor architectural designs, they could not do things shabbily, without inflicting upon London ugliness which would exist from generation to generation.

Mr. A. Smith seconded the amendment. Mr. Beachcroft asked how it was that the Architect of the Council differed from the Committee as to the pylons? He (the speaker) objected to them on the ground of economy.

Mr. Sears said that Mr. Verney's amendment would have the effect of shelving the whole question, and that would be a serious matter, for it was greatly desired to get on with the work without delay. There had been a great deal of criticism in regard to previous designs for this bridge, but there was practically a consensus of opinion in favour of the present design. He held in his hand a letter written on behalf of a society which included such names as Sir E. J. Poynter, Sir W. Richmond, Sir Benjamin Baker, and Messrs. Thomas Brock, C. Frampton, Aston Webb, J. Belcher, H. H. Statham, and others, and the last part of that letter was very important. The letter was only a matter of criticism of detail, and in referring to a detail underneath the balustrade, the Architectural Vigilance Committee said: "We especially call attention to this as we feel that, if the



feature is not altered it will go far to spoil what will otherwise be a very pleasing and satisfactory piece of steel bridge construction." That was a remarkable testimony and it showed that after all their difficulties the Council had a very satisfactory design, and one which was likely to commend itself to the people of London and be a credit to their officers, the Council, and the Metropolis. They might think it desirable to further consider some matters of detail, but he urged the Council not to delay the matter.

The amendment having been defeated, Mr. Strauss moved to omit the words "with the exception of the pylons," and to insert the words "and that the question of the pylons stand over for further report of the Committee." The word "pylon" meant, according to the dictionary, "a monumental structure constituting an entrance to a temple or other large edifice." A bridge, if not an edifice in the ordinary sense of the word, was a building of a character which required something to show the entrance. In connexion with the Alexandre III. Bridge over the Seine, there was one of the finest bridge designs, there were beautiful pylons—not clumsy-looking ones. Another very beautiful bridge was the one at Stuttgart—a steel bridge, though it was at first proposed to erect a masonry bridge—and there also were pylons on each side of the bridge. Not only did their architect desire to retain the pylons, but Mr. Norman Shaw was decidedly in favour of placing pylons at the entrance of the bridge. If the pylons shown on the design hanging on the wall were covered, the effect of the design would be spoiled—the architectural effect was destroyed (the pylons were here covered by strips of paper, and there were several cries of "It is improved!" "It is much better!") Presumably there were artistic members of the Council who objected to pylons altogether. There was no reason why the matter should not be referred back, so that the Committee should have models prepared showing the treatment of each end of the bridge.

Captain Sheffield seconded the amendment. Mr. Walter Emden supported. He said the proper place for these pylons would be at the entrance of some big temple, with a flight of steps leading up to a great trophy at the top. The big towers shown on the design would cost a lot of money, and would destroy the proportions of the bridge; but if the entrance were treated as in the Alexandre III. Bridge in Paris, the bridge would be one of the handsomest in London. All that was wanted to perfect the design for Vauxhall Bridge was to provide a base at the entrance for a group of statuary.

Mr. Burns, M.P., said it was important that the Council should put itself in harmony with the artists, architects, and also the engineers of London, and the Council had done all they reasonably could to ensure that end. He thought it would be unwise to omit the pylons, and he suggested that they should approve and pass the design, but give the Bridges Committee power not to carry the foundations for the pylons higher than the parapet of the arch, so that if they decided against the pylons ultimately the foundations could be used as a base for a group of statuary, as suggested by Mr. Emden. A model of one of the pylons might be put up in plaster, at the cost of a few pounds, and it would then be easier to tell whether those features of the design were suitable.

Mr. Sears supported Mr. Burns's proposal. They could approve of the general design of the bridge and let the question of the pylons stand over.

The amendment and recommendations were then agreed to.

**Port of London Commission.**—Mr. Gilbert, Chairman of the Rivers Committee, introduced a long report on the Port of London Bill. The Committee recommended in the first place that the municipal element should be strengthened on the proposed Port Commission, the County Council to have fifteen members out of the forty proposed. The Committee further proposed that the Council should contribute 2,200,000, as its share of the estimated sum of 2,500,000, required for the deepening and improvement of the river, the remaining 300,000, to be contributed by the City Corporation.

After a long discussion, the Council adopted the foregoing recommendations, as well as others put forward by the Committee.

**Southern High-level Sewer Extension.**—The Main Drainage Committee recommended, and it was agreed—

"(a) That the estimate of 7,200l. submitted by the Finance Committee in respect of the construction of a relief sewer from the southern high level sewer in Balham High-road to Mayford-road, be approved.

(b) That expenditure on the work be sanctioned to the amount of 5,500l.; that the sewer and other incidental work be carried out by the Council without the intervention of a contractor; and that the drawings, specification, and estimate of 5,000l. be accordingly referred to the Works Committee for that purpose."

**Indication of Houses of Historical Interest in London.**—The Historical Records and Buildings Committee reported as follows:—

"The Council on December 17, 1901, decided to undertake the work of indicating, by means of memorial tablets, houses of historical interest in London, and referred it to us to make the necessary arrangements for the execution of the work. We have accordingly prepared a list of houses which we consider worthy of commemoration, and we suggest that, as a commencement of the work, tablets should be affixed to three of these—viz., 1. No. 122, Great Portland-street, Oxford-street, the house in which James Boswell, the biographer of Samuel Johnson died; 2. No. 67, Wimpole-street, a residence of Henry Hallam, the historian; and 3. No. 48, Doughty-street, Mecklenburgh-square, a residence of Charles Dickens, the novelist. It should be mentioned that the houses have not been selected as being necessary in our opinion those which require indication beyond all others. We propose to submit to the Council, in due course, further lists, which will together form a fairly representative selection. In all of the above cases we have carefully verified the facts connected with the houses in question, and we have also in each case obtained the necessary consents of the ground landlords and the lessees to the erection of memorial tablets. The design of the tablet which is proposed to be used has been prepared by the superintending architect. . . . It is proposed that, except as regards design, the tablets should be similar to those previously used by the Society of Arts, viz., encaustic tablets, 10 in. in diameter, with plain lettering in white upon coloured ground suitable to the buildings upon which they are to be placed."

A recommendation to the above effect was agreed to.

**Clifford's Inn.**—The same Committee, referring to the sale of Clifford's Inn, reported as follows:—

"The site will no doubt be used for building purposes, and we are of opinion that it is a matter of deep regret that the historic buildings comprising the inn, and especially the hall, should be thus demolished. We are not however prepared, owing to the great cost involved, to recommend the purchase of the property by the Council. For the purposes of record we have given instructions for photographs of the buildings to be taken and drawings made of objects of interest in connexion with the inn. It may be mentioned that the oak panelling, &c., in one of the rooms is expressly excluded from the sale by auction, and the vendors reserve to themselves the right to sell and remove it."

**Housing.**—The Housing of the Working Classes Committee reported as follows:—

"We have to report that Sandwich-buildings, Swan-lane estate, Rotherhithe, are now ready for occupation. The buildings have been erected to provide rehousing accommodation for persons to be displaced by the construction of the Rotherhithe Tunnel. They contain twenty tenements of two rooms and twenty tenements of three rooms, affording accommodation for 200 persons."

**Trees, Holborn to Strand.**—The Improvements Committee submitted the following report:—

"For some time past we have had under consideration the question of the most suitable kind of tree for planting in Kingsway, Aldwych, and the widened portion of the Strand, and we have been in communication with the Parks and Open Spaces Committee on the subject, as we were desirous of arranging for some suitable species of trees, other than the frequently-used plane tree. The Parks Committee thought that plane trees were the most suitable for the purpose, but having very carefully considered the subject and consulted the Westminster City Council, upon whom the maintenance of the thoroughfare and the trees therein will eventually devolve, we have decided that in the widened Strand, where some plane trees have already been planted, only plane trees shall be used; that plane trees and acacias shall be planted alternately in Aldwych, and plane trees and alantus trees shall be planted alternately in Kingsway. We have also arranged with the Westminster City Council that the trees shall be in our charge until their growth is assured, that is to say, for a period not exceeding three years after the streets in question have been handed over to the City Council."

**Theatres.**—On the recommendation of the

Theatres and Music Halls Committee, the following proposals were agreed to:—

A side show at the London Exhibitions, Earl's Court, known as the Martinique side show (Mr. A. O. Collard).

A side show in the Western Gardens of the London Exhibitions, Earl's Court, to be known as the "Musical Ride" (Mr. A. O. Collard).

A side show at the London Exhibitions, Earl's Court, to be known as the Spider's Web (Mr. A. O. Collard).

Alterations which it is proposed to make at the Vaudeville Theatre, Strand (Mr. J. G. W. Buckle for Messrs. A. and S. Gatti).

**Sewage Disposal, Epileptic Colony, Horton.**—The Asylums Committee recommended, and it was agreed—

"That the Council do sanction the payment to the Epsom Urban District Council of a sum of 1,250l., being a contribution towards the cost of providing pumping apparatus on the Epsom Urban District Council's sewage farm, in order that the sewage delivered thereon from the epileptic colony may be suitably dealt with on such farm."

**Proposed New Asylum.**—The same Committee reported that on March 24 last the Council authorised the Committee to proceed with the erection of a replica of the Horton Asylum on the Horton estate, and on March 31 approved the estimate submitted by the Finance Committee, amounting to 97,210l., for the following works in connexion with the erection of such asylum, viz., foundations, roads, architect's and quantity surveyor's fees, additions to the central station for the supply of electric current and the sinking of a well. The Council, however, reduced the provision in the estimate for the architect and quantity surveyors from 13,000l. to 10,000l., being of opinion that the fee proposed to be paid to the architect, Mr. Hine, should not exceed 7,000l. Mr. Hine has now written refusing the offer, as he regards his original charge as moderate, and is supported in this view by the President of the Royal Institute of British Architects, to whom he had referred the matter. He claims that he received 6,500l. for the Horton Asylum, which was altogether inadequate. He explains in his letter that he cannot regard the Council's actions as due to feelings personal to himself, but that it was either intended as an attack on professional charges or that it arose from a misconception of the facts of the case. In the former event he adds, "I feel it a duty to my profession to resist it, and this consideration has influenced me as much as any other personal ones in declining your committee's offer."

In face of the very firm statement of Mr. Hine, the Committee reiterate that they think 10,000l. is a reasonable fee. They add: "It may not have been appreciated that on account of the variation of levels it will be necessary to remodel to some extent a number of the working drawings, and that the whole of them will have to be redrawn in order to obtain the several sets required for the proper execution of the work. We think that a repetition of the Horton Asylum Mr. Hine should be the architect. If he is not appointed it will be necessary to obtain fresh designs from some other architect, which would involve many months' delay and in all probability entail much additional cost. We are, therefore, constrained to ask the Council to reconsider its decision in reducing the proposed fee to Mr. Hine."

Mr. Hubbard, Chairman of the Committee, briefly moved to this effect, but the consideration of the matter had to be deferred, as the Council was then, at 8.30 p.m., counted out.

**WESLEY HALL, WIGAN.**—A new Wesley Hall has just been opened at Wigan. The new building, intended to be used for Sunday-school work, is carried out in Yorkshire stone, and is of Gothic design. It has an elevation to Dicconson-street and Standishgate. The lecture hall is capable of seating about 450; it has an open Gothic roof and large Perpendicular tracery windows at each end glazed with leaded lights, by Messrs. T. Smith & Son, Manchester. The whole of the building is heated with hot water, low pressure system, by Messrs. Savory & Taylor, Manchester. The building contract has been in the hands of Messrs. J. Johnson & Son, Wigan. In the church a new organ has been placed, built by Messrs. Conacher & Son, Huddersfield. The church has also been re-decorated by Mr. R. Banister, Poolstock, Wigan, and fitted with electric light, along with the new portion, by Mr. J. Barton, Blackburn. The work has been carried out from designs by, and under the superintendence of, Messrs. J. B. & W. Thornley, architects, Wigan, Darwen, and Blackpool.





### Illustrations.

#### THE LATEST EDITION OF VAUXHALL BRIDGE.

**W**E give this week a perspective view of the design for Vauxhall Bridge as now proposed, and elevations of the design as proposed some months ago and as now proposed. The difference is certainly most striking, and shows what may be the effect of strong public criticism on work of this kind. It is true that the Bridges Committee, when they found what an outcry the first design raised among artists, professed that they had never intended to carry out that design, and that it was only made to show the general lines of construction, &c. We fear we are not simple-minded enough to accept this explanation. The first design, with its immense coarse spandrel ornament, is at all events what their engineer would have carried out; and when we made a visit to the County Council Offices to see the design, a superior official who was deputed to show it to us said, as we entered the room—"There it is; and a beautiful bridge it is"; and we have no doubt that this gentleman was only repeating what he had heard as the general impression in the Council.

Any architect who saw the present proposed treatment of the balustrade and of the spandrels of the girders would of course at once see that this work never came out of the County Council workshop. The Council have been repeatedly advised that they ought to put the design of the architectural portion of a bridge into the hands of an eminent architect; it appears that they obstinately refuse to do this formally, but that they are willing to seek the advice of an eminent architect informally and *sub rosa*, as it were, and then put it forth as their own architect's work, as they certainly did in the first instance. This does not seem a very handsome way of acting; and one is glad to find that, on second thoughts, the Bridges Committee seemed to consider it right to admit Mr. Norman Shaw's assistance. Possibly the real object was to try to catch their critics, who of course are believed to be only inspired by a desire to find

fault, and after the malevolent critic had pulled the design to pieces, to turn round and convict him of having criticised the work of an eminent architect. However, the result ought to satisfy the Bridges Committee that they were wrong before, and that those who objected so strongly to their first design can recognise a good thing when they see it.

We do not think, however, that Mr. Norman Shaw had anything to do with the method of filling up the spaces between the cantilevers with steel plating, so as to make it look like a tank. If he had, we should think his judgment at fault in that case; but we suspect that this is a piece of the engineer's detail. It is a mistake, and we think all our readers will agree that it will spoil the design if carried out. It gives a heavy and clumsy appearance to that portion of the design, which is quite at variance with the character of the rest of the steelwork, and it is in fact a sham; and unless this is altered, an otherwise good piece of work will be spoiled.

We do not particularly admire the pylons; and if carried out, they should be smaller and more simple in form, and might certainly very well be improved in architectural design and treatment.

#### NEW BUILDINGS, HERTFORD COLLEGE, OXFORD.

THE new buildings for Hertford, now being built from Mr. Jackson's design, are on the north side of New College-lane, which divides them from the rest of the college. It is proposed to connect the two parts by a bridge across the street and by a subway under it.

The block now in progress contains three staircases and twenty-four sets of rooms for fellows and students. In the basement are bathrooms and cellars.

Future extension is provided for, to Holywell-street northwards, where the college has acquired a frontage, and up to the Indian Institute on the west side. The latter extension will include the repair and exposure of the interesting octagonal chapel of Our Lady at the Wall, which, though sadly mutilated and cut up into offices and shops, retains, besides the beautiful little doorway well known to

Oxonians, traces of the original windows and other features, which have been, till the present works revealed them, buried in adjacent buildings.

The contractors are Messrs. Benfield & Loxley, of Oxford, and the clerk of works is Mr. E. Long.

#### GATEWAY, NOTTINGHAM CASTLE.

THE old gateway of Nottingham Castle, now the town museum, consists of the lower part only of the original structure. Part of it is a mere shell, and part of it has served as an estate office for the Duke of Newcastle.

The outside masonry is much decayed, and has been patched with brickwork, which is now falling off the wall, together with part of the old ashlar facing.

The drawing shows Mr. Jackson's scheme for repairing and strengthening the remains, and converting them into rooms for museum purposes.

#### APPLICATIONS UNDER THE 1894 BUILDING ACT.

THE London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses:—

**Kensington, South.**—That the resolution of the Council of March 17, in regard to the retention of two studios at the rear of Nos. 17 and 18, Pembroke-square, Kensington, be rescinded, and that the solicitor do take the necessary proceedings to obtain the demolition of the portion of the buildings which has been erected, if it has not already been removed. —Agreed.

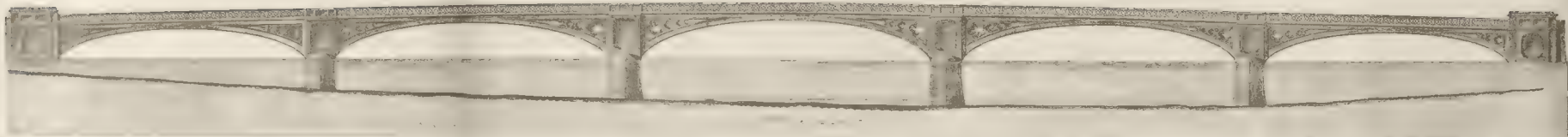
#### Lines of Frontage and Projections.

**Fulham.**—Buildings on the east side of Gliddon-road, Fulham, between No. 25 and Gunterstone-road (Mr. W. Cave for Messrs. Squire & Potter). —Consent.

**Levensham.**—A two-story porch additional to a block of residential flats on the north side of Sydenham Park, Levensham, eastward of Sydenham Park-road (Mr. H. G. Lealie). —Consent.

**Westminster.**—Deviation from the plan approved on July 29, 1902, for the erection of one-story shops





VIEW OF THE BRIDGE FROM THE NORTH SIDE



VIEW OF THE BRIDGE FROM THE SOUTH SIDE









THE LATEST EDITION OF VAUXHALL BRIDGE  
PERSPECTIVE VIEW.

MADE IN AUSTRIA BY A. K. EAST, ARCADE STREET, LONDON E.C. 4.





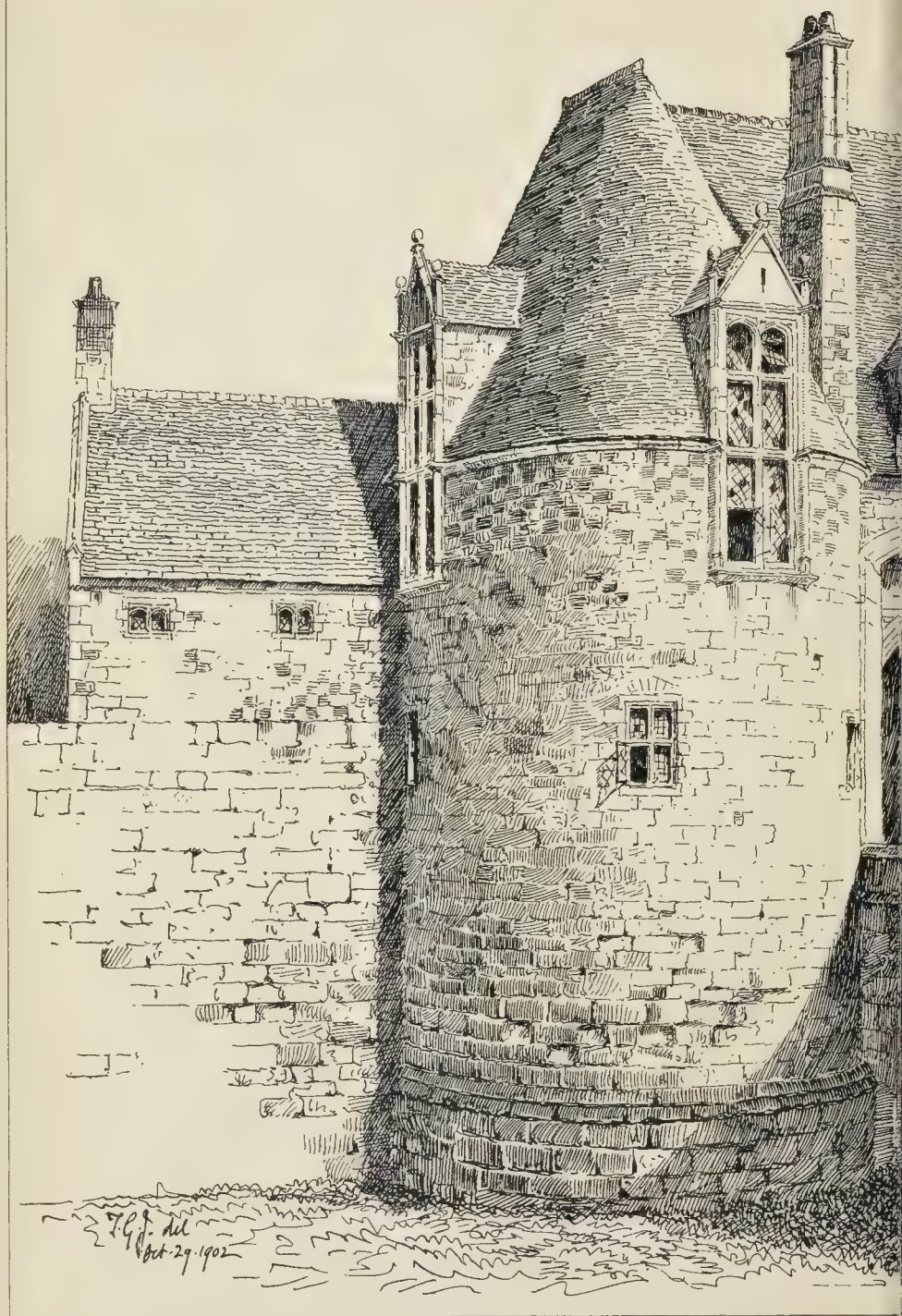




NEW BUILDINGS FOR HERTFORD COLLEGE, OXFORD. -MR. T. G. JACKSON, R.A., ARCHITECT

PHOTOGRAPHED BY MR. J. H. KAY, EAST HAMPING STREET, FETTER LANE, E.C.







# Nottingham Castle

*Proposed adaptation of  
the Gateway to purposes  
of the Museum.*

T. G. Jackson R.A.  
Oct. 30. 1902.









and entrance porches in front of Nos. 147, 149, and 151, Victoria-street, Westminster, so far as relates to the erection of a party-wall, with projecting balconies and plants between Nos. 149 and 151 (Messrs. Z. King & Son).—Consent.

**Clapham.**—An extension of the periods within which the erection of buildings on the south side of Clapham-park-road, Clapham, to abut upon Park Hill, was required to be commenced and completed, be granted.—Consent.

**Dulwich.**—A wood and tile hood over the entrance to No. 270, Lordship-lane, Dulwich (Mr. A. E. Kent).—Consent.

**Greenwich.**—Bay windows at the first and second floor levels of a building upon the site of Nos. 18 and 20, The Vale, Blackheath (Messrs. J. D. Mathews & Son for Mr. H. Burnside).—Consent.

**Lewisham.**—One-story shops upon the forecourts of Nos. 315 and 315A, Brockley-road, Lewisham (Messrs. Norfolk & Prior for Mr. C. C. Story).—Consent.

**Limhouse.**—One-story shops to Nos. 654 and 656, Commercial-road, Limehouse (Mr. A. T. Bolton for Mr. R. George).—Consent.

**Paddington, South.**—Retention of a projecting illuminated sign at the second-floor level of No. 18, Hyde Park-place, Paddington (Mr. E. K. Purchase).—Consent.

**Dulwich.**—An addition to Christ Church (Presbyterian Church), East Dulwich-grove, Dulwich, to abut upon Townley-road and Calton-road (Mr. C. E. Barry for the Rev. J. R. Patterson).—Consent.

**Hammer-smith.**—The retention of a projecting illuminated sign at the Red Cow public-house, Hammer-smith-road, Hammer-smith (Messrs. Bull & Bull for Mr. W. Brown).—Consent.

**Strand.**—A projecting clock at No. 126, Regent-street, St. James's, Westminster (Mr. H. F. Tunalin for Dr. Jaeger's Sanitary Woollen System Co., Ltd.).—Refused.

**Canary-wharf, East.**—A glass and iron shelter in front of a porch at No. 2, Pettit-lane, St. Mary-lebone, to abut upon Duncanson-street (Mr. C. Brooks for Mr. T. McKenna).—Refused.

**Strand.**—Retention for a further period of the three wood and glass showcases erected in front of No. 1, Piccadilly-circus, St. James's, Westminster (Mr. A. Oldcorn).—Refused.

#### Width of Way.

**Westminster.**—A building at the rear of Nos. 106, 208, and 170, Brompton-road, to abut upon Cottage-place (Messrs. Blangy & Van Baars for Messrs. Spiking).—Consent.

**Hammer-smith.**—Infirmary and workhouse buildings on the north side of Duncannon-road, Wormwood-scrubs, Hammer-smith (Mr. J. Lamb for the Hammer-smith Board of Guardians).—Consent.

**Fulham.**—A coach-house on the eastern side of Argon-mews, Fulham-road, Waltham Green (Mr. T. J. Evans for Mr. T. Davies).—Consent.

#### Width of Way and Line of Frontage.

**Strand.**—The retention of two show-cases in front of No. 6, Shaftesbury-avenue, Piccadilly, abutting upon Great Windmill-street (Mr. J. B. Pischbeck for Mr. G. A. Milward).—Refused.

#### Lines of Frontage and Construction of Buildings.

**Rotherhithe.**—A bridge to connect Messrs. A. & P. Keen's premises on the north and south sides of Bermondsey-wall, Rotherhithe (Messrs. Gelder & Son for Messrs. A. P. Keen).—Consent.

#### Space at Rear.

**Lewisham.**—A modification of the provisions of Section 41 of the Act with regard to open spaces about buildings, so far as relates to the proposed erection of a two-story building on the east side of Shell-road, Lewisham, northward of No. 3 (Messrs. Hodson & Whitehead for Messrs. Hodson Brothers).—Consent.

#### Deviation from Certified Plans.

**Islington, East.**—Certain deviations from the plans certified by the District Surveyor so far as relates to the proposed rebuilding of the Hen and Chickens public-house and Nos. 128 and 130, Cranbury-road, Islington (Mr. W. A. Aickman for Mr. L. Taylor).—Consent.

#### Formation of Streets and Line of Frontage.

**Northwood.**—That an order be issued to Messrs F. & W. Stocker sanctioning the formation or laying out of three new streets for carriage traffic to lead from Herne Hill to Elmwood-road, Dulwich, and in connection therewith the widening of a portion of Herne Hill and the erection of buildings to an advanced line of frontage (for Mr. H. G. Smallman).—Consent.

#### Formation of Streets.

**Hammer-smith.**—That an order be issued to Mr. E. K. Purchase refusing to sanction the formation or laying out of a new street for carriage traffic to lead out of the east side of Standish-road, King-street, Hammer-smith.—Agreed.

#### Means of Escape at Top of High Buildings.

**Holborn.**—Certain deviations from the drawing approved on March 28, 1899, in respect of the means

of escape in case of fire proposed to be provided on the sixth floor of a block of buildings (known as Oxford Mansions) on the south side of New Oxford-street, Holborn, at the corner of Bloomsbury-street, on the site of Isador Chapel (Mr. G. D. Martin for Mr. J. Carmichael).—Consent.

#### Cubical Extent.

**Hackney, North.**—Three additional stories to, and an extension of the basement of, No. 24, Shackleton-lane, Hackney, which premises, with additional premises eastward, would together exceed in extent 25,000 but not 450,000 cubic ft. (Mr. J. R. Vining for Messrs. Lloyd, Attree, & Smith).—Refused.

\* \* \* The recommendation marked † is contrary to the views of the Local Authority.

### TRADE CATALOGUES.

THE Glangarnock Iron and Steel Co., of Ardeer and Glangarnock, send us their handbook of steel sections, a clearly printed and well-arranged volume of sufficient size to be convenient for office use. This firm manufactures steel by the Siemens acid open hearth, Bessemer-acid, Siemens basic, and Bessemer basic processes, and the material is guaranteed to stand tensile strain of from 26 tons to 30 tons, 27 tons to 31 tons, and 28 tons to 32 tons per square inch, with 20 per cent. elongation in a length of 8 in., these tests being accepted by the Admiralty and Lloyd's surveyors. In the case of structural steel the strength is from 28 tons to 32 tons per square inch, the tables of joists and girders being calculated on safe stresses of 5 tons and 7½ tons per square inch, practically representing about one-sixth and one-quarter of the breaking loads. A simple rule is given in the preface for arriving at any other desired working stress to suit particular circumstances. It is not stated anywhere in the tables whether the safe loads are calculated on the assumption that the ends are fixed, or merely supported, but from one or two calculations we have made, the condition of non-fixity appears to form the basis of the loads. This is quite as it should be, although it is somewhat a disadvantage to the makers that the fact is not clearly stated, because this fact is not credited with the adoption of the safer method of computation. The tables would be improved by the addition of the moments of resistance for the different sections, and as the least moments of inertia would be useful in many examples, these measurements should be placed side by side with the greatest moments already given. The pages devoted to angles, tees, and channels contain no data for the convenience of the user, beyond the bare dimensions, this being an omission that ought to be made good in the next edition of the book. Some tables of steel stanchions and columns are included, but without the least moments of inertia, or the radii of gyration. Even with the deficiencies mentioned, this handbook is vastly superior to most of the publications issued by firms concerned in the structural steel industry. In fact, there are at the present moment only three better section books in existence. The recent adoption of standard dimensions will afford a very suitable opportunity for the Glangarnock Works to produce a thoroughly satisfying guide to their productions, and we hope to find that this firm, and others in Great Britain, do not intend that American steel-works shall be allowed to maintain their existing supremacy in technical literature of the kind.

Mr. W. A. Gibson, of London and Glasgow, sends us his catalogue of lifts, in which some twenty pages are devoted to various forms of hydraulic lifts, which may be thus classified:—(1) Low-pressure suspended types for passenger goods and goods, driven from mains where pressure exceeds 30 lbs., from an overhead tank, from enclosed tank on the hydro-pneumatic system, and from the Quincy pump; (2) low-pressure direct-acting platform type for goods; (3) high-pressure suspended type for passengers and goods driven from company's mains or private installation, with and without variable power gear; (4) high-pressure direct-acting type. Very few details of the above lifts are given in the catalogue, but each type is excellently illustrated, so that a good general idea of the apparatus may be obtained. Electric-lift equipment, controlled by rope, by a switch in the car, and by push-button, is next described and illustrated, the last-mentioned method having the advantage that the services of an attendant may be dispensed with, while

there are various conveniences and safeguards that will be appreciated by users. Thus, after the gates have been closed, the pushing of a button on any floor brings the lift to that level, and the safeguard is that one journey must be completed before the lift will respond to another call; no gate can be opened until the car is opposite the landing, and the car cannot be started before all the gates are closed. The remaining types of lifting machinery mentioned are belt-driven screw-gear lifts, hand-power goods, and dinner lifts, and the rest of the catalogue is occupied by matter descriptive of valves, accumulators, pumps, lift cars, and lift enclosures. The volume is printed and illustrated in admirable style, and as a summary of different forms of lifting appliances it will be found of service both to architects and to intending purchasers. A supplementary book, containing information of more detailed character and dimensions, such as are published by several lift makers, would probably be valued by architects, as it is extremely handy to have measurements at hand when preliminary plans for buildings are being prepared. To be obliged to write to the makers of specialities for dimensions which ought to be in a catalogue causes unnecessary delay, and frequently both correspondence and interviews, for which it is not always convenient to find time.

The British Accumulator Co., of Victoria-street, S.W., have sent us their catalogue of accumulators. These cells are for use in electric light and power stations, or for traction purposes. A clear description is given of the plates, and it will be seen from the diagrams that the method of construction ensures a large contact surface per unit quantity of lead. A guarantee is given with the batteries, and their maintenance is undertaken for periods up to ten years at an annual premium. Any of our readers who may be interested in accumulators should write for a copy of this catalogue.

Erith's Engineering Co. send us catalogue No. 142, descriptive of the "A.B.C." Fan System of heating and ventilation for large buildings. This is one variety of the plenum method of dealing with heating and ventilation, and the apparatus illustrated appears to be well-designed and well-made. Propellor or centrifugal fans are employed according to circumstances; the heaters are invariably built up in sections, and the method of air distribution provides for the admixture of cold air as necessary for the proper regulation of temperature. This catalogue refers chiefly to factory and warehouse buildings.

The Lift Fireplace Co. (Manchester) send us a pamphlet describing and illustrating their "Liftable" fireplace, which can be left at a level with the hearth for slow combustion, or raised by a pulley arrangement for quick combustion. The principle is not new, but there is something new, we believe, in the working and the arrangement by which a blower is brought down to the grate as it is raised. It seems a very good fireplace, and worth the attention of architects.

Messrs. Joseph Cliff & Sons (Wortley, Leeds) send us an excellently got up illustrated catalogue of their porcelain sinks of every description, scullery sinks, slop sinks, hospital bed-pan sinks, *post mortem* and mortuary slabs, &c., all of the best make in glazed porcelain. The catalogue also includes sink fittings and Yorkshire brown stone-ware sinks.

Messrs. Cox Bros. & Co. (Maidenhead) send us their illustrated catalogue of plain strong timber fencing, open palisading, &c., for execution in oak or fir; and field gates in oak, larch, or deal.

Messrs. Stephen & Carter send us their illustrated catalogue of builders' ladders, extension ladders, step ladders, trestles, builders' hand carts and barrows, garden and stable barrows, brickmakers' barrows, trolleys, masons' trucks, &c.; also screens, sieves, drain-clearing fittings, and their improved expanding drain stopper.

Messrs. Croggon & Co., of London, Liverpool, and Glasgow, send us their new catalogue of iron roofs and buildings, in which the designs and illustrations are said to be taken from work actually carried out by the firm. Section I. refers to iron and steel roofs and buildings, and here we find a number of sectional and dimensioned diagrams of self-supporting roofs, the cheapest form of such construction; of principals for pitched and curved roofs, designed to utilise stock sections of the various bars required, and of principals



suitable for churches, mission rooms, and schools. Section 2 contains plans and perspectives of wood-framed buildings covered with galvanised corrugated sheets, the structures so illustrated being chiefly churches, mission rooms, portable houses, pavilions, and farm buildings.

Messrs. Beck & Co., of London, send us a copy of their general catalogue issued last month. This is a well-bound volume of 274 pages, containing a large amount of detailed information relating to water fittings, fire extinguishing apparatus, pumps and pump fittings, steam fittings, hot water boilers, and similar appliances. While the catalogue generally is a useful labour-saving device for the busy architect or estimating clerk, special interest attaches to the pages describing and illustrating the Imperial water meter, the ingenious apparatus patented by Mr. Schönheyder. The mechanism of this machine is as simple as it is beautiful; the meter is capable of registering the merest dribble; regulation is very rarely necessary; and the meter can be examined or cleaned without removal from the pipeline. This type of meter is also applicable for measuring hot feed water for steam boilers, the method of fixing under such conditions being clearly stated in the catalogue.

Erith's Engineering Co., of London, send us their catalogue describing the "A.B.C." Progressive Tunnel Dryer, specially adapted for drying bricks, tiles, and terra-cotta, but also suitable for the treatment of other materials. The drying system consists essentially in the application of air at a decreasing range of humidity and an increasing range of temperature. Bricks are piled on steel cars, and are then passed through drying chambers, or tunnels, in a continuous manner, while a constant volume of hot air is circulated in the reverse direction. Thus the fresh bricks encounter air that has absorbed a considerable amount of moisture and lost much of its original heat in drying the bricks previously passed. By this treatment the bricks are rapidly and economically dried without the development of cracks. As a general rule, steam is the best means of providing the necessary heat, and it is applied in a special form of air-heater, in connexion with which a fan is employed for the distribution of heated air through ducts in such a way that the user may have complete control at all seasons over the volume, temperature, humidity, and circulation. In some cases heat from the cooling kilns is utilised to produce the required temperature in the brick dryer. The gases leaving the kilns are first mixed with the requisite volume of cold air to reduce them to the proper temperature, and then distributed by means of a fan, as before. Illustrations are given of typical installations, fans, heaters, and the cars upon which material is stacked before passing through the drying chambers.

## Correspondence.

### FIRE PREVENTION EXHIBITION.

SIR,—In your notice of the International Fire Prevention Exhibition at Earl's Court you say that the iron strings and risers in a staircase we show would almost certainly fail in a severe fire. That is, of course, true enough if such stairs were fixed inside a building, but these are intended for outside use, where experience shows that they are safe from damage, even in very severe fires. Such was the case in the fire at Messrs. Tom Smith & Co.'s factory in Finsbury a few months ago.

The practice of having outside staircases to buildings is a very ancient one, and has been continued to the present day. The Bargello at Florence, Rouen Town Hall, Carlisle Castle, have examples; and in Somerset and Yorkshire, and elsewhere in England, they are common in old farm buildings and cottages.

However well provided a building may be in the materials of its construction to resist the action of fire, internal staircases and lifts are almost sure to act as funnels for smoke and hot air, rendering them useless for fire-escape purposes, but outside stairs made of iron, with access to each floor, are cheap and effective in providing against loss of life, and there are few cases in which their construction presents any insuperable difficulties.

The fireproof trends you also refer to are intended for use either inside or out with fireproof or other strings and risers, and are chiefly useful on account of their special non-slippery surface.

A. PYE-SMITH,  
The St. Pancras Ironwork  
Co. Ltd.

### TIMBER AND STONE RESOURCES OF MAINE, U.S.A.

MR. KEATING, British Vice-Consul at Portland, in the State of Maine, U.S.A., in the course of a lengthy Report on the trade and commerce of 1902 mentions that the preservation, development, and economical management of the timber lands has not only become a paramount issue with the people of Maine, but throughout the length and breadth of the country there is agitation in favour of the preservation of the timber lands. The authorities have made a superficial survey and exploration of the whole State. The results show that there are standing in the forests of Maine 21,250,000,000 ft. of spruce, besides large quantities of pine, cedar, hemlock, poplar, and various species of hardwoods. It is reported that the annual growth is sufficient to warrant the cutting of 637,000,000 ft. of spruce timber in the State each year without depleting the supply. In addition to the lands that are actually timber-producing at the present time, there are large areas, once used for agricultural purposes, that have been allowed to go back to woodlands. In many instances the growth is small and of little or no value for manufacturing purposes at present, but each year a certain percentage becomes available, and in the course of time a large amount of timber will be supplied from this source; in fact, it is estimated that there will be from 11,000,000 acres to 12,000,000 acres of lumber-producing land in the State. A great deal of the present timber wealth is found in the forests of white birch which upwards of 35,000,000 ft. are taken annually; white birch is used largely by the hardwood mills of the State. The greater portion in the manufacture of spools. The exportations of deals last year included 5,142 pieces to Bristol and 30,157 pieces to Glasgow. The shipments by the Dominion Line to Liverpool comprised the following: Deals, 185,731; cars 301; boards, cars 27; pieces 185,731; feet 5,809; and packages 12,350; logs, 970 pieces; blocks, maple, &c., 52,423 pieces; staves, 000 bundles; chair stock, 5,227 packages. In its granite quarries Maine has an inexhaustible source of wealth. The granite in Island Falls is really syenite. Much of the granite in York County is syenite as is also part of the red granite of Washington County and Mount Desert Island. The capital invested in the granite industry amounts to \$83,000; the value of the year's output was \$33,800; the number of workmen employed is 3,502. Granite cutters are paid from 11s. 8d. to 13s. 4d. per diem; quarrymen, 7s. 3d. to 8s. 4d.; blacksmiths, 11s. 4d.; common labourers, 6s. to 7s. 3d.; and other labourers, including polishers, carpenters, &c., 7s. 3d. to 10s. Paving cutters work by the piece, receiving a fixed sum per 1,000 blocks; they generally make from 9s. 1d. to 10s. per diem. All granite cutters work eight hours per day. In some large plants the quarrymen now work only eight hours, but in most plants they work nine hours per day. In many plants the blacksmiths work not eight hours, while in the majority of cases they work nine hours. In several plants all classes of labourers work only eight hours, but apart from granite cutters the majority of labourers work nine. Nearly all the granite cutters belong to a union. It is interesting (Mr. Keating adds) to note the popularity of artificial stone, concrete, or granolithic as it is variously called, for such footpaths, &c. The artificial stone is made by mixing gravel or ground stone with cement. A great deal of it is also used for foundations. The Grand Trunk Railway, when building their last elevator, which is the largest on the Atlantic coast, excavated a large area, then drove in 4,000 piles in clusters of eight or ten close together. The tops were then sawn off to make a level surface, and on these surfaces the artificial stone foundations were laid: for this one structure 5,500 barrels of cement were used, together with 3,500 cubic yards of crushed stone and 2,000 yards of sand. The great advantage of using artificial stone in laying foundations is that it can be manufactured on the spot, thus saving valuable time; also that it can be cast into any form and made to correspond to any desired shape. It has the strength of natural stone when properly made, and it is said that it will outlast it, as moisture, climate, acids, or anything that sometimes disintegrates natural stone seem to have no effect on concrete. Brickmaking has taken a fresh start in Maine, and particularly in Thomaston, where clay has been discovered containing a large percentage of pyrites of iron, more than in ordinary brick clays, and it is said to be absolutely free from sand, stone, and lime. A company has been formed and a new process introduced for the manufacture of bricks; from this process sand is entirely eliminated, and the equipment of the new plant is described as being as different from the ordinary brickyard as the hand loom is different from the modern cotton mill. A company is also establishing a new line of trade with a product which is its exclusive property, made by a process protected by patent rights. This product is a pure prepared white lime, and to produce it the company has expended thousands of dollars in fitting up a mill at Rockland and another in New York to give it final preparation for the market. The lime is taken directly from the mill in the form where it is hydrated by the patent process. It comes out of the mill in the form of a dry white powder, which is put into bags and sent to the market in that form.

Ordinary lime cannot be hurried in any of its processes, but the new product is expedition itself and permits many combinations to meet different needs.

### GENERAL BUILDING NEWS.

**ENLARGEMENT OF FISHPONDS CHURCH, BRISTOL.**—The new aisle and vestry at Fishponds Church were dedicated on the 9th inst. The addition is the second instalment of a scheme that practically amounts to a rebuilding, the first, some years ago, being that of the chancel and its side aisles. It was decided two years ago that the size of the work to be accomplished made it impracticable to advance with more than an aisle 71 ft. long and 20 ft. wide on the north side for 250 persons. Whilst this was building, however, it was found possible to add a vestry at its eastern end. The walls are constructed of rock-faced pennant stone laid in level courses, plastered internally with a painted cement dado, the roof being wagner-boarded and covered with lead. The nave is divided off by five arches supported on pennant stone columns with moulded capitals. An additional doorway has been provided in the north wall. The floors, both of aisle and vestry, are laid with wood blocks, and the passages with encaustic tiles. The new seats and vestry screen are of ornamental character, and are executed in varnished pitch-pine. The stone carving has been executed by Messrs. Davey & Bushell, the general contractor being Mr. Edwin Clark, and the architects Messrs. Lingen Barker & Son, all of Bristol. The estimated expenditure for the new work is £1,800.

**ST. ANDREW'S CHURCH, LINACRE, LANCASHIRE.**—The foundation-stone of the new aisle and vestry of the Church of St. Andrew, Linacre, in the parish of Litherland. Internally, the church will consist of a nave 80 ft. long by 37 ft. wide, containing seating accommodation for 522 persons, which, with the side aisles, gives a total width of 48 ft. The chancel is 34 ft. long by 26 ft. wide, containing accommodation for twenty-six men and boys. The choir and clergy vestries are placed on the north side of the chancel, with entrance-porch and lavatory. The organ-chamber and south entrance-porch occupy the south side of the chancel. Facing Stanley-road is the west front, with an entrance-porch on either side. The narthex, including the side porches, is 48 ft. long. The nave is divided from the side aisles by six arches. All the internal arches and nave piers are in Doric stone, the walls being finished in tinted plasterwork. Floors of aisles, nave, narthex, and baptistry are laid with wood blocks, the floors under seating being in red deal boards. The two porches on either side of the west entrance are paved with red tiles. Hopton Wood stone is used for the chancel floor, laid in 12-in. diagonal squares. The pulpit and low screen, between chancel and nave, are also in Hopton Wood stone. Fumigated oak will be used for the choir stalls, holy table, and rail. A hammer beam timber roof will span the nave, with a cornice under it ornamented by moulded brackets. The roof will be barrel vaulted, lined with narrow boarding laid longitudinally. Over the chancel is a hexagonal roof with moulded ribs, lined with narrow boarding. The church will be seated with chairs. A font is placed at the end of the north aisle in an octagonal baptistry, and will be executed in white stone. Externally the church will be faced with red bricks, the windows and other dressings being in terra-cotta. Over the west front is placed a traceried window 22 ft. high, the lower part being divided into seven lights by moulded mullions. The heating will be carried out by Messrs. Cooper. The church has been designed and is being carried out under the supervision of the architects, Messrs. Willink & Thicknesse. The contractors for the whole works are Messrs. Morrison & Sons, of Wavertree.

**METHODIST CHURCH, LONDONDERRY.**—The new church which has been erected in Carlisle-road, Londonderry, has just been opened. The tower and spire of the new building rise to a height of 110 ft. The buildings consist of church, Sunday school, lecture hall, four classrooms, tearoom, pantry, ladies'-room, lavatories, and church parlour. Provision is also made for a minor hall under the church, and the heating-chamber is placed on the lowest level. The seating accommodation is for 630 persons, inclusive of gallery. The pulpit is of oak, and is provided with mahogany lectern, and the choir and organ loft are behind the pulpit. The architect is Mr. Alfred Forman, of Londonderry, and the builder Mr. Robert Colbourn, of Londonderry.

**SOUTH CLIFF CONGREGATIONAL CHURCH, LOWESTOFT.**—The opening service of this church was held on the 14th inst. The church consists of nave and double transepts, the latter being at present erected only projecting a few feet. The facings are of red brick and the dressings of white Costessey work. The roofs are of open timber construction of the hammer beam type. The seating is of oak, was polished. A square tower with angular pilasters and terminating with a lead-covered design. The contract was let to Mr. John Ashbury, Woodbury, Lowestoft, and amounted to £1,698. The accommodation of the building is for about



430 adults. The architects were Messrs. George Baines & R. Palmer Baines, Clement's Inn, Strand, London, W.C.

**CHURCH OF THE SUTTON COLDFIELD.**—It is proposed to erect a permanent church in the Maney district of Sutton to replace the present iron structure. It has been decided to instruct Messrs. Cosins, Peacock, & Bewlay, of Birmingham, to prepare plans of a church to provide sittings for 600 people, the plans to be prepared in such a manner that if found necessary, part only of the church capable of holding 400 might be built.

**CHURCH EXTENSION, DOWNDEN, BRISTOL.**—St. Stephen's will be the title of a new church the foundation-stone of which will shortly be laid at Soundwell, which is part of the ecclesiastical parish of Downden. The architect is Mr. Henry Bennett, of Staple Hill. At present it is only proposed to erect the nave and one aisle, at an estimated outlay of some 2,000l. To leave the chance and the second aisle to be accomplished in the future. The work thus to be first executed will accommodate some 450 persons.

**WESLEYAN CHAPEL, LONGWOOD, YORKSHIRE.**—The memorial-stones of this building have just been laid. The new chapel will be Gothic in style, and will be faced with Elford Edge sandstone. The principal features in the front elevation will be a doorway entrance, flanked with projecting pilasters and three two-lighted traceried windows over, and the windows in the side elevation will also be traceried. The church will be 54 ft. 8 in. long, and 39 ft. 6 in. wide, with transepts 11 ft. 6 in. deep, and will accommodate 200 persons. The church will be divided by two aisles which communicate with a vestibule at the east end of the church. There will be three entrances, one for the ground floor, and two for the galleries, and also a side door for the use of the minister, choir, and school. There will be a gallery on three sides, containing 200 seats. The church will be fitted throughout with open work. The ceiling will be boarded and octagonal in shape. The church will be heated by hot water on the low-pressure system, and will be lighted by electricity. The vestries and a lavatory are provided on the ground floor. There will be two classrooms in the transepts, 22 ft. 5 in. by 20 ft. and 31 ft. 5 in. by 21 ft. 6 in. respectively, and a bellows-room and storeroom, and underneath the latter will be the heating apparatus room. There will be two entrances in the basement, and two flights of stairs leading to the ground floor. The church is estimated to cost 5,000l. The plans have been prepared by Mr. Joseph Perry, architect, Huddersfield, and the works will be carried out under his supervision.

The following are the contractors for the various works:—Masons, Messrs. T. Bottomley & Sons, Lindley; joiners, Messrs. Wood Bros., Huddersfield; plumbers, Messrs. J. H. Taylor & Co., Huddersfield; plasterers, Messrs. J. Robinson & Son, Marsh; painter, Mr. Albert Wrigley, Longwood; slater, Messrs. T. Manton, Northbridge; iron-work, Messrs. Calvert & Co., Folly Hall; electric lighting, Mr. Thos. Armitage, Huddersfield.

**PRIMITIVE METHODIST CHAPEL, BORROWASH, DERBYSHIRE.**—The foundation-stones of a new Primitive Methodist chapel have just been laid at Borrowash. Mr. F. S. Antill, of Draycott, is the architect, and Mr. G. Egg the builder.

**ST. LEONARD'S CHURCH, WALTON-LE-DALE.**—The scheme for the restoration of St. Leonard's Church, Walton-le-Dale, near Preston, at a cost of between 8,000l. and 9,000l., has been settled. The plans have been prepared by Mr. Seddon, of London.

**CHRISTIAN BROTHERS' SCHOOL, CORK.**—The foundation stone of the Brother Burke Jubilee Memorial Schools, Our Lady's Mount, was laid on the 8th inst. The new buildings are one story in height, 162 ft. long by 27 ft. wide. The chemical laboratory is 31 ft. long and 24 ft. wide; classroom for ditto, 24 ft. by 20 ft. 6 in.; physical laboratory, 31 ft. long by 24 ft. wide; classroom, 24 ft. by 20 ft. 6 in. In connection with both laboratories are preparation rooms. At the end nearest to Gerald Griffin School is placed in the basement a furnace chamber for heating apparatus; the space over is devoted to smaller apartments. The building is faced with red bricks, relieved by buff bands and limestone copings, crosses, &c. It is designed in the same style as the Gerald Griffin Memorial adjoining. The buildings are from the designs of Mr. Samuel F. Hynes, architect, Cork, and the builders are Messrs. E. & P. O'Flynn, of Cork.

**NORTH RIDING COUNTY HALL, NORTHALLERTON.**—Plans have been adopted by the County Council for the new County Hall at Northallerton. The present County Hall is a small building, and the new one to be erected will be a large hall, and will be the approach to the main road, and will be set back from the boundary line, in order to provide a forecourt, and allow of wings being projected on each side when necessary for future extension. The front of the building will be 200 ft. long, and will consist of a central block with projecting wings. This block will contain the principal entrance, the vaulted entrance hall with stairs leading to the upper floors, waiting-rooms, porter's office, and telephone-room, and the grand staircase (of polished limestone) leading to the upper floors. The north and south wings provide accommodation for the department of the clerk to the Council, and for that of the Secretary of Education, or the County Sur-

voyor. Entrances are arranged at each of the corridors and service staircases to the upper floor. Advantage has been taken of the fall in the site to obtain (under the council chamber) stores for the Technical Instruction Department and for deeds. They will be entirely above the ground level, and the technical instruction stores will have access for carts from Racecourse-lane. The council chamber and ante-room are situated on the first landing, or mezzanine floor, 6 ft. above the ground-floor level. The council chamber is square in shape, and the west entrance in lines radiating from the chair. There will be corridors and entrance-doors along each side of the chamber, and a public gallery, with access by a separate staircase, as well as a gallery for friends of the members, and accommodation for the officials and reporters. On the first floor the plans provide in the south wing grand committee-room, three other committee-rooms of varying sizes, Chairman's room, members' retiring room, all arranged en suite, and in the north wing the County Surveyor's or the Education Department's offices. The elevations are English Renaissance in style. The materials proposed to be used are local brick, faced with bright red Leicestershire brick, with Whitley or Portland stone dressings and green Westmorland slate for the roofs. The building has been designed by Mr. W. H. Brierley, of York, the County Architect.

**LIBRARY, WAVETREE, LIVERPOOL.**—The new branch free library and reading-rooms, Picton-road, Wavetree, were formally opened on the 12th inst. Besides the lending library there is a general reading-room, and also a special reading-room for women. A similar room has also been set apart for boys, while a section of the premises is occupied by a juvenile library. Some time ago the City Council bought 5,000 sq. yds. of land, formerly the site of Davies's Nurseries, and the library and reading-rooms take up about 1,500 sq. yds. of the land. The remaining ground is to be occupied by public baths, now under consideration. The building stands back about 40 ft., and is built of red-pressed bricks and Cefn stone, whilst the roof is covered with green Westmorland slates. Mr. T. Shelmierdine, the City Surveyor, was the architect of the building. The cost of the building and the furnishing amounts to 10,000l.

**MUNICIPAL BUILDINGS, WOOLWICH.**—The Mayor of Woolwich (Mr. J. J. Messent) on Wednesday last week laid the foundation stone of new municipal buildings for the borough of Woolwich. The Town Clerk stated that the site cost 15,000l., and had an area of 9,000 sq. yds. The buildings had been designed by Mr. A. Brummell Thomas, of West-reading. The contract price was 30,000l., the builders being Messrs. J. E. Johnson & Son, of Leicester. The buildings would consist of a basement and three floors, with a dome and a clock tower rising to a height of 140 ft.

**CHILDREN'S HOMES, ELY, GLAMORGANSHIRE.**—New children's homes have been erected by the Cardiff Board of Guardians at Ely. The buildings have been erected by Mr. C. C. Dunn, Cardiff, from the designs of Mr. E. W. Seward, on the guardians' freehold property adjoining Ely schools. They are built of red brick and white stone. There are six buildings altogether, the master's house, with various storerooms adjoining, two detached and two semi-detached cottages, each to hold twelve children, and a detached cottage, and a larger building to accommodate twenty-four, where the older boys will be lodged. Each cottage contains dormitories, a common room for the children, kitchen, &c. There is also the hospital, which was built some years ago. The cost of building the homes was about 8,000l.

**PROPOSED EXTENSION OF BLAWARTHILL HOSPITAL, CLYDEBANK.**—At a meeting of the Clydebank and Renfrew Joint Hospital Board satisfaction was expressed that the Town Council of Renfrew had now seen their way to approve of the extension of the hospital and the plans prepared therefor. The architect (Mr. Paterson) was instructed to proceed with the working plans and other details to be submitted to the Local Government Board, and also to prepare the necessary specifications. The proposed scheme is to give accommodation for thirty-four new beds, making a total, with existing beds, of sixty-four. The buildings consist of new scarlet fever pavilion, with acute wards connected to existing scarlet fever pavilion by an open covered way, and to which new dormitories have also been added; isolation block and extension and alteration of present administrative and laundry blocks, and new stables to be placed at south boundary wall. The pavilion in appearance will be similar to those existing, with slight alterations on plan. The extensions are estimated to cost over 12,000l.

**BUSINESS PREMISES, HALIFAX.**—The foundation stone of Messrs. Son's, Ltd., new premises to be erected in Commercial-street, Halifax, has just been laid. The architect is Mr. W. Clement Williams, Halifax.

**LIBRARY, BRISTOL.**—A new Central Library is to be erected at Bristol, from the designs of Mr. Percy Adams. The site is in Deansey-road.

**ARTIZANS' DWELLINGS, SEVENOAKS.**—The Plans Sanitary &c., Committee of Sevenoaks Urban District Council have just recommended that twenty cottages for the Sevenoaks Artizans' Dwellings Co. be approved, subject to an intercepting trap to each house drain being provided, and subject to the

usual agreement for a combined drain. The report was adopted.

**COUNTY TECHNICAL AND SECONDARY SCHOOLS, MALMESBURY AND DISTRICT.**—These schools were opened on the 14th inst. by Sir John Dickson Poynder, Bart., M.P. Messrs. Smith & Light were the contractors, and the cost, inclusive of fittings, but exclusive of the cost of the site, was between 4,100l. and 4,200l. The architect was Mr. R. E. Brinkworth, of Bath.

**ADDITION TO THE HAHNEMANN HOSPITAL, LIVERPOOL.**—An addition, consisting of new nurses' home, washhouse, and laundry, has been made to the Hahnemann Hospital. The building occupies the south-west angle of the hospital plot, with one frontage to Rice-street, and consists of three floors, the lower one being used for a washhouse and a nurses' home, and are approached by a glass passage from the hospital, with a staircase leading to the first floor, where a sitting-room and two bedrooms, bathroom, and lavatory are provided. The second floor has three bedrooms, stores, cupboards, &c., and all rooms are provided with fireplaces. Externally the building is of grey brick, with red brick finishings, slate roofs with red ridges. The work has been carried out by the general contractors, Messrs. Holme & Green, from the designs of Mr. Francis U. Holme, architect to the hospital.

**RECONSTRUCTION OF THE UNITED FREE CHURCH ASSEMBLY HALL, EDINBURGH.**—This building has been reconstructed from the plans prepared by Mr. Dick Peddie, architect. The altered building will seat 1,801, or an increase of 525. In order to get this additional room it was found necessary to absorb the buildings which formerly existed to the east of the hall proper. With an increased area the previous height of the building was inadequate, and as it was desired as far as possible to retain the features of the old hall, it was finally decided to leave the roof as it was, but to lower the floor 5 ft., adding to the height of the roof supports to meet the altered conditions. Formerly the area measured 62 ft. by 53 ft.; now it extends to 93 ft. by 67 ft. For the purposes of debate the hall has been surrounded on all four sides by divisional lobbies, which there are numerous doors of access. The division lobby to the north is immediately in connection with the north corridor, which forms the access to the galleries set apart for the use of the public, and the division lobbies are also in communication with the Lawnmarket by staircases at the south-east and south-west corners. Off the division lobbies there is cloakroom and lavatory accommodation. Two new rooms have been set apart for the Moderator of Assembly—a reception-room and a private room, which are entered from the north corridor—and there is a special ladies' room, which can be reached both directly from the north corridor and from the ladies' gallery. The staircases at the south-east and south-west corners rise from the Lawnmarket level to the upper floor, which is placed over the south gallery, where there is a smoking-room for members of the House, as well as a museum. The internal furnishing and equipment generally have been carried out by Messrs W. S. Brown & Son. It is believed that the total cost of the alterations will exceed 20,000l.

**REBUILDING OF ABERGWILLI PALACE.**—Mr. Coombe, architect to the Ecclesiastical Commissioners, has inspected Abergwili Palace ruins and surroundings, and we understand that operations for the erection of a new building on the same site will be proceeded with forthwith.—*South Wales Daily News.*

**NEW BANK, MANCHESTER.**—The site of the old Town Hall, Manchester, has recently been sold by the Corporation. The land covers 1,500 square yards, and has been purchased at 110l. per yard for a client by Messrs. Charles Heathcote & Sons, architects, for the erection thereon of a bank and general offices.

**THE BUILDING TRADE, AUCKLAND.**—The building trade is very brisk in the Auckland rural district. Houses are being erected in various parts of the district, and just outside Auckland several hundreds of dwellings have been put up for workmen. At the last meeting of the Rural District Council it was reported that fifteen sets of plans had been submitted for the erection of some 147 houses. The plans were approved in all except two instances.

**LABORATORIES, LIVERPOOL UNIVERSITY.**—The new Johnston Laboratories at Liverpool University have now been completed. The gift of Mr. Johnston embraced a sum of 10,000l. for the endowment of a Chair in Bio-Chemistry, 6,000l. for the Fellowship, and 9,000l. for the buildings. The building adjoins the Thompson-Yates Laboratory, and for the time being completes the equipment of the School of Medicine Research Department. There is a basement and three floors, equipped with the latest apparatus. The departments of research include tropical medicine, bio-chemistry, experimental medicine, and comparative pathology. The laboratories have been erected from designs by Messrs. Willink & Thicknesse, and Professor Simpson.

**CO-OPERATIVE SOCIETY'S PREMISES, HUDDERSFIELD.**—Extensions are to be made to the premises belonging to the Co-operative Society in Buxton-road, Huddersfield. The extensions are to what are known as the Victoria Hall premises. A consider-



able portion of those premises will be pulled down, but the hall itself will practically remain untouched, and will therefore be available for meetings, concerts, entertainments, &c., as heretofore. The new part will embrace a frontage of 92 ft., the height from the footpath to the top of the parapet will be 54 ft. (that is, exclusive of the roof), and the depth from front to back will be 53 ft. The style of the new addition will be in keeping with the other part of the premises—Classical—and rising from the central front there will be a clock tower, and the clock will have three faces. The building will have a basement, a ground floor, first and second floors, and an attic. In the basement will be a restaurant 70 ft. long and 38 ft. wide, together with a kitchen and scullery, and store-rooms for the furniture and boot and shoe departments, with the necessary hoist communications with the rooms above. On the ground floor there will be the furniture, boot and shoe, and confectionery departments, and in the centre a vestibule, 10 ft. 6 in. wide, leading to the present Victoria Hall. On the first floor will be four showrooms connected with the various departments, and on the second floor will be the rooms connected with the educational department, consisting of a lecture-room capable of accommodating 250 persons; a library, 31 ft. by 26 ft.; a reading-room, 29 ft. by 27 ft.; and a conversation-room. The attic is to be used for storage and as a workshop. Lavatory accommodation is to be provided in the basement and on the second floor. The building will be of fireproof construction, and electrically lighted, and heated by steam. Behind the new premises there will be a road or covered passage, which is to communicate with the yard behind the present shops and will form a communication between Princess-street and Alfred-street. The cost of the additions will be 10,000. The contracts have been let to the following:—Masons' work, Messrs. A. Graham & Sons, Springdale; carpenters and joiners, Messrs. Wood Bros., Queen-street, South; plumbers and glaziers, Messrs. D. Taylor & Sons, Lockwood; slaters, the executors of T. B. Tunnicliffe, West Parade; plasterers, Messrs. Broadbent Bros., Moldgreen; steel and iron work, Messrs. E. Wood & Co., Ordal-lane, Manchester; patent glazing, Messrs. W. H. Heywood & Co., Birky; partitions, the Fireproof Clay Co., Bradford; concreting and wood block floors, Mr. John Cooke, Folly Hall; shop fronts, Messrs. Math & Co., Alfred-street, Huddersfield; painters' work, the Society's own workmen; and the work will be carried out from designs supplied by, and under the superintendence of, Mr. J. Berry, architect.—*Huddersfield Examiner*.

**FREE LIBRARY, MONTROSE.**—A new free library is to be erected at Montrose at a cost of about 6,000. The architect is Mr. J. Lindsay Grant, Manchester. The principal entrance is placed at the junction of Bridge-street, Mill-road, and High-street. A hexagonal hall forms the centre, from which radiate the general reading-room, reference room, lending department, staircase, and principal entrance, &c. The lending department accommodates 26,000 volumes. From the public space there is accommodation to the ladies' reading-room and juvenile room. The reading-room accommodates forty readers at tables and eighteen at newspaper stands, this room being lit from windows to High-street. The walls are panelled in glazed tiles. The reference room has shelves from floor to ceiling, and accommodates 5,500 volumes, and twenty-four readers at tables. The men's lavatory is entered off from the hexagonal hall. The librarian's house is entered from Mill-road, and occupies the first floor over the workroom and reference-room facing Mill-road. Over the general reading-room there is a recreation hall, the walls of which are panelled in wood to a height of 7 ft.

**HOSPITAL, HORWICH.**—The corner stone of the Infectious Diseases Hospital which is in course of erection for the townships of Horwich, West-boughton, and Blackrod, on land adjoining Fall Birch-lane, off Chorley New-road, Horwich, was laid recently. Messrs. Cressey & Keighley, of Morecambe, are the architects, and Mr. J. Slater, of Horwich, is the general contractor. The hospital buildings—which include three ward pavilions, the administrative block (three stories), a laundry, disinfecting block, &c.—will be of local brick with local stone dressings, roofed with red lead blue slates from Waler. The floors of the wards will be of polished maple.

#### FOREIGN.

**INDIA.**—The proposed Kistna reservoir, when irrigation is fully developed under it, is estimated to irrigate 2,500,000 acres, at a cost of six millions sterling.—Station buildings are to be constructed at Church Gate Station on the Bombay, Baroda, and Central India Railway, at the cost of Rs. 43,885.—The schemes for the improvement of the port of Aden are well matured. They include the construction of a public wharf in Tawahi Bay, the dredging of the inner harbour, and the extension of the Maala pier. The Government is to carry out the work.—A new press office is to be built at Ootacamund adjoining the secretariat. There are to be quarters for several compositors, office accommodation, &c. The work is in connexion with the establishment of the Government at that place.—

A central telephonic exchange, to which the numerous Government offices are to be connected, is to be instituted at Simla.

#### MISCELLANEOUS.

**THE BUILDING BY-LAWS REFORM ASSOCIATION.**—This Association, which was recently formed to secure that official control of private building should not extend beyond the demands of public health and safety, met a few days ago at the offices, 45, Parliament-street, Sir William Chance, Bart., in the chair. There was a good attendance and on the motion of the Hon. Percy Wyndham, the Duke of Westminster was unanimously elected President of the Association. A proposal was made for the appointment of a special committee to consider and report on the amendments required to secure the removal from existing by-laws of those provisions which unreasonably encroach on individual liberty. A long discussion followed in which Mr. W. M. Acworth, Mr. Lacy Ridge, Mr. A. H. Clough, Mr. Mark H. Judge, Mr. H. Newman (Birmingham), Mr. T. M. Shallock (Liverpool), Mr. Thackeray (London), Mr. E. D. Till and Mr. R. A. Read, Hon. Sec., took part. The special committee was appointed and letters asking for advice for the amendment of by-laws at Guildford, Bucklow, and Bradford were referred to it.

**SALE OF CLIFFORD'S INN.**—By direction of the trustees and members of the Society, and under an order of the Chancery Division of the High Court of Justice, Messrs. Farebrother, Ellis, Egerton, Breach, & Co., offered for sale at the Mart, Tokenhouse-yard, on the 14th inst., the freehold estate "Clifford's Inn." The auctioneer pointed out that it was nearly an acre in extent, and that the buildings upon it, including the historic hall, produced a nominal present income of 3,500 per annum. He suggested that the property was worth 50,000. The first bid, however, was one of 100,000, made by Mr. W. Willett, who, as there was no advance on this figure, became the purchaser.

**OPEN SPACES.**—In response to representations made to him by various clubs who use the ground, Colonel Tufnell, M.P., has consented to relinquish his plans for building over Tufnell Park, Holloway, recently acquired by him, and at some pecuniary sacrifice to arrange for the renting of the ground for purposes of recreation and athletic sports as heretofore.—The Board of Agriculture have drafted an amending scheme relating to Farnborough Common and Broad-street, Green-street, and Leach's Greens, Kent, in order to place the four commons under the management of the Farnborough Parish Council, who will be charged with the maintenance of the ground free from encroachments, the preservation of the turf and trees, the execution of drainage and levelling works, and the apportionment of spaces for games.—The Board's provisional order for the better regulation and management of Merrow Downs (260 acres of common land) near Guildford, provides for an adjustment of rights of common of pasture and estovers, and sets up a body of conservators; whilst the privileges granted to the Guildford Golf Club are not curtailed, a right of access to the downs for walking and riding is reserved to the public; the labouring poor of Merrow, besides such persons as now enjoy rights of estover, will be allowed to gather fuel and litter from a certain allotment of the Earl of Onslow, lord of the manor, and the Rural District Council have mutually agreed to a discontinuance of flint-collecting, and the Guildford Town Council agree to contribute 50s. yearly towards the charges of control and improvement.—Broomfield Park, at Southgate, opened to the public on April 25, comprises 54 acres purchased from Mr. Powys Lybbe for it is stated, 25,000; the park, of which some 30 acres is woodland and 9 acres are allotted to playing-fields, with three lakes, is famed for its beautiful avenue of elm-trees; the house, a hunting-lodge of James I., will be converted for reading and class rooms; it contains a fine oak staircase of which the walls and ceilings were painted by Thornhill; the estate, adjoining Arncliffe Grove, had been occupied during several generations by the Jackson family.—The St. Pancras Borough Council have agreed to the closing of Bromwich Walk, skirting the grounds of Holly Lodge, Highgate, a residence of the Baroness Burdett-Coutts, and to accept an offer made by her of some adjacent land, with its trees, together with a contribution of 1,000, which will enable them to widen Swain's lane to a width of 45 ft., and to convert it into an attractive boulevard, leading from the foot of West Hill northwards between Highgate Cemetery and Bromwich Walk; the land thus given by the Baroness has an area twice that of Bromwich Walk.—A local movement is in progress for saving the Springfield estate, of 33 acres, at Upper Clapton, which is placed in the market for building purposes; the land lies upon a hill, and which descends to the River Lea, and with its dells, pools, and variety of verdure should form one of the most charming resorts within the limits of north-east London, albeit situated close to the crowded localities of Bethnal Green, Hackney, and Homerton.—The Bethnal Green Borough Council have committed to the charge of the London County Council, for its maintenance as an open space, the burial ground,

nearly two acres in extent, of the Church of St. Matthew; and the gardens of Sydney-square and Ford-square, Stepney, covering an aggregate area of about 37,000 sq. yds., will be placed under the control of the London County Council, the property having been sold for 13,000, by the owner, who contributed 3,000, in reimbursement of the costs of the sale to the Council; the Borough Council of Stepney contribute 1,500, towards the purchase money.—The Thames Conservators have consented to the reservation of a public right of way over the proposed tow-path below Marlow Lock, which will form—at an outlay of 1,000.—the most pleasant promenade by the riverside.—The Governors of the Manchester Whitworth Institute decided at their meeting on May 6 to present to the City Council the park of 20 acres in Oxford-street which they have maintained as a public recreation ground during the last thirteen years.—Mr. Carnegie, Lord Rector of St. Andrew's University, has offered to purchase a park of 9 acres, situated on the west side of the city, and to dedicate it to the use and enjoyment of the members of that University.

**ST. MARY'S CHURCH, HORSEFERRY-ROAD.**—The Society of St. Vincent de Paul intend to establish a boys' institute as a memorial to the late George Blount, a former president of the Society, upon the site of the Roman Catholic Church of St. Mary, in Horseferry-road, Westminster. St. Mary's Church has hitherto served for a mission directed by the Jesuit Fathers. The church having been closed, Cardinal Vaughan has set aside, as a temporary measure, for the use of the congregation the Lady Chapel of Westminster Cathedral, until the formal opening of the cathedral, will be used as a parish church by the Roman Catholic community of Westminster, and by the Nationalist Members when Parliament is in session.

**WIDENING OF BISHOPSGATE-STREET.**—The City Engineer has prepared plans for the widening, at an estimated cost of nearly 334,000, of the main thoroughfare to a uniform width of 70 ft. between the City boundary and Angel-alley. The scheme is projected by the Public Health Department of the Corporation, who seek the co-operation of the London County Council, as they consider the proposed improvement is a metropolitan one in the benefits it will provide for the greatly increased traffic passing north and south in that quarter.

**WHAPLODE DROVE PARISH CHURCH.**—A report has been prepared by Mr. Harold Bailey upon the condition of the fabric of the church of St. John the Baptist, at Whaplode Drove, near Crowland, in Lincolnshire. He recommends that 7000 should be expended upon the reparation of the church, which consists of a chancel, nave, and tower, and has a capacity for 300 persons. Forty years ago, in the course of making a dyke for enclosing an addition to the churchyard, was found a large quantity of Roman pottery-ware, together with coins of Vespasian the elder, A.D. 69-79, and Antoninus Pius, A.D. 138-61.

**ESHER, AND ST. GEORGE'S CHURCH.**—An appeal is made for contributions towards the reinstatement of the old parish church of St. George, formerly known as Sandon Church, which was closed for public worship some while ago, and has fallen into a bad state of disrepair. The church contained an altar-piece of our Saviour painted by Sir Robert Ker Porter, K.C.H., and presented by him in 1837, a monument by Flaxman (1803) to the Honorable Mrs. Anne, wife of Mr. Rose, of Claremont, and a marble figure erected by Sir Francis Drake in memory of his father Richard, equerry to Queen Elizabeth, since removed to the new church that was built fifty years ago. Sir John Vanbrugh built for his own occupation an adjacent house, which he sold to Thomas Pelham Holles, Marquis of Clare, and afterwards Duke of Newcastle, who named it Claremont, and added largely to the estate, employing Kent to lay out the grounds. Robert Lord Clive bought the property in 1766, and before setting out on his last journey to India, directed Lancelot Brown to pull down Vanbrugh's house and build another one on a better site, and to re-model the grounds, without any limitation of expense—the charges amounted to nearly 100,000. After Lord Clive's death on November 22, 1774, the property was sold for about 35,000, to Viscount Galway; it was then purchased by Lord Tyrconnel, who, in 1807, sold it to Mr. C. Rose Ellis. In 1816 Claremont was bought by the Crown for 65,000, on behalf of the Princess Charlotte, who died there on November 6, 1817; it has latterly been the home of the Princess and her girlhood of King Louis Philippe, and his widow, Queen Amélie, and of the late Prince Leopold and his wife the Duchess of Albany. When commanded to surrender the Great Seal, Cardinal Wolsey retired to Esher Place, a manor bestowed upon the See of Winchester by Edward I. The manor house, distinguished by the so-called Wolsey's Tower, built by William de Wainbret, died in 1478, Winchester 1447-86, and a residence of William of Wykeham, who wrote many extant letters at "Asher House," was bought by Henry Pelham, brother of Thomas, Duke of Newcastle, in 1729. Kent made additions to the house, adopting one of the two gateways as the central feature of his design. Subsequently Edward Caple built the present higher ground, and removed the old gate from the River Mole, for John Spicer, who bought it from Miss



Pelham, and pulled down all of Kent's work, but retained one of the two gatehouses. The tower, of red brick, which may be compared with those of Layer Marney (illustrated in the *Builder* of April 3 and 10, 1886) and Lees, near Felstead, has large windows extending to the fourth stories are maculated. E. W. Brayley, in his "Surrey" (1841), cites the novel staircase of brick, in the roofing of which, he says, "the principles of the construction of the oblique arch (a supposed invention of modern times) are practically exhibited." In Richardson's "Vitruvius Britannicus," 1802, vol. 1, which gives plans and elevations of Clarendon, the authorship of the designs is ascribed to Brown and Holland conjointly.

**SHREWSBURY ABBEY.**—We understand that it is proposed to take steps for effecting a restoration, at a cost of 2,000*l.*, of the tower of the abbey church. The church of Holy Cross, which stands by the river Rea, commonly called the Meole brook, in Abbey Park, was originally a conventual church of Benedictines, under a mitred abbot, and having a revenue at the dissolution, estimated at 65*l.* 4*s.* 3*d.* The abbey, dedicated to SS. Peter and Paul, was founded in 1083-7, by Roger, Earl of Roger de Montgomery, first Earl of Shrewsbury, Chichester, and Arundel, who built the castle, and the church, which was originally a conventual church of Benedictines, under a mitred abbot, and having a revenue at the dissolution, estimated at 65*l.* 4*s.* 3*d.* The abbey, dedicated to SS. Peter and Paul, was founded in 1083-7, by Roger, Earl of Roger de Montgomery, first Earl of Shrewsbury, Chichester, and Arundel, who built the castle, and the church, which was originally a conventual church of Benedictines, under a mitred abbot, and having a revenue at the dissolution, estimated at 65*l.* 4*s.* 3*d.*

**A NEW TECHNICAL DICTIONARY.**—In the beginning of 1901 the Society of German Engineers (Verein Deutscher Ingenieure) began the compilation of a universal technical dictionary in the three languages, English, German, and French. This undertaking has received assistance from all quarters at home and abroad. Societies and individuals have responded generously to the invitation to collaborate, and have proved their interest by the transmission of collections of technical words made by them or by promising such in the near future. Up to now (May, 1903) there are 341 societies (42 in English, 272 in German, and 27 in French speaking countries) which are contributing to the work, either by the systematical collection of technical expressions of the specialties represented by them or in other ways, especially by the acquisition of collaborators and by placing technical publications in more than one language at the disposal of the "Verein," as catalogues of firms, lists of patents and inventions, handbooks, &c. Through these societies the Technolexicon has found helpers in Great Britain, Germany, France, the United States, Austria, South Africa, India, Australia, Belgium, Canada, &c. As the contributions will not be called in before 1904, all who wish to help in the compilation of the Technolexicon have the opportunity to assist in the preparation of their specialities. Attention is drawn to the fact that contributions in only one language are also most acceptable, though, of course, those in two or three languages are the most valuable, as also polyglot business catalogues and other technical publications. The address of the editor-in-chief is, Technolexicon, Dr. Hubert Jansen, Berlin (NW. 7), Dorotheenstr. 49.

**THE ROYAL ARMS ON BUILDINGS.**—In our issue of April 11 last (see page 398 *ante*) we described the circumstances under which a summons had been served upon Mr. Henry Glave, in the matter of the Royal Arms which appear, several times repeated, upon the facade of the business premises he occupies in New Oxford Street. The case was adjourned to enable Mr. Glave, as lessee, to come to some arrangement with the Commissioners of Woods, Forests, and Land Revenues to whom the premises belong. After the hearing of the adjourned summons at Bow-street on May 7, the magistrate dismissed the summons without costs. The defendant reserves the right to the removal of the coat of arms by the Royal Warrant Holders' Association, provided the Crown would exempt him from his covenant to surrender the buildings undefaced and with all their architectural decorations untouched. As he could not obtain such an indemnity, Sir A. de Rutzen decided the case upon its merits.

**THE REMOVAL OF THE CROSS AT SHILLINGSTONE, DORSETSHIRE.**—The recent demolition of the village cross at Shillingstone, near Blandford, has just been dedicated. Some eleven years ago a lady offered to restore the cross, and with this end in view Mr. Charles E. Ponting, F.S.A., architect, of Marlborough, made the necessary plans, taking the old cross of the same date—still in fair condition, and by Mr. Graham, late City Surveyor of the Corporation, as a model for the new work. The actual work of restoration was placed in the hands of Messrs. Harry Hems & Sons, of Exeter. When all was nearly ready for fixing, a protest was made against the Cross, with the result that completion was put off indefinitely.

After more than ten years' delay the work has now been erected. The shaft is, like all the rest, of Ham Hill stone.

**GALVESTON SEA WALL.**—We learn from an official report that a public work of great importance to the town of Galveston, Texas, U.S.A., was begun during the year 1902—viz., the construction of a sea wall. It was the universal opinion of the inhabitants, after realising the disastrous effects of the dreadful storm of September 8, 1900, that some effort should be made to protect that side of the island exposed to the waters of the Gulf of Mexico. The committee in charge of the matter succeeded in placing no less than 1,500,000 dol. worth of bonds, the greater portion of which were taken by local firms and individuals, a most striking instance of courage and faith in the future of the port of Galveston. The construction of the sea wall or breakwater has recently been commenced, and it is estimated that eighteen months from now will probably see the work completed. Starting from the extreme eastern end of Galveston Island, and running westward until it joins the property of the Federal Government, the sea wall is to protect the whole portion of Galveston facing the Gulf of Mexico. Built upon piling with a concrete foundation it will, it is presumed, be strong enough to resist the heaviest waves while it will be of sufficient height to prevent the waters encroaching on the town as they did in 1900. It is further proposed in time to raise the level of the whole town, so as gradually to slope down from the crest of the sea wall to the bay. To further this end the Legislature of the State of Texas has remitted the taxes due to the State of Galveston for a period of seventeen years to come.

**DIOCESE OF NEWCASTLE.**—A commission of local clergy and laity, formed in December, 1901, by Dr. Jacob, who was then Bishop of Newcastle, have published their Report. Having regard to the great increase in the population of Tyne-side and in some of the mining districts, and to the fact that during the past ten years the population of the county has increased by 98,000, the Commission recommend the erection, at an estimated cost of 15,000*l.* (the sites excepted) of three new parish churches, and of three more new churches in existing parishes at an outlay of about 8,200*l.*; the completion, at a cost of about 6,000*l.*, of three other churches; and the expenditure of 7,200*l.* in the provision of twenty-four mission churches, halls, and parochial buildings.

**NEW MISSION HOUSE, BLACKFRIARS.**—New headquarters for the Gordon Missionary Society are about to be erected upon a site extending over 3,100 ft. superficial, in New Bridge-street, E.C. The building will comprise offices of to be let to other societies, and the ground and upper floors will be used for the Society's warehouse, executive staff offices, board, and committee-rooms, library, and museum.

**APPOINTMENT OF SANITARY OFFICERS.**—The Local Government Board has sanctioned the appointments of the following sanitary inspectors: Miss J. J. Brown, at St. George's, at 1*l.* 6*s.* 6*d.* per annum, rising by 5*s.* annually to 12*l.* per annum. Miss M. W. Richardson, in Chelsea, at a salary of 12*l.* per annum. Mr. G. J. Bridel, in Greenwich, from April 20 to October 19, 1903, with a salary at the rate of 13*l.* per annum.

**MUNICIPAL BUILDINGS, CRAWSE.**—Nineteen tenders have been received by the Crawse Town Council for the erection of new municipal buildings for the borough. The highest was over 17,000*l.*, and the lowest under 15,000*l.* A committee of the whole Council have accepted the tender of Messrs. Robert Neill & Son, of Strangeways, Manchester, to erect the buildings for 14,752*l.*

**THE INTERNATIONAL FIRE PREVENTION CONGRESS.**—The arrangements for the impending International Fire Prevention Congress, convened by the British Fire Prevention Committee, which will be opened by the Lord Mayor on July 7, include the presentation of a number of papers by foreign authorities conversant with special sections of the subject, and among such papers as have already been accepted for consideration and discussion at this Conference are the following:—By Mr. G. Edward Atkinson, President, Boston Manufacturers' Mutual Insurance Co., U.S.A., "The Prevention of Loss by Fire in the United States of America"; by Privy Councillor J. Stubben, late President, Amalgamated Societies of German Architects and Engineers, late City Surveyor of Cologne, "Urban Fire Protection as Influenced by Street Planning and Building Regulations"; by Chief Officer Westphalen, Hamburg City Fire Brigade, "The Latest Experience in Warehouse Construction at Hamburg and Bremen"; by Professor Woolson, Columbia University, New York, "Fire-Retarding Wood"; by Chief Officer of Cologne, "The Necessary Development of Fire Alarm Systems"; by Professor Medem, University of Greifswald, "Spontaneous Combustion"; by Chief Officer A. Dittman, Bremen Fire Brigade, "The Influence of Fire Service on Fire Prevention"; by Chief Officer A. Goldoni, Fire Brigade, Milan, "Fire Survey and Fire Watches in Italy"; by Mr. Graham, late City Surveyor of the Corporation, "The Care of Private Fire Appliances"; by Mr. Chas. Hexamer, President, National Fire Protection Association, U.S.A., "The Principles of Fire Insurance in America"; by Mr. W. H. Stratton, Chairman of

Executive, National Fire Protection Association, U.S.A., "Fire Hazards in America from an Insurance Point of View"; by Mr. W. H. Merrill, jun., the Underwriters' Laboratories, Chicago, "The Testing Principles Adopted at the National Fire Prevention Laboratory of Chicago"; by Crown Surveyor Jaffé, Berlin, "The Testing Principles Adopted at the Royal Technical Research Laboratory, Charlottenburg, and at other Fire Tests in Germany"; by Chief Officer Welsh, City Fire Brigade, Ghent, "The Necessity of Systematising Testing Operations as Based on Belgian Experience." Regarding the programme of the Congress and the arrangements made for visitors to the Metropolis, all applications should be addressed to the Hon. General Secretary, Mr. Ellis Marsland, 1, Waterloo-place, S.W.

**VALUATION OF THE NEW CHRIST'S HOSPITAL.**—At the last meeting of the Horsham Board of Guardians the Assessment Committee applied for the authority of the Board to appear as respondents to an appeal which had been entered to Quarter Sessions by the Governors of Christ's Hospital in respect of the assessment of their new buildings at West Horsham. The Chairman explained that the Overseers, assisted by Mr. S. Smith as valuer, had originally assessed Christ's Hospital at 11,500*l.* The Governors intimated their opinion that this was a very excessive amount, and suggested that the Guardians, to avoid any unpleasantness, should employ a first-class valuer. The Assessment Committee thereupon applied to the Surveyors' Institution to send them the names of several professional men accustomed to that kind of valuation. As a result they secured the services of Mr. A. L. Ryde, and he came and valued the place at 15,000*l.*, showing that the original assessment was really below rather than above the mark. The Guardians had an unanimous desire to avoid conflict with the Governors of Christ's Hospital, a body just come into the neighbourhood, and they would have been quite content, if the valuers could have agreed between themselves, that the matter should not be taken into Court. Mr. R. W. Headley, the Christ's Hospital valuer, and the Guardians' valuer could, however, come to no arrangement. The Board eventually authorised the Assessment Committee to enter an appearance at Quarter Sessions as respondents.

**PORT OF LONDON BILL AND THE THAMES VALLEY.**—The Thames Preservation League recently presented a petition to the Board of Trade asking, in connexion with the Port of London Bill now before Parliament, that the Commission which will have charge of the river below Teddington should be directed "to have regard to the amenities of the Thames and especially to the protection of the beauty of the river in the neighbourhood of Richmond." Amongst other proposals the League also suggested "That powers be conferred on the new Board—(a) to prevent sheep-washing; (b) to preserve the towpath and access to the river at all necessary points, and to secure a right of footway along the river banks; (c) to preserve the amenities of the Thames, to resist acts tending to impair such amenities; and to acquire compulsorily where necessary portions of the banks especially important to the enjoyment of the river; and (d) to acquire fisheries; and that the duty of protecting the amenities of the river be expressly imposed upon the new Board." The following reply has now been sent by the Board of Trade to the Hon. Secretaries of the League:—"Gentlemen,—I am directed by the Board of Trade to acknowledge the receipt of your memorial on behalf of the Thames Preservation League, and I am to state with regard to the suggested provision for the preservation of the amenities of the River Thames below Teddington that the Board has considered the question, but they do not think it appropriate to insert a clause with respect to the matter in the present Bill. I am to add that your memorial, so far as it relates to the upper river, will be carefully considered when the time comes for constituting a separate Board of Conservators for the Upper Thames."

**AN ENGLISH CLOCK FOR CAPE COLONY.**—Messrs. John Smith & Sons, Midland Clock Works, Derby, have just received an order for a large clock for the new Town Hall at Vryburg, Cape Colony. It will be supplied with all the latest improvements.

**KING'S COLLEGE, LONDON.**—The forty-third annual dinner of King's College will be held at the Holborn Restaurant on Monday, June 22, with the Right Hon. and Right Rev. the Lord Bishop of Exeter in the chair.

**WATER SUPPLY, LYNTON.**—A scheme of water purification comprising "Hastings polarite filters has been adopted by the Lynton and Lynmouth Council, and on the 24th ult. Colonel D. D. R. F. of the Local Government Board, held an inquiry at the Town Hall into the Council's application for a loan to enable them to carry out the same. Mr. W. H. Chowins, Engineer and Surveyor to the Council, explained that the water will be conveyed direct from the river to the polarite filters, which will only occupy a space 21 ft. by 12 ft. by 12 ft. **SHAKESPEARE BIRTHPLACE, STRATFORD.**—The Town Council meeting on the 12th inst. memorials were presented from various learned societies against the proposal to erect a Carnegie Free Library in close proximity to Shakespeare's birthplace in Henley-street. One society offered to purchase an old



house on the site, built a year before Shakespeare's birth, for 1,000l., and restore it. The Council unanimously confirmed the committee's recommendation of the Henley-street site, and indignantly refused the offer to purchase, denying the intention to sacrifice anything historic and Shakespearian.

A meeting of the executive committee of the trustees of Shakespeare's birthplace was held at Stratford-on-Avon on the 14th inst. The question of retaining two of the cottages presented by Mr. Andrew Carnegie was considered. The other two, being somewhat modern and uninteresting, are being taken down. By the removal of these and the stripping of internal plaster inside the others, it has been found that there is much of the original ancient timber work remaining. It is hoped that means will be found to carry out the main idea of protecting the birthplace by isolating and safeguarding from fire these two cottages, which, in their various stages of architecture, are, it is stated, undoubtedly of great interest. These cottages are of early sixteenth-century date structurally, but possess comparatively modern frontages, which will probably be restored to their original appearance. At a Council meeting of the British Archaeological Association held on Wednesday under the chairmanship of Dr. Birch, F.S.A., Mr. Allen S. Walker, honorary correspondent of the Association, read a Report on the whole matter of the alterations in Henley-street, Stratford-on-Avon. Mr. Walker reported that three of the five cottages contained sixteenth-century timbers apparently of black oak, and of a most interesting character. These three houses, he added, had been discovered to have belonged to relatives of Shakespeare. A letter from Mr. A. Flower, Chairman of the Stratford Library Committee, inviting a representative of the Association to confer with his Committee was received, and the following resolution, proposed by Mr. George Patrick, A.R.I.B.A. (hon. secretary), and seconded by Mr. W. E. Hughes, F.R. Historical Society, was unanimously adopted: "That, having heard Mr. Allen S. Walker's account of the proposed alterations to the house of Shakespeare's cousin (known as Birch's shop), it is the opinion of this Council that it is desirable that its condition should be interfered with as little as possible, and that the removal of the brick front should not be carried out." A second resolution, relating to the two cottages belonging to the Birthplace Trustees, was also carried, and ran as follows: "That, having heard Mr. Allen S. Walker's account of the proposed alterations to the cottages belonging to the Birthplace Trustees at Stratford-on-Avon, it is the opinion of this Council that the removal of the brick fronts from the cottages adjacent to the birthplace should not be carried out." The honorary secretary was directed to send copies of the resolutions to the respective authorities.

**ROMAN WALL DISCOVERED AT NEWGATE.**—The demolitions on the site of the new Sessions House in the Old Bailey have resulted in the discovery at a moderate depth of an undoubted portion of the transverse thickness of the old Roman wall immediately behind "Deadman's Walk," the burial-place for executed malefactors, and in a line with the Old Bailey. It is built of "rag" or Reigate stone, with the usual courses of red tiles between, and it is in a line with the well-known course of the wall, as laid down by many old writers, and proved correct by previous discoveries.—*Daily Chronicle.*

**TOLEDO CATHEDRAL TOWER.**—It is stated that several large cracks have recently been noticed in the walls of the tower of Toledo Cathedral. It is feared that the tower will collapse.

#### CAPITAL AND LABOUR.

**SUNDERLAND BUILDING TRADE DISPUTE.**—The dispute between the builders and bricklayers at Sunderland has been settled, both sides having withdrawn their demands.

**PRESTON PAINTERS' STRIKE.**—The strike of painters for an advance of wages at Preston has been amicably arranged. The men gave notice of an advance to 9d. This notice expired on April 1. Since then the men have been on strike. The points at issue will be settled by arbitration.

**ST. HELENS BRICKSETTERS' DISPUTE.**—Judge Shand, who acted as arbitrator in the question of "walking-time" raised by the St. Helens bricksetters, has given his decision as follows:—Whereas a dispute has arisen between the St. Helens Building Trades Employers' Association and the Operative Bricklayers' Societies with respect to the interpretation of Rule 6 of the working rules of the Operative Bricklayers in St. Helens, it became necessary to refer the question to arbitration, as provided by Rule 11 of the said rules. And whereas it was mutually agreed between the said parties to refer the points at issue between them to me, Charles Lister Shand, as arbitrator, and abiding by my ruling. And whereas the points at issue were:—1. What is the meaning of the word "country" in Rule 6? 2. Are the operatives entitled to "walking-time" within the Borough of St. Helens from St. Helens employers assessed by the Corporation of St. Helens? 3. Is a workman entitled to "walking-time" if he voluntarily applies for work on the job? Now, I, Charles Lister Shand, having taken upon myself the burden of this arbitration, do

award and adjudge that:—1. The word "country" in Rule 6 of the working rules of the Operative Bricklayers in St. Helens means the district lying outside and beyond the boundaries of the Borough of St. Helens. 2. That the operatives are not entitled to "walking-time" within the Borough of St. Helens from St. Helens employers assessed by the Corporation of St. Helens. 3. That a workman is not entitled to "walking-time" if he voluntarily applies for work on a job. . . .

#### LEGAL.

##### ANCIENT LIGHT DISPUTE IN FINSBURY.

###### HOME AND COLONIAL STORES V. COLLS.

THE case of the Home and Colonial Stores v. Colls came before the House of Lords, composed of the Lord Chancellor and Lords Shand, Davey, and Robertson, on the 15th inst., on the appeal of the defendant from a decision of the Court of Appeal reversing a decision of Mr. Justice Joyce in the Chancery Division. The case was fully reported in the *Builder* of December 8th and 29th, 1900, and December 28th, 1901.

The facts were shortly these:—The plaintiffs are an incorporated company having a number of shops in different parts of the country, and brought the present action to restrain the defendant from erecting a proposed building so as to obstruct the plaintiffs' ancient lights. The premises in question were the head offices of the plaintiffs, situate in Worship-street, City. The plaintiffs' building was situated at the corner of Paul-street and Worship-street, but the only part concerned in the action was the Worship-street frontage. The plaintiffs were lessees of the premises from the Ecclesiastical Commissioners. The defendant was a builder, and also lessee of premises which he was erecting on the opposite side of the road, which was about 47 ft. wide. The premises which formerly stood on the site were 10 ft. 6 in. in height, and the defendant proposed to erect a building to a height of 42 ft., which the plaintiffs said would obstruct their lights. The main question to be decided was as to the apprehended injury to the light coming to the windows on the ground floor of the plaintiffs' premises, the portion of the ground floor opposite the defendant's premises being used as an office. It consisted of a large room 11 ft. 10 in. high and of unusual depth, the back wall being upwards of 50 ft. from the Worship-street front, and it had no window nor source of natural light at the back. This room, which was used by clerks in the plaintiffs' employ, was fitted with electric light, and the result of the evidence given at the trial was that it was the custom to use the electric light in the back part of the room on most days. The windows on the ground floor were of large size, the uppermost part of each window being filled with coloured glass to a depth of 20 in. from the top, and there were wire blinds fixed at the bottom of each window. At the trial a great amount of expert evidence was given, and it was practically admitted by the plaintiffs' witnesses that the defendant's building might be raised to a height of 25 ft. from the ground without any material injury to the plaintiffs. Mr. Justice Joyce was of opinion that there was no evidence to show that any extraordinary amount of light from the Worship-street windows had been enjoyed for anything like the twenty years, and that the proposed new building of the defendant would not affect the selling or letting value of the plaintiffs' premises. He said that if erected to the proposed height of 42 ft. no part of the defendant's building would be high enough to reach any line drawn at an angle of 45 deg. to the horizon from any point in the base or sill of either of the windows in question belonging to the plaintiffs. But he thought the defendant's building would for its width of 30 ft. directly south of these windows cut off a portion of the sky area then visible from within the plaintiffs' office, and would, he thought, to some extent, necessitate the more frequent use of artificial light in the front part of the office. Apart from any question with respect to the back part of the plaintiffs' premises and to the extraordinary amount of light required therefor in the absence of illumination by artificial light, the plaintiffs' premises would still, in his lordship's opinion, after the erection of the defendant's building be well and sufficiently lighted for all ordinary purposes of occupation as a place of business. In Judge Campbell's opinion, the plaintiffs' premises were unusually well lighted. It, however, as the plaintiffs contended, they were always entitled to the full amount of light they then enjoyed, they would have a good cause of action, although it might be doubted whether the diminution of light to their building by the defendant's proposed building would entitle them to an injunction. The learned Judge came to the conclusion that he must follow the decision of Mr. Justice Wright in the case of Warren and Others v. Brown (which leading case was reported in the *Builder* of August 11th, 1900, and November 2nd and 16th, 1901), and dismissed the action with costs.

From this decision the plaintiffs appealed to the Court of Appeal, when the appeal was allowed, and a mandatory injunction granted. Hence the present appeal of the defendant. Mr. Bray, K.C., Mr. O. Leigh Clare, and Mr.

A. B. Nutter (instructed by Hyde, Tandy, Mahon, & Sayer) appeared for the defendant; Mr. Haldane, K.C., Mr. Hughes, K.C., and Mr. Vernon (instructed by Slaughter & May) for the plaintiffs.

Mr. Bray opened the case for the appellants, and said the appeal raised a question as to the nature and amount of evidence required to entitle a plaintiff to relief by way of injunction for the protection of ancient lights, and the decision by their lordships would be one of far-reaching importance. The order appealed against was made by the Court of Appeal upon a motion of appeal by the respondent, here, the plaintiffs in the action, and it ordered that Mr. John Howard Colls should be perpetually restrained from erecting on the site of premises known as 44, Worship-street, Finsbury, any building in such a manner as to obstruct any of the ancient lights of the respondents, as the same were enjoyed previously to the taking down of the building which formerly stood on the site, and it was ordered, furthermore, that Mr. Colls (who was one of the largest builders and contractors in London) should forthwith pull down all buildings on the said site which had been erected in such manner as to obstruct any of the aforesaid ancient lights, but that the cost of the operation of the mandatory part of the Order should be appended to enable Mr. Colls to appeal to this House. The respondents were a limited company, and were entitled to the residue of a term of twenty-eight years from December 25, 1880, to a block of buildings situate on the north side of Worship-street and east side of Paul-street in the parish of St. Leonard's, Shoreditch. Worship-street ran east and west from Paul-street, and the Company's premises were about 47 ft. high from the corner block where Worship-street crossed Paul-street and Wilson-street, having a west front in Paul-street and a south front of about 150 ft. in length in Worship-street. Opposite to a portion of the south front in Worship-street of the Company's premises was the site of some buildings which had been recently removed and formerly belonged to Phillips & Son, Ltd. The site was 36 ft. in width, and known as 44, Worship-street, and the premises that formerly stood there were 10 ft. 6 in. high, and were adjoined on the west by the Cock and Magpie public-house, which was 33 ft. high, and on the east by Phillips & Son's buildings, which were also 33 ft. high. By an agreement dated July 11, 1900, and made between Phillips & Son, Ltd., and the appellant, the latter agreed to pull down the existing buildings, and erect, according to approved plans, a building suitable in character to the neighbourhood, and of a warehouse class, at a cost of not less than 2,000l., to be roofed by Ladyday, 1900, and the building owner agreed to grant the lessor a lease for ninety-nine years from Ladyday, 1900, at a pepper-corn rent for the first calendar month and 190l. for every subsequent year. Worship-street was being gradually rebuilt, and the new buildings on the south side were of a uniform height of 50 ft., while those on the north side varied from 49 ft. to 65 ft. While the appellant's building was in the course of erection, Mr. Willey, the Company's surveyor, wrote to the appellant that the Company had raised a question of the serious diminution of light that would be caused by the new buildings, and a suggestion of compensation which the appellant offered to discuss not proving acceptable he was served with the writ in this action on August 17, 1900. When the action was heard before Mr. Justice Joyce in December, 1900, it had been laid down by Mr. Justice Wright in Warren v. Brown [1900] 2 Q.B. 772, that the owner or occupier of a house had no legal right of action, so long as he had left to him as much light as was ordinarily required for habitation or business, even though he had been deprived of a substantial amount of light and had thereby suffered substantial damage.

The Lord Chancellor: That shortly is the proposition you invite us to hold as good law.

Mr. Bray: Yes, my Lord; that is what my contention here is.

The Lord Chancellor: Unfortunately for you that decision has since then been reversed by the Court of Appeal, who held that the true rule of law with reference to the interference with ancient lights was, I see, this:—"If ancient lights are interfered with substantially, and real damage thereby ensues to the tenant or owner, then that tenant or owner is entitled to relief."

Mr. Bray: I do not quarrel with that rule of law, but I say, not relief by injunction, but by compensation, and I have several reasons for saying so.

The Lord Chancellor: Then may we hear those reasons now?

Mr. Bray thereupon pointed out that according to the law of England the owner of ancient lights was not entitled to all the light which had in fact reached his windows, but was entitled only to such an amount as was sufficient according to the ordinary notions of mankind for the comfortable use and enjoyment of his tenancy for any purposes for which it might reasonably be considered available, or, alternatively, to a sufficient quantity of light for all ordinary purposes of inhabitation or business.

Lord Davey: Where a man, by reason of his carrying on a trade of particular delicacy, is deprived of some of his light, you would not say he could complain if sufficient light were left for ordinary trade purposes?



Mr. Bray: Certainly not; that has been so held. Continuing, the learned counsel said that was not the case here. The evidence was that after the new buildings are erected the ordinary amount of light will still reach the respondents' windows. He brought him to his second ground of appeal—namely, that in this case the respondents had not discharged the onus of proving that if the appellant were allowed to erect their building as proposed their premises would not derive sufficient light for all ordinary purposes. All the respondents proved was that the light was lessened; that was not enough. The appellant proved that when the building was erected, an angle of 57 deg. of light taken at the centre of the windows in question, and of 47 deg. taken at the sill, was still left, and therefore, assuming that the respondents' premises would continue to be used as now they were used, the respondents had sustained no damage. In cases where a new building left 45 deg. of light architects and surveyors thought that was sufficient. That, no doubt, was a "rule of thumb," but it was held to be a "good working rule." Before the respondents had to use artificial light, thus showing that they did not formerly enjoy any extraordinary amount of light. Then it became a question of a damage, if any, to a legal right—an easement simply—and that was capable of being estimated in money. The damage could be compensated for by a money payment, and the respondents' claim to an injunction ought not to be granted, because it was oppressive, and there was an alternative remedy open to them. It was very important to note the evidence which was given at the trial by experts on this question of light, which compelled them to say that the erection of the new buildings neither the selling nor the letting value of the company's premises would be affected adversely. The learned counsel having dealt with the numerous authorities cited in the Court of Appeal, and with the evidence as to damage, Mr. Clare followed on the same side.

Then the learned counsel addressed their lordships for the respondents. In this case the damage that the respondents would suffer would be substantial, and, therefore, the injunction granted by the Court of Appeal should stand. There was no rule of law, no rule of evidence, and no presumption or inference of fact, except, perhaps, of the very slightest kind, that where the angular height of an erection was less than 45 deg. the course of light would not be seriously interfered with. There might be an alternative remedy in compensation sometimes, but here the respondents were free to decline compensation, because the damage would be done and the nuisance to them could not be abated by the payment of a sum of money. The Court had no power to compel them to sell their property or their right to the appellant, who had no statutory claim to what he desired to make them part with. It was a legal right that the respondents enjoyed—a right fixed by the Prescription Act, and was absolute and indefeasible.

The learned counsel was still speaking when the further hearing was adjourned till Friday.

#### POINT UNDER MICHAEL ANGELO TAYLOR'S ACT.

THE case of Winsborrow v. The London Joint Stock Bank came before a Divisional Court of the King's Bench, composed of the Lord Chief Justice, Mr. Justice Wills, and Mr. Justice Channell, on the 15th inst., on the appeal of Mr. E. J. Winsborrow, assistant to the engineer and surveyor of the City of Westminster, from a decision of the Westminster Police Court magistrate, dismissing a summons preferred against the respondents, the London Joint Stock Bank under Section 65 of the Metropolitan Paying Act of 1817, commonly known as Michael Angelo Taylor's Act, which prohibited any person from hanging out or exposing "any meat or oil or any other matter or thing whatsoever from any house."

The facts were these: In February, 1899, the Bank had had attached to their premises at the corner of Victoria-street and New Tothill-street, and facing the latter thoroughfare, three reflector lights for the purpose of improving the lighting of some of their rooms. As these lights overhung the pavement, the appellants' contention was that they came within a section of the Act, and took proceedings against the bank to the police-court to be discontinued. The police-court took the points were taken on behalf of the bank, the first being that the reflector lights were not matters or things within the meaning of the section; the second being that as they had been fixed since February, 1899, the prosecution was barred under the Summary Jurisdiction Act of 1848. The magistrate decided in favour of the bank, and the respondents appealed. On that ground, therefore, he dismissed the summons. The second point as to time, he decided in favour of the appellant. Hence the present appeal.

At the conclusion of the arguments of counsel, the Lord Chief Justice, in giving judgment, said that the appeal must be dismissed. He thought it would be a contradiction in terms to speak of these reflectors as being hung out of houses, and the Section only referred to temporary or movable things, which might be unsightly, obstructive, or inconvenient.

There were other provisions dealing with the question of nuisance.

Justices Wills and Channell concurred.

Mr. Horace Ivory, K.C., and Mr. Bodkin appeared for the appellant; and Mr. Macmorran, K.C., and Mr. Hugh Fraser for the respondents.

#### POINT UNDER THE LONDON BUILDING ACT, 1894.

THE case of Goodchild v. Matthews came before a Divisional Court of Kings Bench, composed of the Lord Chief Justice, Mr. Justice Wills, and Mr. Justice Channell, on the 14th inst., on the appeal of the District Surveyor for North Islington and East St. Pancras from a decision of the stipendiary sitting at the Marylebone Police-court.

The facts were shortly these:—The respondent, a builder, wishing to erect six blocks of flats in West Hill, St. Pancras, gave the District Surveyor the requisite notice under Section 150 of the London Building Act, 1894. The Surveyor served a notice of objection, alleging that the proposed buildings would be a contravention of Section 77, Sub-Section 1, which enacts that buildings shall not be united except where they are wholly in one occupation or are constructed or adapted to be so. The magistrate found as a fact that each of the blocks contained its own staircase leading from the basement to the top, and had a separate entrance from outside, and that there was a passage under the roofs leading from one end of the blocks to the other. The plans disclosed that the walls dividing the blocks were of the necessary thickness to satisfy the requirements of the Act, and were not carried up through the roof. The surveyor's case was that each of these blocks was a separate building, and that the builder was proposing to unite them by means of the corridor in contravention of Section 77, Sub-Section 1 of the Act. The builder, however, contended that the whole was a single building containing several sets of flats which, though separate dwellings, were not separate buildings. The magistrate held that the building proposed to be erected by the respondent was one separate building, and not an union of separate buildings under one roof, and that Section 77, Sub-Section 1, only applied to the union of buildings which had in the first instance been completely erected as separate structures, and that it did not apply to the union of separate buildings in course of erection for the purpose of transforming them into a single separate structure. From this decision the District Surveyor now appealed.

The Lord Chief, in giving judgment after hearing the arguments of counsel, held that the finding of the magistrate was justified by the evidence. Reserving to himself the right to change his opinion when the point again arose, he thought that Section 77, Sub-Section 1, of the Act referred to the union of two buildings existing at the time of the union, and not to an addition to an existing structure. He thought the appeal should be dismissed.

Justices Wills and Channell concurred.

Leave to appeal was granted.

Mr. Horace Ivory, K.C., and Mr. F. F. Daldy appeared for the appellant; and Mr. Macmorran, K.C., and Mr. Craies for the respondent.

#### CLAIM AGAINST CEMENT MERCHANTS.

THE case of Reece v. Charles Nelson & Co., Ltd., came before Mr. Justice Grantham, sitting without a jury, in the King's Bench Division on the 18th inst.

Mr. Horace Ivory, K.C., and Mr. Hudson appeared as counsel for the plaintiff, and Mr. McCall, K.C., and Mr. Cranston for the defendants.

Mr. Hudson, in opening the plaintiff's case, said the action was brought by the plaintiff, a master plasterer, against the defendants, who are cement manufacturers and merchants, for damages for alleged breach of warranty expressed and implied, with reference to certain cement supplied by defendants to plaintiff. The plaintiff was a subcontractor under some builders named Harris & Co., who were building a new medical ward in the Poplar Hospital, the plaintiff having to do the plastering work there, with a particular cement called Selenitic Blue Lias Cement, manufactured by the defendants. Mr. Plumb, the architect for the work, specified that this particular cement was to be used on the job by the contractors. A Mr. Mumery was the assistant of Mr. Plumb, and this gentleman had charge of the work. On December 4, 1902, the plaintiff went to the defendants' place of business for the purpose of ascertaining the price of their cement and after the price was arranged defendants handed to plaintiff certain printed instructions showing how the cement was to be used. In due course a quantity of the cement was delivered by the defendants to the plaintiff, and the plaintiff used it for the purpose of plastering the walls of the hospital. After it had been done some time the walls began to blister under the staircase and afterwards extended to the walls. The architect called the attention of the builders to it and the builders communicated with the plaintiff and the matter was then looked into. There were some meetings on the work between the architect and his representative, the cement merchants, the builders,

and Mr. Reece. On June 14, there was a full discussion with regard to the cement. The walls were examined, the little holes—the places where the blisters had occurred—were examined, and then it was found that there was a little speck inside the place where the blister occurred. That was found to be in the first coat of plaster. There were two coats of plaster, the first a rough coat, and the second a finishing coat, and it was found that the specks were in the under coat. It was then decided that a Mr. Finney, the clerk of the works, should examine it to see what was the cause of the specks. Finney made some experiments and found that there were some small portions or particles of the cement which had not been properly burnt. He sifted a lot of the cement, and Mr. Mumery would produce the siftings. The plaintiff's workmen were then directed to plaster the walls of a stove-hole with some of the cement. Two coats were put on and then it was found that it blistered in the same way as it had done in the hospital. Then a meeting was called, at which practically every one interested was present. Another test was then applied, which was more conclusive still. The defendants were asked to bring some more cement out of their works, and they brought some in a cigar-box. The coats of the works, in the presence of Mr. Mumery, sifted the cement from the cigar-box, and it was then found that a residue was left. He then put this residue into a damp cloth and frequently dipped it in water, when it was found that it never slaked at all, showing conclusively that the cement had not been properly burnt, or kept at the works a sufficient time before being sent out. At that point Mr. Mumery understood that defendants admitted that there must be something wrong with the manufacture of the cement at their works, because it was then left to the architect to say what should be done under the circumstances, and plaintiff's witnesses would say that they were under the impression that the defendants quite accepted the responsibility, because their representative made the remark that it was to be hoped it would be remembered that their pockets were not too deep. The plaintiff naturally thought that that settled the matter. Subsequently the damage was rectified, partly by the builders and partly by the plaintiff. On plaintiff applying to defendants for payment of the money, they refused, and they repudiated all responsibility, and said that the defect, if there was a defect, arose from the lime putty which had been used. In the first coat of plaster there was no extraneous material, so that there could be no dispute as to the preparation of that. In the second coat there was a certain proportion of lime putty used, which the plaintiff supplied, and which was not supplied by the defendants at all. He (counsel) should be able to show his lordship from the evidence that the defendants' directions as to the preparation of the stuff were carried out to the letter. The clerk of the works supervised it very closely, and the plaintiff took every possible precaution in the matter. He thought he should be able to show the suggestion that the defect arose through the lime putty.

Mr. Martin Reece, the plaintiff in the action, was then called and substantially bore out the statement of his counsel. He said he had taken every precaution to insure that the defendants' printed instructions were carried out. He used to visit the work practically every day. There was nothing wrong with the lime putty. After applying the first coat of plaster they had to wait a week or nine days before putting on the finishing coat, owing to the weather. The builders debited him with 115*l.* 11*s.* 10*d.* in respect of this matter. The builders stopped that amount out of moneys due to him from them. He traced the specks into the under coat of the cement.

Cross-examined by Mr. McCall:

He had never used the defendants' Selenitic Blue Lias Cement before, and he never wanted to use it again. The selenitic cement supplied by the defendants was used both on the walls and on the ceilings of the hospital. Substantially there was no complaint as to the ceilings. That was, however, due to their using a considerable amount of lime and hair, which was not used on the walls. The blistering was due to a small particle of unlaked lime which must at some time have got through the mesh of the sieve. As far as he was able to judge, the mischief was in the backing coat. He did not understand that all along the defendants had said that it was in the facing coat and not in the backing coat. For the backing coat he used a finer sieve than that prescribed by defendants, and even that did not prevent the particles getting through. Mr. Elythe, the defendants' representative at the meeting, said that he would admit there was something wrong with the cement and that he would see about it the moment he got back to the works. He said something about bearing the loss, if loss there was. He said, "I suppose we shall have to bear the cost; but bear in mind our pockets are not too deep." Over the whole of the work about 4,300 yards super were plastered with the defendants' plaster. Not more than 3,288 yards of that was subject to blisters.

Mr. Finney, examined, said he was clerk of the works to the Poplar Hospital job. He supervised the mixing of the cement from time to time. The defendants' instructions were carried out strictly to



the letter while he was there. In the second coat of plaster in the experiments he made he did not use lime putty at all. Both the coats blistered as they had done in the hospital. The conclusion he came to was that the selentic had not been sufficiently burnt.

Mr. John Holler, examined by Mr. Ivory, said he was foreman plasterer in the service of the plaintiff, and had acted as general foreman of the plastering work at the hospital. He had heard the evidence given by the previous witnesses and agreed with it. The mixing was done in accordance with the directions of the defendants.

Mr. Mummy, examined by Mr. Ivory, said he was the architect's assistant on the work. The evidence given by the previous witnesses was substantially correct.

Mr. Wm. Millar, examined by Mr. Ivory, said he was an expert in cement, and had been in practice for thirty-seven years in that line. He had several qualifications for that purpose. He had examined the blisters on the walls of the hospital ward. Inside the blister was a dark speck, and the dark speck was improperly calcined blue lias lime.

This being the plaintiff's case, Mr. McCall said he would call his evidence before addressing his lordship.

Accordingly, Mr. G. B. Blythe, examined by Mr. McCall, said he was the managing director of the defendant company. In the manufacture of selentic blue lias lime it was impossible, if properly treated, for any particles which would cause any damage in the plastering to get through the sieves. He had supplied the same material that he supplied the plaintiff with to other customers, and had had no other complaints. He had examined the walls of the hospital and found many blisters. In his opinion, the whole of the blisters were in the finishing coat. He had never said to Mr. Plumb or anybody else that defendants would bear the cost of repairing what had taken place, but he had said that if the damage was caused by their bad material they would bear the cost. He did not admit that the fault was in their stuff.

Mr. Arthur William Ewins Cole examined, said he was the manager of the defendants' works at South Anar, Paddington. Clods were caused through the improper mixing of the selentic. In his opinion the blisters were in the finishing coat.

Mr. Bickley, examined, said he had a large experience in plastering work generally. For many years he had used selentic manufactured by defendants. He had inspected the work at the hospital, and had tested several of the blisters. He was of opinion that they were caused in the facing coat.

At this stage the further hearing of the case was adjourned, the learned Judge having to attend at the Old Bailey during the remainder of the week.

#### THE NEWCASTLE ANCIENT LIGHTS CASE.

MR. JUSTICE BUCKLEY, in the Chancery Division on the 10th inst., delivered a considered judgment in the case of *Cowper v. Laidler* on the question of whether the plaintiff's remedy in respect of infringement by the defendant of ancient lights to a cottage belonging to plaintiff in Dye-lace, Newcastle-on-Tyne, should be an injunction or damages. The case was reported in our last issue.

In giving judgment, his Lordship said he had already found as a fact that the access of light over the defendant's property to certain ancient lights of the plaintiff—namely, a ground-floor window and a dormer window in the south wall of the plaintiff's cottage as theretofore enjoyed—would be substantially and materially interfered with by the defendant's proposed buildings. The defendant's buildings were not yet erected, and the injunction asked for was, therefore, prohibitory, not mandatory. The question on which he had reserved judgment was whether damages could be, or under the circumstances ought to be, given to the plaintiff instead of an injunction. By Lord Cairns's Act, when a mandatory injunction was asked for, the Court had jurisdiction to substitute damages for an injunction. Secondly, when an injunction was asked for to restrain a continuing nuisance—that was, where the act had been done—and there was an intention to continue to do it, then it seemed by the cases there would be jurisdiction to grant damages instead of an injunction. Thirdly, where no wrongful act had been committed, but an injunction was asked for to restrain its commission, the Court of Appeal had expressed a clear opinion that Lord Cairns's Act contained no power to give damages in lieu of an injunction. In a later case, however, the Court of Appeal had said that the question whether the Court had jurisdiction to award damages by way of compensation for an injury not yet committed, and only threatened or intended, was not free from difficulty. A prescriptive right to light was a legal right, and it was a matter of property. When a plaintiff had established his legal right to it, unless there was something special in the case, he was entitled to an injunction to prevent its violation. The plaintiff's easement to light was an easement at common law. The plaintiff was entitled to an injunction, not in the discretion of the Court, but as a matter of course, unless there was something special in the case, such as *laches*, or where the interference with the light was only trivial. The Court had affirmed

over and over again the view that the jurisdiction to give damages, where it existed, was not to be used to enable a defendant to purchase from the plaintiff his legal right to an easement. The Court had no right to compel the plaintiff to part with his easement for money. It had been held in cases where the injury was trivial, and the damage could be measured by a small sum—*20s.* in one case and *5s.* or *6s.* in the other—the Court might, where there was jurisdiction, give damages in lieu of an injunction, but, except in such a case, the owner of a legal right to an easement was entitled to an injunction. In the present case the circumstances upon which the defendant relied were that the property in Northumberland-street was much more valuable than the comparatively insignificant property in the lane at the back, and the plaintiff purchased the cottage because he knew that it would become more valuable in relation to the adjoining property. The defendant had given no evidence, and it was not suggested, his Lordship thought, that the damage the plaintiff would suffer would be *20s.* or any small sum of that kind. He (his Lordship) found, as a fact, that the damage would be substantial. The defendant said that the plaintiff's cottage property was worth comparatively only a small sum, and that the plaintiff was extorting money by asking for an injunction, and thus compelling him to either buy at an unreasonable price or keep his buildings down. That argument was a fallacy. It was not extorting money to ask a price for property which for special reasons could command an exceptional price. When a neighbour required property for his own purposes he must submit to pay a fancy price for it. When the defendant bought, as he did submit to the plaintiff's easement, he presumably paid less for his property than he would have done if the easement did not exist. The value of the plaintiff's property was not merely the value of the cottage, but such sum as it would fetch having regard to the easement of light, and a price which, having regard to the exigencies of the neighbouring property, it would command. He was of opinion that this was not a case where the course of giving damages in lieu of an injunction ought to be taken. He thought the plaintiff was entitled to an injunction, and he granted an injunction in the usual form, restraining the defendant from erecting any buildings so as to darken or obstruct the plaintiff's right of light as theretofore enjoyed. The plaintiff had also claimed a right to light to a skylight, but the evidence was insufficient for him to determine whether it was an ancient light or not. It was not, however, necessary for him to determine that question, because the injunction with respect to the other lights would protect the skylight. He had already dismissed the action with regard to the disputed room. The other relief asked for by the statement of claim had not been pressed, and he made no order with respect to it. He also made no order as to costs.

Judgment accordingly.

#### LIBEL ACTION BETWEEN BUILDERS.

THE case of *Dandridge v. Hayles* came before the Court of Appeal, composed of the Master of the Rolls and Lords Justices Stirling and Mathew, on the 19th inst. on the application of defendant for judgment or new trial on appeal from verdict and judgment entered at the trial before Mr. Justice Ridley and a special jury in the King's Bench Division. The case was reported in the *Builder* of January 24 last.

This was an action by the plaintiff, a builder and contractor, against the defendant, also a builder and contractor (both carrying on business at Shanklin, Isle of Wight), to recover damages for libel. The case for the plaintiff, Francis Dandridge, was that in April, 1900, the Sandown Urban District Council decided to have Wilton-road, Shanklin, which the defendant, George Hayles, resided and owned property, sewered, levelled, metalled, and put into proper repair. Plaintiff tendered for the work and obtained the contract, which was, he said, properly carried out under the supervision of the Surveyor of the District Council and his clerk of the works. While it was proceeding the defendant wrote a letter to the District Council containing the words complained of, in which he imputed that the contract was being carried out in a "barefaced scamping manner," and complained of a deficiency of ballast, &c. The Town Council inquired, and found the complaint was groundless, but the defendant still persisted in his allegation, and resisted the payment of his proportion of the cost as fraterger on the ground that the work was not properly executed. He was, however, ordered to pay the amount to which he was assessed by the magistrates, and on appeal to the King's Bench Division was unsuccessful. The letter was read out at the Council meeting and made public, and had, plaintiff said, done him a great deal of injury, and, therefore, he brought the present action. The defendant pleaded that the letter was written as a rate-payer and fraterger, and that, therefore, it was privileged. In the result, the jury awarded the plaintiff *50s.* damages, and judgment was entered accordingly. Hence the present appeal of the defendant.

Mr. Montagu Lush, K.C., and Mr. Marriott

appeared as counsel for the appellant, and Sir Arthur Collins, K.C., and Mr. Turrell for the respondent.

During the course of the arguments of counsel a suggestion came from the Bench that the parties should endeavour to arrive at a settlement of the dispute.

After some discussion it was arranged that the appeal should stand over in order that the parties might endeavour to come to some arrangement.

Order accordingly.

#### THE WORKMEN'S COMPENSATION ACT.

WHAT IS A WAREHOUSE?

At the Southwark County Court, on Monday, his Honour Judge Addison, K.C., heard a claim under the Workmen's Compensation Act by Frederick Charles Green, a labourer, against Messrs. Britten & Gilson, glass and colour merchants, builders' merchants, drysalers, &c., of 180, Union-street, Brough. Mr. O'Connor was counsel for the applicant, and Mr. Shakespeare for the defendant. Mr. O'Connor said the only point in the case was as to whether the respondents' premises where the applicant met with permanent injury was a warehouse within the meaning of the Act. The defendants had what might be termed a shop in Union-street, in which they did principally a wholesale trade. Behind the shop were two arches, one of which was used as a warehouse for the storage of crates of glass, and the other as a glazing and lead-glass shop. On December 8 the applicant was at work in the arch where the glass was stored, when some crates fell upon him and he was permanently injured. The goods in the warehouse were never broken in bulk but were sold as they were imported, to builders and others. Any retail business was done in the front shop, which was a warehouse, and the shop was supplied in bulk from the warehouse. The goods when sold were taken direct from the warehouse in the respondent's own vans and not from the shop. The applicant said he had been in the respondent's service sixteen years, eight years of which he acted as a warehouseman. The warehouse where the accident occurred was always called by employees and others "the warehouse." From 400 to 500 cases of glass were generally stored in "the warehouse."

Cross-examined, the applicant said that there was underground communication between the front shop and "the warehouse."

Other witnesses gave evidence that the building was popularly recognised as a warehouse. Mr. Shakespeare submitted that both the construction of the Act and on the authorities the building did not constitute a "warehouse," because it was only a place used for keeping goods necessary for carrying on the wholesale and retail business of oil and colour merchants, &c. Whatever a "warehouse" might be within the meaning of the Act, it was not a place where goods were stored for the purpose of supplying a business other than that of the business of a warehouseman.—His Honour: Your point, I take it, is that a "warehouse" is a place where goods are warehouse only, and not as auxiliary to the carrying on of business?—Mr. Shakespeare: Yes, your Honour.—Continuing, Mr. Shakespeare said that another point was that, under Section 7 of the Act, it was stated that a factory had the same meaning as the Factory and Workshops Act. A warehouse whatever it meant in the Factory Act meant something other than a workshop. Both warehouses and workshops were dealt with, and presumably they meant different things. On the evidence it was clear that the whole of the respondent's premises, seeing that there was intercommunication between the shops within the meaning of the Factory Act, and as a workshop meant something different from a warehouse, *prima facie* the arch in which the accident happened was not a warehouse.—His Honour: I should not decide the case at that point, because I can conceive of many warehouses where a great many operations are carried on, but yet are essentially warehouses. Reverting to his first point, Mr. Shakespeare said there were only two cases to guide them. In one, *Burn v. Whiteley*, it was held that a place where goods were stored for the purpose of supplying retail shop was auxiliary to the business and did not constitute a warehouse. In *Hunt v. Grantham* it was decided, too, that a storeroom was not a warehouse because it was auxiliary to some other business, which was not a warehousing business.—Mr. O'Connor said he agreed that the Court of Appeal had laid it down that a storeroom for the purpose of supplying retail business was not a warehouse; but the goods kept in the arch in question were not stored there merely for supplying the respondent's shop, but for being dealt with wholesale. It was a separate building, and the business was really separate and distinct from the shop. In *Willmot v. Eaton* it was held that an uncovered space on which oil was broken up and kept until sold was a warehouse.—Mr. Shakespeare retorted that that was because the County Court Judge did not happen to send up certain facts, and, therefore, the case went off on a technicality.—His Honour, in giving judgment, said he was obliged to find that the arch was used as auxiliary to the respondent's business. They merely supplied from



the orders they obtained, either by travellers or by means of correspondence, or some other way, and the place was, therefore, not a "warehouse" in the sense in which that Act required. Upon the second point he should find against the respondents as he was not at all satisfied with the contention that a workshop could not also be a warehouse. He made an award in the respondents' favour with costs, but fixed the applicant's compensation at 12s. per week during incapacity, in case his decision was reversed on appeal. That course would save the parties coming back to the court.—Judgment was entered accordingly, Mr. O'Connor giving notice of appeal.

#### THE NEW STREET FROM HOLBORN TO THE STRAND.

THE case of the King v. The High Bailiff of Westminster (*ex parte* the London County Council) came before a Divisional Court of King's Bench, composed of the Lord Chief Justice and Justices Wills and Channell, on the 20th inst., for argument on a rule nisi, obtained by the Council, calling on the High Bailiff of Westminster to show cause why a writ of mandamus should not issue commanding him to summon a jury to determine the sum to be paid by the Council to the claimants Elizabeth S. Burgess and Jane Croft for the purchase of their interest in the County Council Street Dances, and for loss and damage in consequence of the taking of the premises under the London County Council (Improvements) Act, 1890, the Act which empowers the Council to make a new street from Holborn to the Strand, and other street improvements.

It appeared that on March 4, 1902, the claimants received from the County Council a notice to treat and in that notice the Council claimed that the premises were in an insanitary condition under Section 20 of the Act of 1890, which enacts that in the event of such claim on the occasion of assessing the compensation the court or other person settling the same shall determine whether such lands fall wholly or in part within that description. In the event of their so deciding then in assessing the compensation that certain evidence shall be receivable, and if the court or person should be satisfied by such evidence then the purchase-money should be assessed under Section 21 of the Housing of the Working Classes Act, 1890. The claimants on March 27, 1902, served on the Council a notice of claim under Section 12 of the Act of 1890, and on November 5, 1902, the Council delivered to the claimants a sealed offer of 1,600l. under Section 38 of the Lands Clauses Act, 1845. On November 18, 1902, the claimants refused the offer, and on November 22 the Council issued a warrant to the High Bailiff to summon a special jury. The jury found that the premises in question were insanitary, and then the claimants said they would accept the sealed offer. The Council contended, however, that it was too late for the claimants to accept the sealed offer; but the D. puty-Bailiff held that the claimants could accept it, and discharged the jury without their having returned a verdict as to the amount of compensation. The County Council then obtained the present rule.

Mr. Danckwerts, K.C. (with him Mr. R. C. Glen) in showing cause against the rule, contended that the claimants could accept the offer at any time up to the verdict.

Mr. Dickens, K.C. (with him Mr. Corrie Grant), for the Council in support of the rule, submitted that the claimants could only accept the offer within the ten days prescribed by Section 38 of the Lands Clauses Act of 1845.

In the result their lordships held that it was open to the claimants to accept the offer at any time up to verdict, and discharged the rule.

#### PATENTS OF THE WEEK:

##### APPLICATIONS PUBLISHED.\*

9,580 of 1902.—W. CROOKALL and R. ARMSTRONG: Fasteners for Windows.

A door or window fastener consisting in the combination of a pillar having several recesses therein and a catch movable on a pivot or in a slide, and adapted to engage with any of the recesses in the pillar.

5,715 of 1902.—T. B. HITCHMAN: Screw Nail. A nail or screw the head of which carries or forms one or more projections adapted to form and act as a part or parts, or segment or segments, of the thread of a screw.

9,724 of 1902.—C. HARVEY and W. PADDOCK: Indicators for Use in connection with Storage Tanks.

An appliance for indicating the level of liquids in petrol and like storage tanks and other vessels, consisting of a helical blade freely supported within the interior of the tank or vessel connected with a pointer which works over an external dial, and a float which rises and falls with the contained liquid, and is provided with a screw box at its equivalent, through which the helical blade is directed, said float being constrained by suitable guides to rise and fall without rotating, and to impart a corre-

sponding rotary movement to the said blade and pointer, so that the position of the said pointer with respect to the dial will indicate at a glance the quantity of liquid contained in the tank.

9,749 of 1902.—J. W. EWART and G. H. EWART: Gas-Regulating Valves for Use with Water Heaters.

A gas and water regulating valve for use with water heaters, consisting in the combination of a box or chamber having gas inlet and outlet tube, a valve for closing the gas outlet tube, and of a spindle which extends through the chamber and carries the gas-valve inside the chamber and a water valve outside the chamber, the said water valve being so arranged that on the water supply being turned on it turns the spindle, and so raises the gas-supply valve, and closes the same on the water supply being interrupted.

10,443 of 1902.—E. A. SACHET and J. C. SANDERSON and G. B. BETTS: Combined Window Sash Fasteners and Roller-blind Supporters.

This consists in adjusting and locking a window sash by means of a rod attached thereto, and a screw clamp having a lateral opening adapted to receive a reduced portion of the rod, the socket of said clamp having a mouth of less width than the diameter of the main portion of the rod.

14,070 of 1902.—W. NOCK and TONKS, LTD.: Rising Butt Hinges.

A rising butt hinge, consisting in the combination of two pairs of spirally inclined bearing surfaces in or on the knuckles of the hinge, preferably one pair at top and the other pair at bottom, the two pairs of spirally inclined bearing surfaces having the same inclination as each other.

16,676 of 1902.—F. STANFIELD: Door Fasteners.

This consists in the combination with a handle, latch, or turn-button of a door with an automatic dial and means for actuating the same so as to indicate visibly whether the said door is securely fastened or otherwise.

16,693 of 1902.—L. KNOCH and DR. M. ISSLUB: Manufacture of Varnish, Paint, or the Like.

A process for the manufacture of varnish, paint, or the like, according to which naphthalene is dissolved in a raw or boiled linseed oil under addition of  $\beta$ -naphthol.

3,201 of 1903.—W. S. STURGES: Window Sashes.

In window frames and sashes the combination with plates or strips furnished with holes or perforations secured to the sides of the sashes, of spring catches secured to the sides of the frame and adapted to engage the said holes or perforations.

4,241 of 1903.—F. GUILLEAUME: Water-closets.

This consists of a hinged seat for a water-closet which is hinged to a lug integral with the pan by means of two short arms formed upon it, the said seat being held in its raised position by means of these arms, and of two projections formed upon the closet pan or upon the arms themselves.

4,709 of 1903.—J. BARR: Electrically Driven Vertical Saw Frames for Cutting Wood.

This consists of electrically driven saw frames for cutting wood, wherein the electric motor is placed overhead free from the sawdust falling from the log or deals being sawn.

4,762 of 1903.—M. MENNER: Door Closers.

A door closer in which wheels are provided with brake shoes and pressed by springs against the walls of the casing, and are pivoted to a horizontal disc adapted to rotate with the closing lever and slide on the said walls with slight friction during the opening of the door, but bear powerfully against the said walls during the closing of the door.

12,796 of 1902.—J. Y. JOHNSON: Manufacture of Ceramic or Earthenware Masses or Articles.

The manufacture or production of ceramic or earthenware masses or articles, by burning a mixture of aluminium oxide, and a plastic material, such as clay or the like.

13,616 of 1902.—E. J. EASON: Siphon Used Traps in Connection with the Drainage of Water and Other Liquids.

An apparatus for application to ordinary siphon traps made for preventing foul air or gas from rising through pipes used for draining away water or liquid of any kind, and which may be applied in such manner that the interior of the siphon trap may be at all times fully accessible for examination, inspection, cleaning, and repairing.

25,593 of 1902.—G. LIND: Apparatus for Plastering Walls, Ceilings, and the Like.

Apparatus for plastering walls comprising pressure-producing means in place of the scout wheel, this pressure-producing means being controlled by a weighted lever which serves to force the plastering material against the wall through one or two delivery openings, an upper opening and a lower opening.

25,750 of 1902.—PARKINSON, and W. & B. COWAN, LTD. and A. G. CHURCH: Lighting Attachments for Gas Street Lamps and Other Gas Burners for Illuminating and Heating Purposes.

Lighting attachments for the burners of gas street

lamps wherein an explosive mixture of gas and air is formed and exploded within a tube or equivalent device, which conducts the flash or flame created by said explosion to the region of the burner for directly or indirectly igniting the gas issuing therefrom.

26,852 of 1902.—J. H. W. STRINGFELLOW and F. N. MAINETTY: Compositions Applicable as Varnishes or the Like, and as a Cement or Filling for Painters' Use.

The production of a transparent varnish especially adapted for the preservation from oxidation of iron, steel, and other metals, which is produced by means of a solvent composed preferably of an oil of petroleum, and an oleaginous crude turpentine, which solvent is used to dissolve a resin or resinoid ingredient.

28,731 of 1902.—W. OATES: Conduits or Carriers for Electric Cables.

A conduit or carrier for electric cables, the ducts of which are each provided with a narrow longitudinal opening from end to end of each length, communicating with a separate draining channel.

983 of 1903.—H. SIEGWART: Cores or Formers for Use in the Manufacture of Hollow Girders or Structures.

A core or former for use in moulding or casting hollow structures from plastic material, comprising a former in two longitudinal parts constituted by several plates flexibly jointed together, the connection of the two longitudinal parts consisting of a resilient sheet which, in connexion with other longitudinal joints in the two parts, enables, upon the operation of a device for inwardly moving or collapsing the longitudinal parts, a contraction of the circumference of the former.

984 of 1903.—H. SIEGWART: Apparatus for Cutting Beams, Girders, and Other Structures, particularly to those made of Artificial Stone.

An apparatus for cutting beams, girders, and other structures, comprising two cutters arranged in line with each other above the structure to be cut, which cutters are moved during operation towards each other and obliquely through the structure to be cut.

3,308 of 1903.—O. IMRAY (The Carborundum Co.): Manufacture of Refractory Articles, such as Bricks, blocks, or Crucibles.

Articles composed of a baked mixture of a refractory material such as silica, chrome ore, or magnesite mixed with carborundum.

5,514 of 1903.—H. GRIMSHAW: Method of and Device for Charging Water in Filling Tanks or the Like with a Disinfectant.

The method of charging or impregnating water in a filling tank, by the slow dissolution of a solid disinfectant contained within a case or receptacle placed or suspended in the tank.

11,074 of 1902.—W. McLAREN: Ventilators.

A ventilator comprising a pipe or socket open at both ends, and a double conical convex hood or shield fitted over the upper end of the pipe or socket, and provided with an opening on the under side of each end.

10,066 of 1902.—J. ARNOLD: Combined Fresh-air Inlet and Foul-air Extraction Apparatus for Buildings.

The apparatus consists of a box or case having open ends, with flaps hinged reversely at said ends to open to an equal space internally and externally for the admission of fresh air, and by reversing the flaps to extract foul air, the said flaps being caused to work by a double crank fixed on an axle or pivot, and the said flaps having sides or cheeks and the openings formed thereby having a perforated covering.

1,369 of 1902.—F. MOUNTFORD: Automatic Machinery or Apparatus for Decorating and Glazing Tiles and Other Similar Articles of Pottery-ware, Glass, Metal, and Other Substances.

A machine for decorating or glazing tiles and other similar articles of pottery-ware, glass, metal, and other objects, characterised by a bed or frame carrying a central shaft, a tile-carrying frame capable of having a rising-and-falling and circular movement about said shaft, tile gripping or holding mechanism carried by said frame, means for giving the tile-carrying frame a rising-and-falling and step-by-step rotary motion, means for spraying, flipping, or brushing decorative or glazing material on to the tiles, means for operating the spraying, flipping, and brushing mechanism, and for taking it out of action as required, means for determining the length of time during which the decorative or glazing material shall be sprayed, flipped, or brushed on to the tiles, and means for adjusting the timing mechanism.

10,288 of 1902.—G. E. HEMINGWAY and G. W. GREEN: Means or Apparatus for Forming or Pressing Pipe or Tube Sections out of Metal Plates.

Means or apparatus for forming or pressing pipe or tube sections out of metal plates, consisting of a lower or outer female block or bed and an upper or inner male block or bed adapted to be pressed

\* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.



towards each other, and so form the pipe or tube section between their respective faces.  
18,180 of 1902.—J. PARR: *Windows*.  
The object of this invention is to enable sash frames to be taken out of window frames by removing a bead, and to enable the bottom sash to open out.

## MEETINGS.

SATURDAY, MAY 23.

*Incorporated British Institute of Certified Carpenters*.—Visit to the new Gaiety Theatre in course of erection. 3 p.m.  
*St. Paul's Ecclesiastical Society*.—Visit to the Church of Aldenham. Train to Watford from Euston at 2.40 p.m., or from Broad-street at 2.20 p.m.

MONDAY, MAY 25.

*Surveyors' Institution*.—Annual general meeting. 3 p.m.  
*Builders' Benevolent Institution*.—Committee meeting. 5 p.m.  
*Church Carpenters' League*.—Half-yearly general meeting at Clifford's Inn Hall, Fleet-street, E.C. A lecture will be given by Mr. F. C. Foles on "Altars: their Arrangement and Ornament" (illustrated by lantern slides). 8 p.m.

TUESDAY, MAY 26.

*Royal Institution*.—Professor E. J. Garwood, M.A., on "The Work of Ice as a Geological Agent." 1 p.m.

THURSDAY, MAY 28.

*Royal Institution*.—Professor J. A. Fleming, M.A., on "Electric Resonance and Wireless Telegraphy." 1 p.m.

*Institution of Electrical Engineers*.—Annual general meeting to receive the annual Report of the Council and the statement of accounts and balance-sheet. The announcement of the election of the new Council will also be made at this meeting. 5 p.m.

*Junior Institution of Engineers*.—Visit to the new reservoir works of the New River Water Co. at Kempton, under the guidance of the engineer, Mr. Joseph Francis. Train leaves Waterloo 1.20 p.m.

FRIDAY, MAY 29.

*Royal Institution*.—His Serene Highness Albert Prince of Monaco on "The Progress of Oceanography." 9 p.m.

SATURDAY, MAY 30.

*Edinburgh Architectural Association*.—Visit to Perth and Stone.  
*Edinburgh Institution*.—Professor Silvanus Thompson on "The 'De Magnete' and its Author." 1 p.m.

## SOME RECENT SALES OF PROPERTY: ESTATE EXCHANGE REPORT.

May 6.—By A. B. CASTLE (at Great Yarmouth), Belton, Suffolk.—The King's Head Hotel, with enclosure of marsh land, 8 a. 1 r. 30 p. f. £5,670.  
May 8.—By RUSSELL & SON (at Leamster), Middleton-on-Hill, Hereford (Church Farm, 80 a. 2 r. 1 p. f.).  
By W. BROWN & CO. (at Tring), Tring, Herts.—New Town House, with orchard and maling, area 2 a. 0 r. 8 p. f. 1,320.  
1 to 6, Newtown and four cottages adjoining, f. w. 741. 28s.  
By CUMBERLAND & SONS (at Derby), Thurvaston, Derby.—Four closes of land, 19 a. 3 r. 37 p. f. 800.  
May 9.—By FENT & CO. (at Colchester), Thorington, Essex.—The Gate House Farm, including brickyards, 150 a. 0 r. 4 p. f. 1,975.  
By EVANS & EVANS (at Stafford), Walford, Staffs.—Freehold farmhouse and 111 a. 3 r. 11 p. f. 1,500.  
Slinden, Staffs.—Villa Farm, 88 a. 0 r. 1 p. f. 1,700.  
—Four freehold cottages, with wheelwright's and blacksmith's shops, area 0.3 r. 24 p. f. 350.  
By J. MILLER, MOON, & FULLER (at Newport), Whitwell, Ebor.—The Wight—Dean and Berry farms, 28 a. 3 r. 30 p. f. 1,350.  
May 11.—By NIGHTINGALE, PHILLIPS, & PAGE, Kingston-on-Thames, Surrey.—High-st., Fricker's Eagle Brewery, f. with 28 tied houses. 99,500.  
47, 49, 51, and 53, Fairfield-rd., f. w. 741. 16s.  
New Malden, Surrey.—Sycamore-gr., The Cottage, u.t. 61 yrs., g.r. 31, v.r. 251. 300.  
Teddington, Middx.—2 to 10, Warwick Cottages, u.t. 601 yrs., g.r. 224, 10s., w.r. 1281. 14s. 700.  
Ham Common, Surrey.—Main-rd., a freehold building site. 263.  
Kingston-on-Thames, Surrey.—24, High-st. (S.), f. y.r. 701. 1,600.  
26, High-st. (S.), f. y.r. 501. 15s. 1,400.  
28, High-st. (S.), f. y.r. 1206. 0s. 6d. 3,100.  
30, High-st. (S.), f. y.r. 1206. 0s. 6d. 3,100.  
32, High-st. (S.), f. y.r. 601. 4s. 1,250.  
Kingston-on-Thames, Surrey.—High-st., freehold stabling premises, f. 181. 285.  
High-t., Clatten Wharf, f. y.r. 552. 0s. 2d. 1,300.  
High-t., Bourgoine's Boat-houses and Boat-building Yard, f. y.r. 1401. 3,775.  
Union-st., freehold business premises, f. 421. 850.  
New Malden, Surrey.—South 1 a, three enclosures of land, 17 a. 3 r. 0 p. f. 900.  
By J. H. BETHELL, Homerton.—67 and 69, Glyn-rd., u.t. 70 yrs., g.r. 31, v.r. 721. 0s. 9.  
Forest Gate.—26, Station-rd. (S.), f. y.r. 451. 920.  
East Ham.—75, Barking-rd., f. y.r. 451. 1,080.  
100, Katherine-rd. (S.), u.t. 814 yrs., g.r. 41, 10s., y.r. 261. 455.  
Manor Park.—Church-rd., The Church-rd. Bakery (S.), f. y.r. 451. 910.  
East Ham.—15, Hurdley-av., f. r. 281. 12s. 310.  
Plaistow.—11, Grants-rd. (S.), f. y.r. 391. 305.  
By GREEN & SON (Hammersmith), Hammersmith.—1, 3, 5, and 7, Bradmore Park-rd., u.t. 60 yrs., g.r. 161, w.r. 1406. 8s. 845.  
Maida Hill.—17, 19, and 21, Portland-rd., u.t. 751 yrs., g.r. 211, y.r. 1221. 1,050.

By JONES, SON, & DAY, Wanstead.—Grove-rd., five plots of building land, f. 2630.  
East Ham.—Barking-rd., two plots of building land, f. 265.  
By C. & F. RILEY, Catherham Valley, Surrey.—4, 5, and 6, the villas, f. y.r. 1531. 1,130.  
Farningham-rd., Hamilton House, f. w.r. 471. 13s. 260.  
2 to 5, Hamilton cottages, f. w.r. 874. 28s. 630.  
High-st., 10 plots of building land, f. 1,400.  
Farningham-rd., 16 plots of building land, f. 360.  
Purley, Surrey.—Godstone-rd., Foxley Hatch and 2 r. 9 p. f. y.r. 801. 1,520.  
Godstone-rd., Foxley Lodge and 3 r. 20 p. f. y.r. 601. 1,000.  
Foxley-rd., four plots of building land, f. 850.  
By TUCNETT & SON, Stamford Hill.—28, Amburst-pk., u.t. 75 yrs., g.r. 251, y.r. 1201. 1,250.  
May 12.—By BEALE & CAPPS, Notting Hill.—109, Walm-rd., u.t. 41 yrs., g.r. 61, 35, y.r. 451. 420.  
By CHANCELLOR & SONS, Ascot Heath, Berks.—Firkbank, and 2 a. 0 r. 23 p. f. y.r. 1201. 4,000.  
By DEBENHAM, TAYSON, & CO., Binfield, Berks.—Tilchurst-la., Park Lodge, and 3 a. 1 p. f. 4,000.  
By BRAYTON & SONS, Combe Martin, Devon.—Glenavon and 61 a. f. 2,050.  
By MILLER & REID, Edgware, Middlesex.—1 and 3, Spring-villas; also Spring Villa, y.r. 611. 1,300.  
By ROBERTS & CO., together with moiety of a plot of building land area 0.3 r. 24 p. f. 1,300.  
St. John's Wood.—13 and 17, Belgrave-rd., u.t. 47 yrs., g.r. 211, y.r. 281. 460.  
By J. S. RICHARDSON, Clerkenwell.—39, Warner-st. (S.), f. y.r. 321. 300.  
New Southgate.—15, Lower Park-rd., f. r. 341. 300.  
By ROGERS & CO., South Kensington.—11, The Boltons, and 31, Bolton's-mews, u.t. 20 yrs., g.r. 171. 2,500.  
Battersea.—Lavender-rd., f.g.r. 271, reversion in 12 and 31 yrs. 400.  
By TOWERS, ELLIS & CO., Hyde Park.—82, Portchester-rd., u.t. 404 yrs., g.r. 131 p. 1,030.  
4, Portchester, Mews, u.t. 404 yrs., g.r. 131 p. 1,030.  
By WALTON & LEE, Bayswater.—19, 16, and 21, Haverley-gr., u.t. 613 yrs., g.r. 211, y.r. 281. 345.  
Wandsworth-rd.—Rashleigh-st., f.g.r. 181, reversion in 64 yrs. 410.  
By C. P. WHITELEY, De Beauvoir Town.—Upton-rd., f.g.r. 251. 10s. 311.  
By T. WOODS, Sutton, Middx.—Sutton-rd., The Hermitage and 14 a. 3 r. 7 p. f. 1,075.  
By J. C. PLATT (at Hammersmith), Hammersmith.—145, The Grove, u.t. 73 yrs., g.r. 111, v.r. 501. 455.  
Shepherd's Bush.—2 and 3, Well-rd., f. w.r. 711. 10s. 710.  
Brentford, Middx.—257, High-st. (S.), c. y.r. 371. 350.  
May 13.—By W. ASHMOLE, Barking, Essex.—23, 25, 27, 29, and 51, Wakering-rd., f. w.r. 981. 12s. 365.  
18, 20, and 32, Glenry-rd., f. w.r. 971. 6s. 1,110.  
East Ham.—13 to 31 (odd), Pelham-rd., f. w.r. 1261. 15s. 1,110.  
1 to 23 (odd), Mounthind-rd., u.t. 671 yrs., g.r. 141. 10s. 1,030.  
By BAXTER, YAYNE, & LEE, Orpington, Kent.—Tripe's Farm, 25 a. 3 r. 30 p. f. 1,000.  
An enclosure of land, 5 a. 3 r. 7 p. f. 300.  
By C. COTTON, Saxmundham, Suffolk.—Rose Hill House and 3 a. f. 900.  
By G. GOULDEN, Belgrave, Leics.—19, Belgrave-mews, u.t. 10 yrs., g.r. 401, y.r. 3101. 704.  
By HORNE & CO., New Barnet, Herts.—Byones-rd., Twynham, Crowhurst, and Walmgate, f. y.r. 2351. 2,710.  
Shafesbury-av., f.g.r. 221. 15s. reversion in 88 yrs. 550.  
8 to 16 (even), Shafesbury-av., f. y.r. 1301. 1,470.  
Bulwer-rd., f.g.r. 221, reversion in 81 yrs. 745.  
Potters-rd., The Hadley View Building Estate, 10 a. 2 r. 0 p. f. 3,900.  
Walham-st.—Back-rd., f.g.r. 211, reversion in 74 yrs. 510.  
By HUNTER & HUNTER, Hyde Park.—38, Albion-st., and 92 and 94, Albion-mews, East, u.t. 10 yrs., g.r. 101. 10s. 330.  
By H. MURKETT & CO., Crouch Hill.—32, Trinder-rd., u.t. 73 yrs., g.r. 61. 6s. y.r. 341. 380.  
By DEAN & VOUNG, Co., Brighton.—9, Hayter-rd., u.t. 64 yrs., g.r. 101. 10s. 430.  
By PURVIS GILSON & CO., Hanwell.—58 to 65 plots of building land, f. 651.  
Woodfield-rd., two plots of building land, f. 155.  
Shafesbury-rd., Fairmead, u.t. 97 yrs., g.r. 81. 8s. y.r. 451. 340.  
Laurel-rd., Manfield, The Laurels, and St. Kilda, f. w.r. 861. 300.  
15, Seward-rd., u.t. 96 yrs., g.r. 47, w.r. 301. 300.  
Ealing.—12, Lavington-rd., u.t. 97 yrs., g.r. 81. 5s. 550.  
Montague-rd., Belle Vue, u.t. 914 yrs., g.r. 61. 10s. y.r. 381. 440.  
8, Melbourn-av., u.t. 97 yrs., g.r. 74. 7s. 425.  
By T. WOODS (at Hounslow), Hounslow, Middx.—Staines-rd., York Villas, c. 1,000.  
By R. J. TRELL (at New Brompton), New Brompton, Middx.—2, Pembroke Cottages, f. w.r. 361. 8s. 425.  
Enfield-rd., a freehold building plot. 43, 45, and 47, New-rd., f. w.r. 451. 18s. 425.  
43, 45, and 47, New-rd., f. w.r. 451. 18s. 425.  
406 and 407, High-st., f. w.r. 181. 4s. 320.  
Brentford, Middx.—6 and 7, Orchard-rd., f. w.r. 261. 28s. 625.  
Whitfield-rd., two freehold building plots. 300.  
Ealing.—Carlyle-rd., six freehold building plots. 300.

Cambridge-rd., a plot of building land, f. 457.  
Orchard-rd., four cottages, f. w.r. 151. 13s. 93.  
1 to 4, Vickers-cottages, f. w.r. 571. 16s. 93.  
5, 6, and 7, Paynter's-cottages, f. w.r. 421. 18s. 93.  
1 and 2, Manor-cottages, f. w.r. 261. 290.  
74 to 80 (even), High-st. (S.), f. y.r. 361. 290.  
By SEDGWICK, SON, & WALL (at Rickmansworth), Rickmansworth, Herts.—High-st., freehold shop and house, y.r. 741. 1,500.  
Solomon's Hill, enclosure of freehold building land. 290.  
By T. J. BARNETT & SON (at Warwick), Newbold Pacey, Warwick.—Bromson Hill Farm, 166 a. 2 r. 5 p. f. 2,000.  
May 14.—By FAREBROTHER, ELLIS, & CO., Fleet-st.—Clifford's Inn, area 38,000 ft. a. p. 100,000.  
Rotherfield Greys, Oxon.—Satwell and 90 a. p. 1,550.  
Weston-super-Mare, Somerset.—1, 4, and 7, Royal-ter., f. y.r. 3201. 571.  
By CHAS. ATKINS, Lewisham.—8 and 64, Albion-st., u.t. 87 yrs., g.r. 101, y.r. 581. 600.  
By BISLEY & SONS, Streatham.—29 to 61 (odd), Westcote-rd., f. w.r. 6401. 18s. 595.  
Bermingham.—1 to 34, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.



Hounslow, Middle—Wellington-rd., a copyhold residence, w.r. 184. 4s.	£235
Kingsley-rd., two cottages, u.t. 49 yrs., g.r. 24, w.r. 284. 18s.	220
Upton—four copyhold building plots.	155
Barnes—56 to 62, 74 to 94 (even), Railway-st., f., w.r. 250. 4s.	3,355
Railway-st., f.g.r. 44, reversion in 95 yrs., s. 110	110
Richmond, Surrey—57, Sheep-rd. (S.), f., y.r. 24. May 15—BOYTON, PEGRAM, & BUCKMASTER.	550
Heydon—284 to 290 (even), High-rd. (S.), f., y.r. 24.	3,200
244, w.r. 160. 4s. 6d., reversion in 95 yrs., g.r. 61, 10s., y.r. 45.	450
Chiswick—84 to 14 (even), Annandale-rd., u.t. 75 yrs., g.r. 25. 4s. w.r. 160.	1,000
Fulham—43, Coombe-rd. (S.), u.t. 69 yrs., g.r. 44, y.r. 52.	980
Wandsworth—77 to 91 (odd), North-st., f., w.r. 160.	1,500
Putney—1 and 3, Salvage-rd., u.t. 88 yrs., g.r. 110, w.r. 80. 12s.	595
Chiswick—84 to 92 (even), Dale-st., u.t. 65 yrs., g.r. 24, w.r. 160. 4s. 6d., reversion in 95 yrs., g.r. 61, 10s., y.r. 45.	335
Fulham—11, Sherbrook-rd., u.t. 73 yrs., g.r. 51, 10s., w.r. 41. 12s.	335
By HUBBERT & FURST.	
Wickhampton, Kent—Three enclosed enclosures of grazing land, 22 a. 3 r. 17 p.	585
Sturry, Kent—Rushbourne Farm, 252 a. 3 r. 4 p.	3,750
Sittingbourne, Kent—Little Glover's Farm, 6 a. 3 r. 0 p.	1,130
9, Queen-st., f., w.r. 46. 10s.	2,500
10 to 4, Queen-st., f., w.r. 46. 10s.	750
High-st., f.g.r. 124. 4s., reversion in 8 yrs.	1,500
High-st., f.g.r. 234, reversion in 10 yrs.	2,000
Claydon, Norfolk—The Clapton Estate, 69 a. 1 r. 8 p.	25,000
Titchmarsh, Northants.—An enclosure of pasture, 3 a. 2 r. 9 p.	300
Notting Hill, London—31, u.t. 38 yrs., g.r. 61, 10s., y.r. 44. 4s.	230
Northwood, Middlesex—Chester-rd., Chester Lodge, f., w.r. 160.	770
Ponder's End—Durant's-rd., two plots of building land, f., w.r. 160.	430
By MONTAGU & ROBINSON.	
Kentish Town—101 and 103, Lady Margaret-rd., u.t. 66 yrs., g.r. 17. 10s., y.r. 91. 10s.	940
Norwood—285, Holmesdale-rd., f., r. 50.	450
Brimsford, 40, Lomb-st., u.t. 31 yrs., g.r. 74, y.r. 44.	230
By W. W. READ & CO.	
New Malden, Surrey—Avenue-rd., Avenue Lodge, u.t. 73 yrs., g.r. 54, y.r. 34.	275
Hackney—37, Banbury-rd., u.t. 304 yrs., g.r. 61, y.r. 34.	355
26, Holcroft-rd., u.t. 40 yrs., g.r. 31, 10s., w.r. 160.	245
Homerton—61, Sidney-rd., u.t. 304 yrs., g.r. 44, w.r. 32. 10s.	245
By RIDER & SONS.	
Kentish Town—22, 23, 24, 25, 26, 27, 33, and 34, Litcham-st., f., w.r. 42. 4s.	5,500
By WOODS & SNELLING.	
Beckenham, Kent—Birkbeck-rd., f.g.r. 51, reversion in 95 yrs.	150

PRICES CURRENT OF MATERIALS.

\* Our aim in this list is to give, as far as possible, the average prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.	
£ s. d.	
Hard Stocks	1 15 0 per 1,000 alongside, in river.
Rough Stocks	1 12 0 " "
Grizzles	1 12 0 " "
Facing Stocks	2 12 0 " "
Shippers	2 5 0 " "
Pietons	1 7 6 " at railway depot
Red Wire Cuts	1 12 0 " "
Best Fareham Red	1 12 0 " "
Best Red Pressed	1 12 0 " "
Rusbon Facing	5 0 0 " "
Best Blue Pressed	1 12 0 " "
Staffordshire	4 5 0 " "
Do. Bullnose	4 11 0 " "
Best Stourbridge	4 11 0 " "
Fire Bricks	4 8 0 " "
GLAZED BRICKS.	
£ s. d.	
Best White and Ivory Glazed	1 12 0 " "
Stretchers	23 0 0 " "
Headers	17 0 0 " "
Quoins, Bullnose and Flats	12 0 0 " "
Double Stretchers	19 0 0 " "
Double Headers	16 0 0 " "
One end and two Sides and one End	20 0 0 " "
Splays, Chamfered Squints	20 0 0 " "
Best Dipped Salt Glazed Stretchers and Headers	12 0 0 " "
Quoins, Bullnose, and Flats	14 0 0 " "
Double Stretchers	15 0 0 " "
Double Headers	14 0 0 " "
One Side and two Ends	25 0 0 " "

PRICES CURRENT (Continued).	
BRICKS, &c.	
£ s. d.	
Two Sides and one End	15 0 0 per 1,000 at railway depot.
Splays Chamfered Squints	14 0 0 " "
Second Quality Whitened Dipped Salt Glazed	0 0 0 " less than best.
Thames and Pitt Sand	6 0 0 " 9 per yard, delivered.
Best Portland Cement	30 0 0 per ton, delivered.
Best Ground Blue Lime	20 6 0 " "
NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.	
Grey Stone Lime	105 6d. per yard, delivered.
Stourbridge Fire-clay in sacks	27s. 6d. per ton at rly. dpt.
STONE.	
£ s. d.	
Ancestor in blocks	11 per ft. cube, deid. rly. depot.
Bath	1 7 0 " "
Farleigh Down Bath	1 8 0 " "
Best in blocks	1 6 0 " "
Grinshill	1 6 0 " "
Brown Portland in blocks	2 0 0 " "
Darley Dale in blocks	2 4 0 " "
Red Corshill	2 5 0 " "
Closworth Red Freestone	2 5 0 " "
Red Mansfield	2 4 0 " "
YORK STONE—Robin Hood Quality.	
£ s. d.	
Scrapped random blocks	10 per ft. cube, deid. rly. depot.
6 in. sawn two sides landings to sizes (under 40 ft. super.)	3 per foot super.
6 in. Rubbed two sides	2 0 0 " "
Ditto, Ditto	2 6 0 " "
3 in. Sawn two sides slabs (random sizes)	0 11 1/2 " "
2 in. to 2 1/2 in. Sawn one side slabs (random sizes)	0 7 1/2 " "
1 1/2 in. to 2 in. ditto	0 6 0 " "
By JONES, LANE & CO.	
Scrapped random blocks	3 0 per ft. cube
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 8 per ft. super.
6 in. Rubbed two sides	2 0 0 " "
Ditto	2 0 0 " "
3 in. sawn two sides slabs (random sizes)	2 0 0 " "
2 in. self-faced random	0 5 0 " "
Flags	0 5 0 " "
Hopton Wood (Hard Bed) in blocks	2 3 per ft. cube, deid. rly. depot.
6 in. sawn both sides landings	7 per ft. super. deid. rly. depot
" " " 3 in. do.	1 2 1/2 " "
SLATES.	
£ s. d.	
20 x 10 best blue Bangor	13 2 6 per 1000 o. 1200 at rly. dep.
20 x 12 " "	13 17 6 " "
20 x 12 best seconds	12 10 0 " "
16 x 12 " "	13 10 0 " "
16 x 8 best	7 0 0 " "
20 x 10 best blue Portma	12 5 0 " "
16 x 8 best blue Portmadoc	6 5 0 " "
20 x 10 best Eureka un-fading green	15 2 6 " "
20 x 12 " "	12 10 0 " "
18 x 10 " "	12 10 0 " "
16 x 8 " "	10 5 0 " "
20 x 10 permanent green	11 0 0 " "
18 x 10 " "	5 5 0 " "
16 x 8 " "	6 10 0 " "
TILES.	
£ s. d.	
Best plain red roofing tiles	42 0 per 1,000, at rly. depot.
Hip and valley tiles	3 7 per doz.
Best Bursley tiles	50 0 per 1,000 " "
Do. Ornamental Tiles	54 6 " "
Hip and valley tiles	4 0 per doz.
Best Rusbon Red, brown or brindle	57 6 per 1,000 " "
Do. Ornamental Do. (Peaks)	51 9 per 1,000 " "
Hip tiles	4 3 per doz.
Valley tiles	3 8 " "
Best Red or Mottled Staffordshire Do. (Peaks)	51 9 per 1,000 " "
Do. Ornamental Do.	54 6 " "
Hip tiles	4 3 per doz.
Valley tiles	3 8 " "
plain tiles	48 0 per 1,000 " "
Do. Ornamental Do.	50 0 " "
Hip tiles	4 0 per doz.
Valley tiles	3 8 " "
WOOD.	
At per standard.	£ s. d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	15 10 0 16 10 0
Deals: best 3 by 9.	14 10 0 15 10 0
Battens: best 2 1/2 in. by 7 in. and 8 in. and 3 in. by 7 in. and 8 in.	21 10 0 22 10 0
Battens: best 2 1/2 by 6 and 3 by 6.	0 10 0 less than 7 in. and 8 in.
Deals: seconds	1 0 0 less than best
Battens: seconds	0 10 0 0 20 0
2 in. by 4 in. and 2 in. by 6 in. 2 in. by 4 in. and 2 in. by 5 in.	0 8 0 0 9 10 0
Foreign Sawn Boards—1 1/2 in. and 2 1/2 in. by 7 in.	0 10 0 more than battens.
2 in. Fir timber: Best midling Danzig or Memel (average specification)	1 0 0 At per load of 50 ft.
Seconds	4 5 0 4 10 0
Small timber (8 in. to 10 in.)	3 12 6 3 15 0
Small timber (6 in. to 8 in.)	3 0 0 3 10 0
Swedish balks	2 15 0 3 0 0
Pitch-pine timber (30 ft. average).	3 5 0 3 15 0

PRICES CURRENT (Continued).	
WOOD.	
At per standard.	£ s. d.
JOINERS' WOOD.	
White Sea: First yellow deals, 3 in. by 11 in.	23 0 0 24 0 0
Battens, 2 1/2 in. and 3 in. by 7 in.	17 0 0 18 10 0
Second yellow deals, 3 in. by 11 in.	18 10 0 20 0 0
Battens, 2 1/2 in. by 7 in.	17 0 0 19 0 0
Third yellow deals, 3 in. by 11 in.	18 10 0 20 0 0
Battens, 2 1/2 in. and 3 in. by 7 in.	17 0 0 19 0 0
Petersburg: first yellow deals, 3 in. by 11 in.	21 0 0 22 10 0
Do. 3 in. by 9 in.	18 0 0 20 0 0
Battens	13 10 0 15 0 0
Second yellow deals, 3 in. by 11 in.	16 0 0 17 0 0
Do. 3 in. by 9 in.	14 10 0 16 0 0
Battens	11 0 0 12 10 0
Third yellow deals, 3 in. by 11 in.	13 10 0 14 0 0
Do. 3 in. by 9 in.	13 0 0 14 0 0
Battens	10 0 0 11 0 0
White Sea and Petersburg—First white deals, 3 in. by 11 in.	14 10 0 15 10 0
Battens	11 0 0 12 0 0
Second white deals, 3 in. by 11 in.	13 10 0 14 10 0
Battens	10 0 0 11 0 0
Pitch-pine: deals	16 0 0 18 0 0
Under 2 in. thick extra	0 10 0 2 0 0
Yellow Pine—First, regular sizes	33 0 0 upwards.
Oddments	22 0 0 24 0 0
Seconds, regular sizes	24 0 0 26 0 0
Yellow Pine Oddments	20 0 0 22 0 0
Kauri Pine—Planks, per ft. cube	0 3 6 0 4 6
Danzig and Stettin Oak Logs—Large, per ft. cube	0 2 6 0 3 6
Small	0 3 0 0 4 0
Wainscot Oak Logs, per ft. cube	0 5 0 0 6 0
Dry Wainscot Oak, per ft. sup. as inch	0 0 7 0 8 1/2
do. do.	0 0 6 0 7 0
Dry Mahogany—Honduras, Tabasco, per ft. sup. as inch	0 0 9 0 0 11
Selected, Figury, per ft. sup. as inch	0 1 6 0 0 2 0
Dry Walnut, American, per ft. sup. as inch	0 0 10 0 0 12
Teak, per load	17 0 0 21 0 0
American Whitewood Planks—Per ft. cube	0 4 0 0 5 0
Prepared Flooring—x in. by 7 in. yellow, planed and shot.	0 13 6 0 17 6
x in. by 7 in. yellow, planed and matched.	0 14 0 0 18 0
x in. by 7 in. yellow, planed and shot.	0 16 0 0 1 4 6
x in. by 7 in. white, planed and shot.	0 12 6 0 13 6
x in. by 7 in. white, planed and matched.	0 12 0 0 14 0
x in. by 7 in. white, planed and matched.	0 14 6 0 16 6
x in. by 7 in. yellow matched and beaded or V-jointed boards	0 11 0 0 13 6
2 in. by 7 in. do. do.	0 14 0 0 16 0
2 in. by 7 in. white do. do.	0 10 0 0 12 6
2 in. by 7 in. do. do.	0 11 6 0 13 6
6 in. at 6d. to 9d. per square less than 7 in.	
JOISTS, GIRDERS, &c.	
In London, or delivered.	
£ s. d.	
Railway Vans, per ton.	£ s. d.
Rollad Steel joists, ordinary sections	6 5 0 7 5 0
Compound Girders	8 2 6 9 3 0
Angles, Tees and Channels, ordinary sections	7 27 6 8 17 6
Flitch Plates	8 5 0 8 15 0
Cast Iron Columns and Stanchions, including ordinary patterns	7 2 6 8 5 6
METALS.	
Per ton, in London.	£ s. d.
Iron—Common Bars	7 15 0 8 5 0
Staffordshire Crown Bars, good merchant quality	8 5 0 8 15 0
Staffordshire "Marked Bars"	10 10 0 11 0 0
Mild Steel Bars	9 0 0 9 10 0
Hoop Iron, basis price	9 5 0 9 10 0
" galvanised	16 0 0
(* And upwards, according to size and gauge.)	
Sheet Iron, Black—Ordinary sizes to 20 g.	10 0 0
" " to 24 g.	11 0 0
" " to 26 g.	12 10 0
Sheet Iron, Galvanised, flat, ordinary quality—Ordinary sizes, 6 ft. by 2 ft. to 3 ft. by 30 g.	12 15 0
" " 22 g. and 24 g.	13 5 0
" " 26 g.	14 5 0
Sheet Iron, Galvanised, flat, best quality—Ordinary sizes to 20 g.	16 0 0
" " 22 g. and 24 g.	16 10 0
" " 26 g.	18 0 0
Galvanised Corrugated Sheets—Ordinary sizes, 6 ft. to 8 ft. 20 g.	12 15 0
" " 22 g. and 24 g.	13 5 0
" " 26 g.	14 5 0
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g.	12 0 0
" " and thicker	12 0 0
" " 22 g. and 24 g.	13 0 0
" " 26 g.	14 5 0
Cut nails, 3 in. to 6 in.	9 5 0 9 15 0
(Under 3 in. usual trade extras.)	



## COMPETITIONS CONTRACTS AND PUBLIC APPOINTMENTS.

(For some Contracts, &amp;c., still open but not included in this List, see previous issues.)

## COMPETITIONS.

Nature of Work.	By whom Required.	Premiums.	Designs to be delivered
Children's Home .....	Croydon Union .....	152.15s. and 14.7.10s. ....	June 9
Two Relief Stations .....	do. ....	do. ....	do.
New Library, Taunton .....	The Trustees .....	30l. 2s. and 10l. ....	July 20

## CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c., supplied by	Tenders to be delivered
Paving Works, Church-street, and others .....	Keighley Corporation .....	W. H. H. Pearson, Civil Engineer, Town Hall, Keighley .....	May 26
Street Works, &c., Pinfold-street .....	Stifford Corporation .....	J. W. H. Evans, Town Hall, Stafford .....	do.
Street Works, &c., Alma, and other Roads .....	West Hartlepool Corporation .....	J. W. H. Evans, Town Hall, West Hartlepool .....	do.
Street Works, &c., Ashton-road, &c. ....	Warrington Corporation .....	Warrington Corporation .....	do.
Street Works, &c., for Electricity Supply .....	Cherton (Kent) U.D.C. ....	A. A. Khan, Public Offices, Cherton .....	do.
Water Supply Works, Prestonpans, N.B. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Foundations, &c., for Electricity Supply .....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Sewage Disposal Works .....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Retaining Walls, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Warehouses, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Alterations to Premises, 21 and 23, Darley-street .....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Church Restoration, Gee Cross, near Hyde .....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Works at Market .....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
School .....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Walls, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Sewers, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Sewers, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Cast iron Pipes .....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Water Mains, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Rail Works, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Diagrams, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Two miles of Fencing, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Street Works, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Schools, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Pump House and Drainage Works .....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Steel Girder Bridge, Long Benton, Northumberland .....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Additions to Schools, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Retaining Wall and Road Works, Chapel-st., Ponkey .....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
School, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Additions to R. L. C. Barracks, Lurgan, Ireland .....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Sewers, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Granite Road Metal (180 tons) .....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Sewage Works, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Decorating Large Hall in Town Hall .....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Alterations to Saron Chapel, Abernethy .....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Eight Houses, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Store Premises, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Macadam Works, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Sewers, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Sewers, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Additions to Church, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Restoration of Church spire, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Additions to Wesleyan Chapel, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Church, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
College Buildings, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Additions, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Additions to Fish Market .....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Bridge Works, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Public Washhouse .....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Sewers, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Road Works, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Street Works, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Electricity Buildings, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Fifteen Cottages, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Laundry at Workhouse .....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Twenty Houses, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Rebuilding Chapel, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Schools, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Sewerage and Sewage Disposal Works, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
River Wall, adjoining Bath, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Superstructure of Pavilion, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Repointing Brickwork, at Park Hospital, Hither Green .....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Mortuary, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Watering Bridge, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Water Supply Works, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Making-up Roads .....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Paving and Making-up New Street .....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Sewerage and Water Works, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Repair of Tar and Asphalt Pavement .....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Workmen's Dwelling, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Additions to Infirmary .....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
New Branch Post Office, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Workshops at New Savings Bank, West Kensington .....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
New Sorting Office, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Making-up Roads .....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Three Years Contract .....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Block of Tenement Dwellings, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Four Shops, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Widening and Enlargement of Victoria Station .....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Buildings, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
University, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Reparations to Spire and Tower of Church, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Two Houses, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Shops, Houses, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Steel Foundry, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Slag, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Gas-holder Tank (66 ft. diameter) .....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Additions to Club Premises, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Engine House, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Business Premises, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.
Church, Hall, &c., at Penryn, Glam. ....	Cherton (Kent) U.D.C. ....	J. L. A. Khan, Public Offices, Cherton .....	do.

[See also next page.]



## PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*Surveyor	Mildred U.D.C.	150l.	May 26
*Clerk of Works	Jamworth Union	Not stated	do.
*Clerks of Works (2)	Tottenham, &c., Jnt. Drainage Com.	4l. 8s. per week.	June 1
*Inspector of Nuisances	The Maldens & Combe U.D.C.	150l.	June 8
*Quantity Surveyor's Assistant	London County Council	2l. 2s. per week.	June 8
*Bricklayer	do	4l. 8s.	do.
*Bricklayer	Capetown Corporation	200l. &c.	No date.

Those marked with an asterisk (\*) are advertised in this Number.

Competitions, lv.

Contracts, lv. vii. viii. &amp; x.

Public Appointments, xli.

## PRICES CURRENT (Continued).

LEAD, &c.	Per ton, in London.
Sheet, English, 3 lbs. & up.	14 10 0
Pipe in coils	15 0 0
Soil pipe	17 0 0
Compo Pipe	17 10 0
ZINC—Sheet	
Vielle Montagne	28 5 0
Silesian	28 0 0
COPPER—	
Strong Sheet	0 10 0
Thin	0 11 0
Copper nails	0 11 0
BRASS—	
Sheet	0 10 0
Thin	0 11 0
TIN—English Ingots	0 1 5
SOLDERS—Plumbers'	0 0 4
Timber	0 0 4
Blowpipe	0 0 4

## ENGLISH SHEET GLASS IN CRATES.

Per ft. delivered.	1d.	2d.	3d.	4d.
15 or thirds	34d.	35d.	36d.	37d.
20 or thirds	34d.	35d.	36d.	37d.
25 or thirds	34d.	35d.	36d.	37d.
30 or thirds	34d.	35d.	36d.	37d.
35 or thirds	34d.	35d.	36d.	37d.
40 or thirds	34d.	35d.	36d.	37d.
45 or thirds	34d.	35d.	36d.	37d.
50 or thirds	34d.	35d.	36d.	37d.
55 or thirds	34d.	35d.	36d.	37d.
60 or thirds	34d.	35d.	36d.	37d.
65 or thirds	34d.	35d.	36d.	37d.
70 or thirds	34d.	35d.	36d.	37d.
75 or thirds	34d.	35d.	36d.	37d.
80 or thirds	34d.	35d.	36d.	37d.
85 or thirds	34d.	35d.	36d.	37d.
90 or thirds	34d.	35d.	36d.	37d.
95 or thirds	34d.	35d.	36d.	37d.
100 or thirds	34d.	35d.	36d.	37d.

OILS, &c.	Per gallon.
Raw Linseed Oil in pipes or barrels	0 8 3
" " in drums	0 8 7
" " in pipes or barrels	0 8 3
" " in drums	0 8 7
Turpentine in barrels	0 8 3
" " in drums	0 8 7
Genuine Ground English White Lead	per ton 10 10 0
Red Lead, Dry	30 0 0
Best Linseed Oil Putty	per cwt. 8 0 0
Stockholm Tar	per barrel 1 10 0

VARNISHES, &c.	Per gallon.
Fine Pale Oak Varnish	0 8 0
Fine Pale Oak Varnish	0 8 0
Superfine Pale Elastic Oak	0 10 6
Fine Extra Hard Church Oak	0 10 6
Superfine Hand-drying Oil for Sea or Churches	0 14 0
Fine Elastic Carriage	0 12 6
Superfine Pale Elastic Carriage	0 12 6
Fine Pale Maple	0 16 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 2 0
Eggshell Flattening Varnish	0 18 0
White Copal Enamel	0 14 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 6
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 6
Brunswick Black	0 8 6
Berlin Black	0 16 0
Knottling	0 10 0
French and Bruik Polish	0 10 0

## TO CORRESPONDENTS.

A. H. (Amounts should have been stated.)  
 NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.  
 We cannot undertake to return rejected communications.  
 Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT RETURNED.  
 All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.  
 We are compelled to decline pointing out books and giving addresses.  
 Any communication to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.  
 All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

## TENDERS.

(Communications for insertion under this heading should be addressed to "The Editor," and must reach us not later than 10 a.m. on Thursday. N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tenders given, nor any list in which the lowest Tender is under 100l., unless in some exceptional cases and for special reasons.)

\* Denotes accepted. † Denotes provisionally accepted.  
 ABERCROMBIE (Wales).—For the erection of a house, for Mr. David Davies. Mr. R. C. Jenkins, architect, Cefn-coed.  
 E. Williams, Dowla's 170 | W. Evans.....£270

AYLESBURY.—For additions to Literary Institute. Mr. Fred. Taylor, architect, Aylesbury:—  
 Hunt & Son, £1,373 0 0 | Webster & Son, £1,280 0 0  
 C. D. Dainton, 1,347 0 0 | Cannon, £1,280 0 0  
 Townsend & Co., 1,304 17 10 | J. Hodges, 1,232 0 0  
 H. Fitcher, 1,290 0 0 | G. & T. Cannon, 1,197 0 0

BECKENHAM.—For erecting "Inglehurst." Beckenham, Kent. Messrs. George Baines & R. Palmer Baines, architects, 5, Clement's Inn, Strand, London, W.C.:—  
 H. Copeland & Son, Beckenham.....£1,726 10 6

BRISTOL.—For the erection of new warehouse and offices in Castle Green, for Messrs. Hagood Bros., metal merchants. Mr. Thos. Scammell, architect, 1, St. Stephen's street, Bristol:—  
 W. Church, £2,210 | Perkins & Son, £2,122  
 J. James, 2,300 | F. Chown, 2,000  
 Eastbrook & Sons, 2,150 | G. Hanphries, 2,080  
 Jones & Hill, 2,155 | Wilkins & Gosling, 1,880  
 (All of Bristol.)

CARDIFF.—For additions to Ely Schools, for the School Board. Mr. E. Seward, architect, Queen's Chambers, Cardiff:—  
 C. C. Dunn, Cowbridge-road, Cardiff.....£2,126 2 6

LONDON.—For pulling down and re-erecting Nos. 368 and 370, Oxford-street, and a portion of Gess-court, for Mr. Chas. Morrell. Mr. J. C. Radford, architect, 163, Upper, Richmond-road, S.W. Quantities by Messrs. Root & Robinson:—  
 W. R. Williams, £6,287 | Carmichael, £5,685  
 Parsons & Co., 6,240 | Smith & Sons, 5,620  
 Parkinson & Son, 5,995 | Loden & Son, 5,544  
 Stimpson & Co., 5,940 | Patman & Fotheringham, 5,543  
 H. Roffey, 5,938 | F. G. Minter, 5,540  
 Martin, Wells, & Co., 5,670  
 Holiday & Green-wood, 5,732

LONDON.—For rebuilding gr. Great Titchfield-street, W. for Mr. H. J. Bale. Mr. William Pywell, architect, Cumberland House, Hanwell. Quantities by Mr. Max. Clarke:—  
 Loden & Son, £1,773 | Kingler & Sons, £3,227  
 Lawrence & Sons, 3,486 | W. Whitehead, 3,065  
 J. Carmichael, 3,400 | B. E. Nightingale, 3,025  
 W. G. Minter, 3,357 | Walter Wallis, 2,999

LONDON.—Electric light and electric bell installations, Vauxhall sub-fire station and Streatham fire station:—  
 Vauxhall Sub-station.

National Electric Co. Ltd., £73 10 0 | Alliance Electric Co. Ltd., £240 12 0  
 Tyler & Duncan, 260 0 0 | Jackson Bros., 236 7 6  
 W. Johnson, 255 13 0 | Oliver, Clark, & Co., 234 0 0  
 Glover & Co., Ltd., 243 10 0 | Sunderland & Co., 229 0 0  
 Drake & Gorham, Ltd., 243 0 0 | Coleby & Co., 227 10 0  
 A. H. Marshall, 197 10 0

Streatham Station.  
 Sunderland & Co., £289 0 0 | Alliance Electric Co. Ltd., 285 0 0  
 National Electric Co. Ltd., £344 0 0 | Glover & Co., Ltd., 279 0 0  
 Tyler & Duncan, 330 0 0 | Oliver, Clark, & Co., 275 0 0  
 C. Co., 300 0 0 | Coleby & Co., 273 2 6  
 W. Johnson, 299 17 0 | Jackson Bros., 239 10 0  
 Drake & Gorham, Ltd., 292 0 0 | A. H. Marshall, 239 10 0

LUTON.—For the erection of new north aisle and enlarging the organ chamber and choir vestry of Christ Church, Luton. Messrs. J. R. Brown & Son, architects, Luton. Quantities by Messrs. J. B. Colwill & Son, 6, Alma-road, St. Albans:—

French	£ s. d.	Allowance for Old Materials.
French	2,310 0 0	10 0
Neville	2,066 2 0	20 0
Attwood	2,050 10 0	30 0
Angel	2,023 10 9	30 0
Pryer	1,968 0 0	30 0
Miskin & Sons	1,958 0 0	30 0
Mallet & Wood	1,924 10 0	20 0
Dunham	1,784 0 0	7 10

MERTON PARK (Surrey).—For the erection of seven pairs of semi-detached houses in Wilton-crescent, Wimbledon, for Merton Park Estate Co., Ltd. Mr. H. G. Quartermain, architect, Merton Park, Surrey. Quantities by Mr. W. W. Dearnley, of Broad-street House, New Broad-street, E.C.:—  
 Johnson & Co., Ltd., £14,490 | Garrett & Son, £15,978  
 Bulled & Co., 14,397 | Loden & Son, 13,222  
 Stewart & Son, 14,200 | Burgess & Sons, 13,222  
 Smith & Son, Ltd., 13,397 | Wycliffe-road, Wimbledon, 11,200  
 Holliday & Green-wood, Ltd., 13,350

MIDDLEWICH.—For the erection of banking premises, for the Birmingham District and Counties Banking Co., Ltd. Mr. Ernest E. Shepherd, architect, Bond Gate, Nuneaton. Quantities by Messrs. G. Connell & Son, Grainger-street, Newcastle-on-Tyne:—  
 S. Manley, £2,598 0 0 | Smith & Son, £2,297 15 8  
 Micklewright & Sons, 2,519 0 0 | Birchall Bros., 2,070 0 0

NORTHWICH.—For additions to public baths, for the Urban District Council. Mr. John Brooke, Surveyor to the Council, Northwich:—

Extension.	Repairs.
Samuel Appleton, Northwich.....£484	
Samuel Appleton, Northwich.....£160	

SHOEBURYNESSE.—For the erection of school buildings, Richmond-avenue, for the School Board. Messrs. Buries & Harris, architects, Clarence Chambers, Southend:—  
 C. Venturi, £1,630 | Davis & Leaney, £1,640  
 J. Dowsett, 2,098 15 | A. R. Whur, 3,590 0  
 Dowling & Davis, 3,930 0 | J. Alp, 3,495 0  
 A. J. Golding, 3,875 0 | E. West, 3,470 0  
 Whur & Campkin, 3,850 0 | W. E. Davey, 3,444 0  
 Dupont & Co., 3,785 0 | Harris & Rowe, Ltd., 3,198 0  
 Davey, Ltd., 3,779 0  
 S. E. Moss, 3,655 10

## LONDON SCHOOL BOARD TENDERS.

At the last meeting of the London School Board the Works Committee submitted the following lists of tenders. Mr. T. J. Bailey is the Board's Architect:—

The exteriors of the following schools will be painted between May 16 and June 13, 1903:—

ADYS-ROAD:—					
H. Line .....	£295	o	W. Hooper.....	187	o
Sayer & Son .....	217	o	J. & C. Bowyer ..	186	o
J. F. Ford .....	198	o	W. V. Goad .....	175	o
Mitchell & Son .....	188	o	Garrett & Son*....	164	o
Maxwell Bros., Ltd.	187	15			

BARING-ROAD:—						
W. Banks .....	£97	18	6	W. J. Howie....	£67	0 0
Havter & Son ..	83	0	0	H. Groves*	66	0 0
G. Kemp .....	80	0	0			

BELL-STREET:—	Viney & Stone	£555	c	Balfour & Co.	£193	10
	C. F. Kearley	305	0	Densham & Sons	172	0
	Hawter & Son	286	0	T. Cruvery	167	15
	G. H. Sealy	275	0	Chitchee & Co.	130	6

BLACKSTOCK-ROAD:—	T. Willson	£297	0	Stevens Bros.	£168	0
	G. Kirby	188	0	Grover & Sons	159	0
	C. & W. Hamings	185	0	H. Rusham Brown	158	0
	McCormick & Sons	177	0	Bate Bros.	155	15

[See also next page.]



## CAMPBELL-STREET:-

Viney & Stone .....	£552	F. Chidley .....	£199
T. Craws .....	250	Brown & Sons .....	193
Densham & Sons .....	215	W. Chappell* .....	185

## CANONBURY-ROAD:-

Dearing & Son .....	£140	G. Wales .....	£128	5
W. Martin .....	138	F. W. Harris .....	124	15
McCormick & Sons .....	135	Marchant & Hirst .....	118	0
Williams & Son .....	133	C. & W. Hunnings* .....	111	0

## CHOUMERT-ROAD:-

Sayer & Son .....	£250	W. Hooper .....	£128	0
H. Line .....	199	G. Kemp .....	127	0
Mitchell & Son .....	198	Maxwell Bros., Ltd. .....	124	0
W. V. Goad .....	145	Garrett & Son* .....	128	0

## CRANBROOK-ROAD:-

Silk & Son .....	£150	Woolaston & Co. .....	£112	0
A. Porter .....	185	Belcher & Co., Ltd. .....	182	10
F. Bull .....	213	Haydon & Sons .....	171	0
Barrett & Power .....	230	G. Barker* .....	165	0
G. Wales .....	212	0	0	0

## EARDLEY-ROAD:-

R. A. Jewell .....	£237	0	J. & C. Bowyer .....	£158	0
Bulled & Co. ....	235	7	Lency & Co. ....	158	0
Johnson & Co., Ltd. ....	185	0	E. B. Tucker* .....	102	0

## FAIRFIELD-ROAD:-

Dolman & Co. ....	£168	0	A. E. Symes .....	£144	0
A. W. Derby .....	158	0	J. F. Holliday .....	118	10
Corfield & Co. ....	149	0	A. J. Sheffield .....	114	0
F. Bull .....	144	0	G. Barker* .....	104	10

## GRAVEL-LANE (including enlargements opened in 1899):-

Parrott & Ison .....	£247	0	W. Hornett .....	£134	0
Martin, Wells, & Co., Ltd. ....	145	0	Johnson & Co. ....	110	0
J. Greenwood, Ltd. ....	143	0	Staines & Son .....	109	0
Macey & Sons, Ltd. ....	143	0	Gavin Bros. ....	103	10
0	0	0	Belcher & Co., Ltd.* .....	86	15

## HUGON-ROAD:-

J. & M. Patrick .....	£238	0	Curd & Sons .....	£145	0
Hudson Bros. ....	207	0	E. Flood .....	145	0
General Builders, Ltd. ....	189	0	W. Hammond* .....	119	0
R. S. Ronald .....	185	0	0	0	0

## KEETON'S-ROAD:-

Hayter & Son .....	£380	0	Greenwood, Ltd. ....	£239	0
J. & M. Patrick .....	305	0	E. Triggs .....	234	0
H. J. Williams .....	283	5	Jathey Bros.* .....	217	0
Sayer & Son .....	265	0	Proctor & Son .....	203	0
Johnson & Co. ....	242	0	0	0	0

## "MOBERLEY" (boys, girls, and infants):-

Balfour & Co. ....	£228	15	Chinchen & Co. ....	£170	10
T. Cruwys .....	170	0	W. Chappell .....	118	10
F. Chidley .....	165	0	Brown & Sons .....	118	0
W. R. & A. Hild .....	144	10	Bristow & Eastwell* .....	97	7

## MULGRAVE-PLACE (old portion):-

W. J. Howie .....	£179	0	W. Banks .....	£135	17	6
Marlin, Wells, & Co., Ltd. ....	150	0	Hayter & Son .....	135	0	0
H. Groves .....	149	0	Proctor & Son* .....	115	0	0

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Silk & Son .....	£335	0	J. Stewart .....	£266	0
Barrett & Power .....	310	0	H. Runham Brown .....	230	10
T. Willson .....	304	0	Marchant & Hirst .....	234	0
A. Porter .....	297	0	Dearing & Son* .....	232	0
W. Martin .....	285	0	0	0	0

## POOLE'S PARK:-

J. Stewart .....	£168	0	Stevens Bros.* .....	£134	0
Grover & Son .....	164	0	Bate Bros. ....	130	0
Wall & Co. ....	154	0	C. & W. Hunnings .....	130	0
G. Kirby .....	148	0	0	0	0

## REGENT-STREET:-

Hayter & Son .....	£335	0	T. D. Leng .....	£250	0
W. J. Howie .....	293	0	H. Groves .....	234	0
J. C. Chalkley .....	288	0	G. Kemp* .....	203	0
S. E. Musgrove .....	267	2	Proctor & Son .....	194	0

## SCARSDALE-ROAD:-

J. R. Sims .....	£277	0	Garrett & Son .....	£204	0
Sayer & Son .....	253	0	W. Hooper .....	190	0
J. C. Chalkley .....	249	0	E. Triggs .....	187	0
Lathey Bros. ....	209	0	H. J. Williams* .....	182	18

## SUSSEX-ROAD:-

Lency & Son .....	£198	0	Rice & Son .....	£147	0
Vigor & Co. ....	£144	0	Smith & Son .....	143	0
General Builders, Ltd. ....	179	0	E. Triggs .....	130	0
W. Downs .....	177	0	Maxwell Bros., Ltd.* .....	127	15

## THOMAS-STREET:-

Gibb & Co. ....	£284	0	0	0	0
J. F. Holliday .....	306	4	Dolman & Co. ....	258	0
A. J. Sheffield .....	300	0	A. W. Derby .....	234	0
Haydon & Sons .....	293	2	Corfield & Co. ....	225	0

## WATERLOO-ROAD:-

T. L. Green .....	£136	0	J. R. Sims .....	£154	0
King & Son .....	197	0	Holloway Bros. ....	150	0
W. Downs .....	186	0	Ltd. ....	150	0
H. J. Williams .....	157	17	Rice & Son* .....	126	0

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# The Builder.

VOL. LXXXIV.—No. 3149,

MAY 30, 1903.

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Do. Do. Elevations and Plans .....	Mr. W. Hawke, A.R.I.B.A., Architect.
Liverpool Cathedral Competition: Design Recommended by the Assessors .....	Mr. G. Gilbert Scott, Architect.
Do. Do. Longitudinal Elevation .....	Mr. G. Gilbert Scott, Architect.

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### The Designs for Liverpool Cathedral.

**T**HE five sets of designs in the second competition for Liverpool Cathedral are hung in a room at the Walker Art Gallery in that city, and on Thursday and Friday last week were open to the inspection of architects and of the architectural Press; and since then, as we understand, they have been open to the general public until the end of the present week. The five competitors, we need hardly remind our readers, are Messrs. Austin & Paley, C. E. Nicholson, Gilbert Scott, Malcolm Stark, and W. J. Tapper. We have already referred, in a note in our last issue, to the extraordinary and unexpected result, the refusal (so far) of the Committee to accept any of the designs, and the reason given for it; expressing our doubt, at the same time, whether this decision would be adhered to. The result has shown that our doubt was justified; it has been since announced that the Committee are prepared to carry out Mr. Scott's design, provided it can be arranged that Mr. Bodley should be joined with him, we presume as consulting architect. Considering that Mr. Scott is a young man, and has not hitherto carried out any large work, it does not seem unreasonable that they should wish to have the co-operation of an older and well-known church architect; but we must say that it is an unusual proceeding, and a bad precedent, to make one of the assessors in a competition a partner in carrying out the work, unless indeed Mr. Bodley's position is to be that of a friendly adviser only. Otherwise, it appears to us that an assessor ought to consider himself as *ipso facto* debarred from taking any part in carrying out the building; his position is that of a judge only; and we think the Committee ought to have selected some one else than one of the assessors.

The whole competition, in fact, has been mismanaged from first to last, both

in the choice of site and in the conduct of the competition. Two or three of the finest designs, by men of notable talent, were passed over in the first competition, while honourable mentions were accorded to designs far inferior; and in the final choice the assessors seem to have entirely ignored the special requirements of the Committee, and have thereby nearly wrecked the competition. The Committee, though apparently not very decided in the main as to what they wanted, were clear upon one point; they wished to have a large central space on the plan, on which a large congregation could be collected within hearing of a preacher. The assessors have awarded the first prize to a design which entirely ignores this requirement. It is not a creditable result.

Apart from this, Mr. Scott's design, though, as we have already said, we should not on its architectural merits have placed it first—is a fine conception in the main, and contains some striking and original features. In plan it is essentially a one-aisled church, the side aisles being only narrow ones for passages; a treatment, we think, more suited to an ordinary-sized church than to a cathedral. We observe that the piers at the crossing space are not emphasised in any way, but continue the same design as those along the nave. This produces an effect of continuity, no doubt, but it is rather missing a point in the expression of structure. The north façade\* is preceded by an open cloister court. There are two transepts, the small southern one being formed by projecting buildings which contain on the east side the chapter house, a narrow oblong building running north and south, and on the west the vestry, the two connected by a wide vaulted passage. The larger transepts have each a tower. The north end shows no towers, but is treated as a bold and massive composition rising in the centre, flanked by turrets at the sides, and with three lofty arches marking the entrance doors into the narthex. The most original

\* It must be remembered that the axis of the cathedral is north and south; what is generally called "west front" is here therefore north front, and what is generally called the "east end" is the south end.

and striking point in the design is that two bays of the nave, at separate points, are raised above the rest and treated with special vaulting, the remainder of the nave roof having a ribbed pointed barrel vaulting. These bays form exterior features in the side elevation. The author deserves full credit for this point in his design, which would produce a very fine interior effect, and which, though not altogether novel in idea, is at least unusual. The large scale elevation of portions of the interior show excellent examples of orthodox Gothic, and the triforium is very effectively designed. In short, taken *en masse*, the building is a fine conception. It is when considered in detail that it is unsatisfactory. There seems to be no ruling idea in regard to the grouping of windows and other features; windows, wall arches, panelling, &c., are inserted almost at random all over the building, with little relation to each other and no dominating motive anywhere; and the south end is one of the weakest pieces of design we have ever seen; in fact, it can hardly be called "design" at all. The assessors seem, indeed, to have recognised that something was amiss here, from the last paragraph of their Report (see p. 533 *ante*), though what it is they mean to suggest by saying that "the quasi-east end should be drawn with the towers shown" it is difficult to understand. The whole Report, however, is exceedingly vague in its wording.

It is in this respect of grouping of features and dominating *motif* that the design numbered 4 in the hanging (Mr. Tapper's) is so far superior to number one. His plan is a peculiar one. He also has a cloister court at the north end, irregular in shape (following presumably some line of the ground), which we do not like; better to lose some ground and make it a symmetrical plan. The nave here is also what may be called a passage-aisle plan, though the aisle is not a very narrow one—15 ft. between supports, and 70 ft. between supports for nave. A double aisle is returned across the north end. The pulpit is placed on the east side half way down the nave, by way of meeting the requirement for getting a



large congregation within hearing of the preacher; this is a practical solution, though it is not so good as an arrangement which brings the listeners all facing the preacher. Towards the choir end the nave contracts, the walls being canted inwards to the narrower choir, with chapels opening out of them at an oblique angle. The north elevation\* shows an obvious reminiscence of the west front of Tewkesbury, with an immense arch flanked by masses of plain walling, and with rich wall panelling above it. The side elevation is very finely treated. The aisles are lighted by small windows only; above is a set-off and wall-arches forming the exterior expression of the triforium; then a range of very large mullioned and traceried windows, which with some subsidiary panelling occupy nearly the whole of the clearstory wall, throwing into the church a flood of light from above. Externally the contrast between the mass of walling below, only broken by small isolated windows, and the great tier of traceried windows above, is exceedingly fine, and shows that sense of the value of grouping and contrast which is so lamentably absent in the detail of No. 1 design. The reticulated tracery in the triforium arches looks a little mechanical, it might have been varied with advantage. The style adopted is Decorated, and the nave is vaulted on the old traditional principle—sexpartite for the centre, quadrupartite for the aisles. The tower is kept separate at the southern extremity of the ground, treated with a lofty open arcade story below, and finishing in a rather picturesque lantern; a little more might have been made of the design, but there is nothing to object to in it. The morning chapel and baptistry occupy the eastern and western ends of the narthex, the morning chapel facing east. It is somewhat small; the position near the main entrance may have something to recommend it as a matter of convenience, though as a matter of sentiment a position near the more sacred portion of the church is preferable as well as more usual, and perhaps no worshipper would object to walk the length of the cathedral for access to the morning chapel, instead of reaching it almost direct from the street. But in the main this is a fine design, and, to our thinking, taking things all round, it is the best of the five.

No. 2 (Messrs. Austin & Paley) is a design in Late Gothic style, very richly decorated with panelling and tracery, but the decoration all in subordination to a broad general treatment. The plan is on the passage-aisle system, with the aisle carried round the semi-octagon termination of the choir; the chapter-house is a hexagon apartment cleverly joined on to the south-west angle of the choir. As in No. 1, the authors introduce transept towers. The crossing space is covered by a great octagon lantern or rather tower, with four wide and four narrower faces; in other words, a square with the angles canted off. This is roofed by a cupola following the same lines. We should say that the transept towers are rather too high in relation to the central cupola between them, which makes rather a confused composition at this point; from the side view the towers would hide and interfere with the central feature too much, and seem

\* The author seems to have been confused as to points of the compass, for he calls it "west elevation"; or perhaps he considers that ritual phraseology should supersede geographical.

to be competing with it, whereas it should rather dominate everything else. The north front, with its large west window and gracefully designed flanking turrets (the terminations of which seem suggested by some of the detail of Westminster Cathedral), has a very good effect; though the north porch, from its peculiar shape and the manner in which it is joined on to the main building, looks rather like an excrescence. The side elevation is broad and simple in general design, though rich in effect from the amount of traceried window; the mass of blank wall in the bay next the north or entrance façade is well thought of and valuable as an effect of contrast. Altogether, this is a design of rich and sumptuous effect, but not so forcible and original in general conception as either of the two already mentioned.

No. 3 (Mr. Malcolm Stark) has a three-aisled plan of the usual proportions, developing into an octagon of 100 ft. diameter at the crossing, with piers bearing niche and statue capitals after the suggestion of Milan. This is vaulted over, with a timber roof and a fleche over that. The author has a new idea in making the main tower and spire, placed at the south-west angle, mark the state entrance (if one may call it so) for the bishop, the ground story of it forming the "bishop's porch." The north front is flanked by towers, left with a good deal of plain masonry in the lower portion, contrasting with the more decorative treatment of the upper stage. The north front generally is effectively treated; there is a very large traceried window divided into compartments by a central pier and two intermediate buttresses, the central pier and transoms forming the supporting ground for a large crucifix. There is a rich decoration by panelling over the doorways, broken into between the doorways by large square-headed mullioned windows, the lower portion of which is partly occupied by a solid panel with a niche for a statue. All this part of the work looks very well. The south end shows also its large traceried window with three small square-headed windows below, lighting the morning chapel which runs east and west across the end of the main church. Southward of this is a small garden plot with the chapter-house at the further end of it, reached by a covered cloister arcade. This separate block contains also the choir practice-room. A practical feature in the plan is the provision of a row of small separate vestries for different ecclesiastics ranged outside the east wall of the choir, with small top-lighted vestibules and each with a lavatory attached. A cloakroom and lavatory is also provided at each side of the west transept vestibule. Some church architects seem to regard this kind of provision as beneath the dignity of a sacred building, and even incongruous and unsuitable; but we do not see that there is any sense, even in planning a building for divine worship, in ignoring the demands of practical comfort and convenience. People are still mortal, whether they are in a church or a theatre, and Mr. Stark's sanitary provisions are dictated by common sense. The drawings include a design for the Dean's residence, and a number of details of decorative grilles and other ironwork. There are many good points in this design; but the general treatment of Decorated Gothic shown in it, except in the north front, is rather mechanical and devoid of feeling.

No. 5 (Mr. Nicholson) shows a very clever

and original treatment of the plan; it may perhaps suffer under the accusation of being rather too clever. There is a rather short nave, and a crossing of a long hexagon shape, the longer axis at right angles to the main axis of the church, so that two of the points of the hexagon project into the transepts, each of which has a large pier on its central axis. We noticed the sketch design for this, in our review of the first competition, as an able but somewhat eccentric one. The manner in which the central space is designed and roofed, and the lantern carried over it (partly by a concealed conical erection) shows a great deal of thought, and is illustrated by a large and ably worked out constructional drawing. The northern façade is flanked by towers with a large rose window between them, and immense metal clock-faces standing clear of the tower masonry. The south end has also its rose window; this elevation is rather crude in its treatment, and not equal to the northern one. South of the choir is a small open cloister court, between which and the choir is the morning chapel, running east and west; the octagonal chapter-house opens out of the west end of the widest (south) walk of the cloister. The treatment of the centre feature above the roofs, with its massive buttresses (over the main piers) and windows between, is very bold and effective; and the peculiar arrangement of this portion of the plan, with its subsidiary chapels and west porch, gives occasion for a good deal of curious and effective interior arrangement. The treatment of Gothic detail in the design is a little commonplace, but the design as a whole is exceedingly original, and though we should not have recommended its adoption, as being too restless and deficient in simplicity of motif, it will always rank as a credit to its author.

We consider the choice of site a mistake, and the design placed first is not our idea of what a twentieth century cathedral should be, either in regard to plan or style. But if we put ourselves in the place of the Committee, who are apparently old-fashioned churchmen with old-fashioned ideas about church architecture, it must be admitted that in Mr. Scott's design they have got what is, on the whole, a fine expression of the kind of cathedral architecture they want; and one cannot but be pleased and interested to see the good old name of Gilbert Scott rising again into architectural prominence in the third generation. What we regret is that, if this cathedral is built, the century will hardly be half out before it will be regarded as an anachronism.

## PAINTING AND SCULPTURE AT THE PARIS SALONS.

By H. HEATHCOTE STATHAM.



It is much to be regretted that when the great Palais des Beaux-Arts for the annual exhibitions of painting and sculpture was erected, it should have been deliberately planned in two sections internally, each with its own staircase and vestibule, so as to stereotype, as it were, a division into two rival exhibitions which has had injurious results on each. Even with the immense and abnormal artistic energy of France, there is not enough really good painting and sculpture produced annually to fill satisfactorily



even one of these two great ranges of galleries, and when the product has to be divided between the two—when each must vie with the other in covering its walls and filling its courts, the standard of acceptance must of course be still further lowered. It is the New Salon, however, that now suffers most from the opposition. The general character of the exhibits at the Old Salon is not materially altered from what it was before the division in the camp; though no doubt, if some few of the New Salon pictures were transferred to it, in place of some of those actually there, the exhibition would be the gainer. But taken as a whole, the New Salon is getting hopeless. Just as the New Gallery has never recovered the loss of Burne-Jones, the New Salon has never recovered the loss of Puvion de Chavannes; and the hopelessness of the struggle against its older neighbour is too clearly shown by the character of many of the pictures hung, just to cover the walls, some of which are so appallingly bad that it is a cause of wonder that any committee can have the assurance to hang them. There are many poor and commonplace pictures at the Old Salon, but it does at all events maintain a certain standard of execution.

The New Salon boasts of two large State commission paintings, M. Georges-Bertrand's "Funeral of President Carnot," which is about as interesting as such pictures usually are, and M. Weerts's immensely long picture for a gallery in the new Sorbonne, "Fête du Lendit ou Foire aux Parchemins à Saint Denis au XV<sup>e</sup> Siècle," which is not interesting at all except as a historical record of a curious old custom. M. Victor Prouvé's "Toile Decorative," illustrating two lines from Baudelaire, is the only other painting on a large scale that is worth note, a fine work in colour, though rather awkward and scattered in composition. After these, we have to fall back on some portraits, on the works of two or three painters who aim at special effects in a special style of their own, and two or three groups (for each painter's works are grouped here) of small and delicate landscapes, which certainly have a better chance here than in the crowd of the Old Salon. Among the portraits M. Carolus-Duran, who looks curiously out of place in the New Salon, is quite at his best in a full-length portrait of "M<sup>me</sup>. C. H. . . de Londres"; while Mr. Sargent's "The Misses Hunter," from last year's Academy, is quite a New Salon style of work. M. Dagnan-Bouveret exhibits a beautiful seated portrait of a lady, and a bust portrait, "M<sup>me</sup>. F. . .," which has the *espiglerie* of a Leonardo da Vinci head. Among others M. Giron's portrait of the "Princesse M. W. . . of St. Petersburg," is a true New Salon portrait, since it is experimental in style, and the New Salon is the haven of experimental art; it may be called a study in blacks—dress, landscape, trees, all black, and the face of a dingy tone; but withal a forcible study of a characteristic personality. Then there are the specialist painters, such as M. La Touche (who is much less interesting than usual); M. Lhermitte, a painter with a style in landscape, but an untidy one (if one may use the expression); M. Lavery, whose "Le Chou Bleu" is really a portrait study of colour effect; M. Mesdag, who, under the title "Après l'Orage" exhibits a large and gloomy sketch of sea; and M. Thaulow, one of whose

works, "La Porte en Marbre," a battered marble gateway to some great but fallen estate, standing in a dirty lane, is a melancholy souvenir of the France of *Le Siècle*. Among the groups of small landscapes those by M. Lateney are all beautiful, likewise in a lesser degree those of M. Georges Costeau, and a few others; M. Courtens's "Vieilles Femmes de l'Hospice de Schiedam," queer old bonneted figures straggling along a country road in the twilight, is a picture to remain in the memory, and is pathetic as well as picturesque; and one must not omit mention of M. E. Friant's admirable little work (landscape and figures), "Le Vieux Cheval." In sculpture there is nothing of any importance.

In the vast spaces of the Old Salon there is no doubt a far coarser general impression of colour than in the New, where there is at least a kind of reticence in the hanging. One might say the same thing, no doubt, of the Academy; both seem to be exhibitions in which every sort of thing is hung pell-mell; but the immense extent of the Salon galleries makes the effect on the mind and eye more oppressive. Were there only half the wall space to cover, the artistic *ensemble* would be far higher. Of course, both with the Academy and the Salon, there is the commercial element; artists must live, and acceptance at the exhibition means the chance of sale or of commissions; it would be unfair to forget that. But it is not for the best interests of art, nor does this wholesale display do the best for the artistic education of the public, which should be one object of a State-aided artistic society.

The great gallery at the top of the staircase contains, as usual, some of those large ceiling and other decorative paintings which are made for the beautifying of municipal and State buildings, but nothing of the first order; the largest is M. Schommer's ceiling for the Hôtel de Ville of Tours, under the title "François I."; a spirited composition symbolical of the arts under Francis I., but which is characterised by the fatal mistake of being painted in upward perspective; a lapse of taste only too common in French ceiling paintings. It is singular that while the French artists recognise clearly that a decorative painting on a wall should be kept flat in character, with as little of linear perspective as possible, so as not to contradict the effect of wall surface, they seem so fond of treating ceilings in just the opposite manner, so as to confuse our sense of the ceiling surface altogether. In this respect French art has had a great loss in M. Mariotton, who really knew how to treat ceiling painting, and whose works of this class were always among the best decorative paintings of the Salon. M. Bourgonnier's ceiling painting, "Watteau," intended for a Louis XV. drawing-room, is, however, an effort in a better style, in which perspective effect is not attempted, and which is light, graceful, and truly decorative in effect. In another room we find this year a really noble decorative painting, on a very large scale; M. Henri Martin's "Panneaux Décoratifs" for the Capitol at Toulouse. It is in reality one composition, though divided as a triptych, and represents a meadow scene with hay-makers at work, a charming group of children in the foreground; behind these a number of upright trunks of trees form a series of vertical lines, contrasted again by the sinuous outline of the wooded hills in the background. M. Martin's peculiar technique

lends itself well to the flat treatment in which a decorative style is kept up, while at the same time the brilliant glints of sunlight through the trees give the picture something of the brightness and freshness of open-air landscape. The union, so difficult to preserve, between decorative style and open-air effect has seldom been more completely realised, and it is in every sense a noble work, and one of the finest that M. Martin has produced. The other important decorative picture, also a triptych—in this case divided in subject as well as in framing, is M. J. Paul Laurens's "Jeanne Darc,"\* a State commission for the new Hôtel de Ville at Tours; fortunate is the country where the State habitually gives such commissions for the encouragement of monumental art. M. Laurens's picture is, however, hardly "decorative" except in a certain severity of style and in the fact that it is intended as a wall-painting; otherwise the treatment is pictorial and dramatic. In the left compartment Jeanne meets Charles VII. on the drawbridge of Tours; in the centre scene is a crowd of spectators and mailed horsemen, and the victim is half pushed up the steps to the funeral pyre by a priest, while a higher ecclesiastic waits grimly at the top. The right-hand scene shows the deserted square after all is over, the smoke drifting from the funeral pile, and the one ecclesiastic descending the steps as if conscience-smitten. It is this empty scene which gives the highest touch of tragedy to what is throughout a fine and impressive picture.

Some other eminent painters are disappointing this year. M. Gervais, whose noble "Graces Florentines" was the greatest thing in last year's Salon, has a picture, "La Conseillère," showing a nearly nude young woman, rather hardly painted (a very unusual defect in this artist) reclined on a couch, while a sinister face behind whispers apparently evil counsel in her ear; hardly a noble picture either in execution or *motif*; his larger work is the harbour of a Renaissance city showing "Marine d'autrefois," with a great oared galley going out to sea; all very well done, and crowds of small figures carefully studied, but hardly the sort of thing for M. Gervais to expend his splendid talents as a figure-painter on. M. Gérôme is disappointing also; his two works are not very interesting (for him), nor do they in any sense show him at his best. M. Raphael Collin only sends two small heads, which make one wish for more; and M. Ridet, whose poetic scenes of modern life we have admired in several Salons, has painted an almost absurd picture (fine in colour as usual) of two ladies in gala costume calmly reclined on the deck of a steamer in a tremendous sea (very badly painted). It is vexatious to see an artist with such fine powers blundering in this way; his better quality is indicated in a beautiful and *spiritual* head, under the title "Le Soir." On the other hand M. Bouguereau has surpassed himself in his beautiful work, "La Vague." As we have often said, he is a very academical painter with a poor sense of colour, though an unimpeachable draughtsman; but this figure of a girl reclined on the sand, symbolising the wave, is so perfect in design and has a face so lovely, that if it be one object of art to

\* I decline to accept the usual but incorrect spelling, "Jeanne d'Arc," a form of name which a French peasant girl could not possibly have borne.



produce what is simply beautiful to look at, according to Browning's thesis—

"If you get simple beauty and nought else  
You get about the best thing God invents"—

M. Bouguereau has certainly made a triumphant success. It is to be hoped that this charming work may find its way to the Royal Academy next year.

It is curious to compare with this almost Classic production, Greek in its purity of line and feeling, the various vulgarities in the way of "Etudes de Nu" which, as usual, are scattered about, and which serve to show how one artist will produce nothing but artistic (or inartistic) vulgarity from studies of the figure, while another will produce a poem. M. Rochegrosse indeed, in an "Etude," has gone a degree further than vulgarity, and produced a painting which, were it exhibited in London, would be followed by a police order for its removal—and justly. Among those which aim at something higher is M. Sabatte's "Eve après le Pêche," a figure crouched together so as to occupy an almost circular outline, and in which decorative effect and a certain tragic impression are combined; as a matter of design it seems as if inspired by the influence of Mr. Watts, but the colour is poor and cold. For the charm of admirable drawing may be mentioned M. N. A. Laurens's "En Garde," two girls seated on the seashore, one of them keeping a crab at a distance with a bit of stick; a thing which succeeds by sheer force of drawing, though not particularly beautiful. M. Henner repeats, in his "Nymph Endormie," his usual fantasia of dark woods and an auburn-haired nude figure painted as if its outlines had been dissolved away by an acid; there is a charm of colour and a certain poetic feeling about it, of course; but the artist has done the same thing rather too often, and one has the sense of its becoming an artificial trick of effect easily repeated, and somewhat too sentimental. There is a healthier artistic feeling in M. Legrand's "Baigneuses," painted in a broad and full style and with grace and beauty of line. Close to this latter, however, hangs a small-scale work by M. Muller, unobtrusive and which many visitors might pass over, but which is the most really artistic production in the Salon of those in which a nude figure is the principal element. This, like Henner's, is called "Nymph Endormie"; it is a combination of landscape and figure in which each seems to belong to the other, and by a subtlety of colour and style the whole is blent together; it is not merely a nude figure with a background, but an artistic whole—one of those works of which the charm is impossible to define in words, because the artistic conception, as in a piece of "abstract" music, is its own sole explanation. Such works of art are rare, nor do they appeal to the popular mind; but they are a pure joy to artists.

Among what may be distinguished as "subject pictures" a great success has been made by M. Bail, whose name is new to me, and who exhibits an interior, "Le Bénédicte des Hospitalières de Beaune," a number of nuns standing round the dinner-table at grace, which is remarkable not only for the careful and conscientious execution of every portion, but also for a higher artistic interest arising from the individuality of the colour treatment, which quite removes it from the category of mere scenic representation. M. Tattegrain, who has not been very

prominent at the Salon the last year or two, exhibits this year another of his large quasi-historical paintings—

"Of old, unhappy, far-off things,  
And battles long ago";

the inhabitants of Boulogne, on September 16, 1544, retreating across the ford at Etaples after the taking of their town by the English. According to the old chronicle quoted, there was a deluge of rain at the time, and M. Tattegrain, with his talent for grasping realities, shows us the fugitives crossing the ford in straggling lines, all bent forward in one direction to screen themselves as far as possible from the rain; a very effective painting of its class. Mme. Demont-Breton is as clever but not quite as charming as usual in her painting of a fisherwoman and her two little naked children, "Graine de Mer"; a life-size *genre* picture which hardly justifies its scale. Of pictures on sacred subjects there are a certain number, mostly commonplace in conception and execution; M. Aubert's large decorative triptych of three incidents in the life of the Virgin is a sober conventional type of ecclesiastical painting, more suited to a church (which is probably its destination) than to an exhibition; this is a mural painting in wax. M. Jules Lefebvre has aimed at something higher in his "Douleur de Marie Madeleine," a fine and pathetic composition in which the Magdalene kneels at the foot of the cross with arms raised upward towards the Saviour, her long mantle falling back in sweeping lines behind; the colour is the weak point of the picture, which is otherwise a fine and serious conception. Among paintings connected with ancient legend M. Destrem's "Orpheus" is an imaginative little work, showing the entrance to Hades and Orpheus approaching the banks of the Styx, a small figure amid a vast cavernous scene. There are always some pictures at the Salon which may be regarded as "criticisms of life"—of contemporary life, which is one function of painting, so long as the artistic demand is not neglected for the normal. Among such pictures M. Etcheverry's cleverly-painted "Vertige," a couple indulging in a stolen and clearly unlawful kiss in the recess of a ballroom, is amusing because it is so exactly like a leaf out of one of (say) Georges Ohnet's novels; and M. Swieykowski's "Dégenérescence," a clever picture which seems a puzzle to many beholders, deals with a more serious problem of modern French life; the point of the picture is pretty obvious, but we need not go into it here.

Good portraits are pretty numerous this year; portraits bearing the well known name of Bonnat, Chartran, Comerre, Flameng, Leroux, and others; among them two fine groups, the Princess Wagram and her daughters by M. Flameng, and that of a lady and children by M. Humbert, who also has a single portrait of a lady in a style obviously inspired by Gainsborough. Perhaps there is no more pleasing work of this class than M. Comerre's portrait of his daughter, a young girl standing by her bicycle; an admirable example of a portrait of fine execution and of simple and unaffected style.

There are however no portraits superior to the best English work of this class; it is in portraiture that the English school may best compare with the French, and at its best is perhaps superior to the French school, the taste of which is a little towards hardness and over finish in portraiture. It is otherwise

with landscape; here France completely takes the lead, especially in that grasp of a scene as a whole which more than any other quality constitutes style in landscape. The landscapes of the highest class are not, it is true, very numerous in this year's Salon, but those which are to be seen have a great style about them which is not to be found in any other school at present. M. Didier-Pouget's principal work, "Le Matin," with its heathy foreground in light, and its distant plateau, is a painting of extraordinary power; it may be that the artist has given us the same effect before, but it is so fine that one can hardly be sorry for another edition of it. In the same room, the great Gallery, is a beautiful and refined sunset scene by M. Simonnet, a strange and refreshing contrast to the large and coarse works to be seen in its neighbourhood. In another room M. Quignon shows, in his "Sarrasin en Fleurs," a fresh example of his masterly breadth and completeness of style in treating simple materials in landscape; as a matter of style he is superior to M. Didier-Pouget, but his subjects are not so striking. M. Harpignies, another painter with a perfect style, has this year two small landscapes only, but as complete and balanced as his larger works; and in one room there is a small coast scene by M. Yarz, "Coin de Plage," which is extraordinary for its freshness and reality of effect. A well-known English landscape painter, Mr. East, exhibits two works; one of which, "Une Lueur avant l'Orage" is superior to any of his works in this year's Academy. Many more landscapes might be mentioned did space permit.

French sculpture, though still first, is unfortunately not altogether what it was. The sculptors, or some of them, have been seized with that passion for movement and sensation at any cost, which tempts them to works quite unsuitable to the genius of sculpture; struggling groups in forced attitudes, such as M. Suchetet's wild piece of tortuosity entitled "Un Rapt." M. Puech has been so enamoured of his success in coloured sculpture in his "La Pensée" of last year that he has followed it up with a realistic portrait figure (small scale) of an ecclesiastic, in different coloured marbles—not a happy effort, and not what sculpture was meant for. But there are a good many fine things to be found; some of them examples of physical beauty and perfect modelling, such as Mdlle. Dieterle's "Sommeil" (which in sculpture may be classed with M. Bouguereau's "La Vague" in painting); studies of special types of figure, as with M. Houdain's two clever works, "La Pesée," three nude men straining at a lever, and "La Jeune Fille," a study of the thin proportions and simplicity of mien characteristic of a quite young girl; and there are works which express a poetic idea, of which the finest is certainly M. Peyre's beautiful bas-relief "Harmonies," in which two lovers recline, the man with his face upturned as if contemplating something divine—it might pass for a Classic rendering of Lorenzo and Jessica studying the heavens; it is a most beautiful work, and evidently so regarded by the Committee, from the position in which it is placed. Another fine work embodying a poetic idea is M. Champel's "Muse Exilée," of which we shall give an illustration shortly. M. Chailoux's monument to Pasteur shows the portrait head of the great biologist placed on a column, while a bronze figure of a



youth who has been bitten stretches out his hands for assistance; a scheme simple and comprehensible, at all events. Among other monumental works M. Ducuing gives an example of the vigour and life which French artists put into this kind of thing in his large monument in honour of the "Chant National" of Toulouse; a pylon on which stands a working woman of Toulouse who has quitted her needle to join in the song; her broad straw hat looks absurd enough in sculpture; but the rest of the monument, with its symbolical "attributes" and the spear and banner crossing it obliquely, is a capital example of decorative impulse. There are of course many works worth looking at in the vast collection of sculpture; I have mentioned only some of the finest or most characteristic. The notice may be concluded with the mention of three works which connect sculpture with architecture; M. Roux' fine figure of "La République," intended for the grand staircase of the Prefecture of Marseilles; M. Ducuing's fine Caryatide figure, "L'Eté," intended for a private mansion; and M. Hugues' octagonal sculptured fountain representing the Danaids; consisting of a group of sculptured figures of the Danaids in the centre, and an outer octagon basin decorated with a melancholy-looking head in high relief at each angle, the heads being connected, in a symbolical manner, by festoons of chains. This is a fine and unusual work, as much architectural as sculptural in its character and purpose.

## NOTES.

**Municipal Trading.** THE extremely influentially signed memorial which has been presented to the Bank of England by the Industrial Freedom League is confined simply to the financial aspect of municipalities engaging in commercial adventure with borrowed capital. The memorial points out with some force that the municipal stocks of the larger cities are authorised Trustee investments, and that on this account, if on no other grounds, it is undesirable that such capital should be embarked in enterprises involving the use of plant which is being improved and developed, and the subject of experimental invention. The memorial has been presented at an opportune time, since the granting of Committees of Inquiry by Parliament has the effect of silencing the voice of the public whilst they are pending, and they are a well-known device for minimising agitation.

**Offers for Property Compulsorily Acquired.** IN the case of The King v. High Bailiff of Westminster, *ex parte* the London County Council, the Divisional Court have given a decision of some importance as to how long an offer of compensation made under the Lands Clauses Act, 1845, remains open. We commented on this point in our issue of December 27 (p. 599) last year, but the Court now have given a decision different from that of the Court below. The County Council, acting under the London County Council Improvements Act, 1899, on March 4, 1902, had given notice to treat in respect of premises situated in Vere-street, St. Clement Danes; and on March 27 those interested gave a notice of claim for compensation under Section 12 of

the Act. On November 5 the County Council delivered a sealed offer of 1,600*l.*, which was rejected November 18, and a warrant was issued for a jury. At the hearing of the arbitration, the jury found that the premises were insanitary, and the claimants then, and before the amount of compensation was assessed by the jury, elected to accept the offer. It was contended by the County Council that this was too late, and a mandamus to the High Bailiff was applied for to summon a fresh jury to assess the compensation. The Court have now decided that the offer remains binding and can be accepted up to the time of the verdict. The Act of 1899 practically incorporates the Lands Clauses Act of 1845, but Section 20 contains special provisions as to the principles on which compensation is to be assessed if the property is unfit for human habitation or insanitary either in itself or as regards the surrounding houses. The finding of the Court is that this section only sets up two standards of compensation but does not affect the procedure under the Lands Clauses Act, and the effect of the judgment is this—that the offer made under Section 38 of this latter Act remains open until a verdict has been given as to the amount of compensation, but that if it is accepted after the initiation of proceedings, the claimant can be in no better position than he would have been had the verdict been given for the same or a less amount than that contained in the offer; that is to say, Section 51 of the Lands Clauses Act applies, and the costs have to be borne equally by both parties.

**The Mersey Electric Railway.** THE successful conversion of the Mersey tunnel railway from steam to electricity without any stoppage of the traffic will encourage other railway companies to adopt electric traction over parts of their lines. The Westinghouse Company have had considerable experience of this kind of work in America, and the working of the many novel appliances they have installed will be studied with interest by railway engineers. The Buhoop automatic coupling which also acts as a buffer is used throughout. These couplings close when the cars are run together and they can be opened by a lever at each end of the platform. The mechanical devices are all controlled electrically, but the electricity is not obtained from the high-pressure supply, but from small batteries carried on the cars which can be charged by being put in series with the lighting circuit. The electric current for the motors is picked up from a third rail, which is supported on earthenware insulators fixed on every third sleeper. The generating plant is of a type which is novel to English electricians. There are three dynamos of 1,600 h.p. each, and they can be safely run on a 50 per cent. overload for half an hour or so. These dynamos, which are called double current generators, supply either direct or three-phase alternating current, and they can also supply both kinds of current at the same time. The direct current feeds the third rail at 650 volts, and the three-phase alternating will be used to transmit energy at high pressure to substations. Another novelty is the employment of a large battery of accumulators in conjunction with a special motor called a reversible booster, to level the load on the generators. The

battery assists the generators during a heavy load, as, for example, when a train is accelerating; and when the load is light the generators charge the battery. By this means it is possible to keep the engines and dynamos working at their efficient loads, and so get the requisite work done with the minimum consumption of coal.

**Motor-cars and the Roads.**

THE tragedies following on the motor-car race in France and Spain have occurred at an opportune time as far as this country is concerned, as the Government is considering a Bill dealing with the use and abuse of motor-cars. On the subject of racing on the highways we should think there cannot be two opinions; it would not be allowed with either horses, bicycles, or any other vehicle, and record-breaking or pace-making is equally objectionable. In this controversy the real use of the roads is often lost sight of. They are maintained by the ratepayers, the majority of whom are not motorists; they are maintained for the common use of men, women, and children, who all possess equal rights to the use of the roads in common safety. They, moreover, have not been constructed with a view to vehicles of great speed traversing them, other roads cross them at right angles often screened by high hedges, and sharp corners abound. For this reason limitations have been placed even on the speed of horses, and convictions for furious driving are obtained constantly. Much stress is laid on the capacity of motor cars to be brought to a standstill, but motorists never do attempt to slacken speed until danger is imminent, and unless some safeguard is afforded by some stringent measure the ratepayers will be compelled to take united action to secure safety to life and limb.

**Liquid Air.**

IT is a curious fact that the chief features of modern methods for the liquefaction of air on an industrial scale were described in the specification of the patent granted to Mr. C. W. Siemens as long ago as 1857. Although various commercial uses for liquid air have been suggested from time to time by imaginative people, very little has been done in the way of its practical employment. Three products are obtainable by the liquefaction of atmospheric air—liquid oxygen and nitrogen, and solid carbon dioxide—and these may be readily separated for use by the Pictet apparatus. Liquid oxygen may possibly find employment in the production of high temperatures and high illuminating power, but it is by no means certain that its use in this manner can be rendered economically possible. The very low temperatures obtained by means of liquid air are certainly valuable in chemistry, and extensions of its use may be anticipated in this department of science. At the present time sensational stories relative to commercial applications of air in the liquid form must be received with a considerable amount of reserve.

**A New Alloy.**

UNTIL recently aluminium was the lightest of the commercial metals, but an alloy of aluminium with magnesium has now been placed on the market, under the name of "magnalium," which is even lighter than pure aluminium. The proportion of mag-



nesium varies from 2 to 10 per cent., according to the degree of ductility required. Magnalium is silver-white, but is stronger and tougher than pure aluminium. Its tensile strength is said to be 20 tons per square inch, and it is claimed that it can be rolled and turned as readily as good brass, while it has the advantage of being incorrodible under ordinary conditions. The alloy has been successfully employed on the Continent for racks and ornamental work in restaurants, and so far as it is possible to form an opinion from the samples of sheet metal and solid rod which have been forwarded to us we think that it will be found decidedly superior to pure aluminium for most of the purposes to which that metal is applied.

#### Cement Paint.

IN the course of a lecture delivered before the American Chemical Society the statement was made that the setting of some cements used in building construction is attended by the liberation of calcium ferrite, a substance which produces rust when in contact with clean steel. Having arrived at this conclusion by chemical investigation, the lecturer had made some novel experiments with cement preparations, eliminating iron, changing the specific gravity of the cement, and diluting it in such a way that it could be used as a paint. He thus produced a cement paint, that is described as setting quickly, adhering to iron and steel, and having the same coefficient of expansion. While we are not prepared to endorse the suggestion that cement is apt to cause the oxidation of steel, it is undoubtedly the fact that steel cannot be protected with a wash of Portland cement, for the simple reason that the cement will not adhere to the metal. If the new form of paint should prove to be adapted for practical use, it may cause extensive changes in methods of preserving steel and iron structures.

#### Bridge Protection Works.

At a recent meeting of the Institution of Civil Engineers, an account was given of the protection works of the Kaiser-i-Hind railway bridge over the river Sutlej. This bridge, comprising twenty-seven spans of 150 ft. each, was built in the years 1885-87, and the protection works originally consisted of a long "bund," or embankment, along the river face on each bank, furnished with spurs at intervals of 600 ft. Each spur was practically an earthen bank, 500 ft. long, and 20 ft. wide at the top, the nose being faced with stone pitching. Considerable damage was done to the bunds during the floods of 1899, and it was then decided to adopt the "Bell bund" system. In accordance with this method, bunds were built on both banks, and their heads were protected with mole-heads of solid stone, and the bunds themselves were faced with heavy stone pitching throughout their entire length on the river front, and for some distance at the back from the mole-heads towards the bridge. A stone apron was also provided along the entire length on the river faces, the stone pitching being piled up, so that if the apron were scoured away the pitching would fall in and check the scour. After the works had been remodelled, an unusually high flood in 1900 practically wrecked all the protection works and broke through the rail-

way embankment in several places. As the result of examination after the subsidence of the flood, it was decided to raise all the bunds to 3 ft. above the highest recorded flood level, and to construct auxiliary bunds at a similar level. There is no doubt that the Bell bund system is a perfectly sound one if properly executed, and the trouble in this particular case appears to have been due to an insufficient margin in the height of the works, and to the absence of adequate auxiliary works.

#### A Dustless Street-Sweeper.

IN these days of municipal "enterprise" it is surprising to find that the old-fashioned method of sweeping public thoroughfares, and then of shovelling the debris into separate vans, is still favoured. It would be perfectly easy to contrive a machine for performing both operations simultaneously, but none of our municipal authorities seem to have any ambition in this direction. We therefore commend to their consideration a recently invented apparatus of German origin. The contrivance in question is mounted upon two pairs of large wheels and one pair of smaller wheels. Below the driver's seat is fixed a tank, with a capacity of about 200 gallons, from which water can be sprayed upon the road surface in front of the brush for a width of 8 ft. The brush is situated a little behind the middle of the carriage, and is of curved form so as to lead the mud to a platform at the centre, whence it is raked along to a bucket chain, and thereby conveyed to a receptacle carried upon the hindmost wheels. The machine is drawn by a horse, and the various mechanical movements are actuated through gear connected with the main axle. When the sweeper is travelling at the rate of three miles an hour the brush makes about ninety revolutions per minute, and each bucket of the chain pump makes 4.8 double journeys per minute between the platform and the mud receptacle. It is said that two machines of this type, one following the other, will perform the same amount of work as twenty men. Anything that tends to reduce the quantity of microbe-laden dust in the streets of London and other large cities would receive a hearty welcome from the inhabitants.

#### The Globe Theatre, New-castle-street, W.C.

A FEW days ago were sold the materials and equipment of the Globe Theatre, in order to make way for the laying out of Aldwych and Kingsway. The theatre was opened on November 28, 1868, having been built after plans and designs by Mr. S. Simpson. For its site were demolished the remaining chambers and tenements of Lyon's Inn, which stood between Wych and Holywell Streets, in the hall of which were held the earlier meetings of the Architectural Association, founded there in 1845. During twenty-five years after the opening of the Princess's Theatre in Oxford-street in 1842 no licence had been granted for a new theatre in central London; when, in 1866, a Parliamentary Commission upon Theatres held their sittings, there were only three theatres in the Strand, namely, the Adelphi, the Lyceum, and the Strand. As a result of the Commissioners' Report the former monopoly ceased and

licences were issued from the Lord Chamberlain's department without previous inquiry into "the wants of the neighbourhood," provided that the regulations for the safety and convenience of the public were duly observed. Lyon's, or more correctly Lion's, Inn, had been a hostelry which was acquired temp. Henry VIII. on behalf of professors and students of law for an Inn of Chancery, and appertained to the Society of the Inner Temple.

#### The Goupil Gallery.

At the Goupil Gallery there is an interesting collection of small landscapes in oil and water-colour by the late M. Weissenbruch. The water-colours are, like so many works of the modern Dutch school, very grey and colourless, and where he touches the sea he is not successful; his "Sailing Boats" (5) are sailing on a surface which might be a ploughed field, for all the look of water there is in it. But all of them have the feeling for composition and effect which marks the work of a true artist; none more so than the slight little upright sketch called "Canal, Evening" (9). The oil-paintings are finer than the water-colours. "The Red Cottage" (16) is a perfect piece of landscape-painting on a small scale, and "River-side Pastures" (19) an exceptionally fine study of composition and daylight effect. The weakest of the works is the large one in the centre of the wall, "An Old Dutch Town" (15), which is not pictorially designed and at the same time is too vague in execution for realistic effect. Otherwise, nearly all are worth attention. Along with these is a miscellaneous collection, not catalogued, including a poetic figure study by M. Faustin-Latour; several works by J. Maris—one of them, on the end wall, with a bridge in the middle distance, exceptionally good; an example of Diaz (not quite at his best); two clever studies of lamp-lighted street scenes by M. Sidaner, in his peculiar and original manner; a landscape by M. Jacque; and others. The collection has the specially artistic rather than popular character which we are accustomed to find in the Goupil Gallery Exhibitions.

#### ARCHITECTURAL COMPETITIONS.\*

I HAVE pleasure in laying before you for your consideration my views upon this important subject, which I purpose doing as simply and briefly as possible. They are, however, not all new or original, and it is not my intention to touch upon every point which might be discussed, but only upon those main facts which appear to me chiefly to bear directly upon the system and its evils, and the effective reforms required to put architectural competitions upon a sound and secure basis, which will be acceptable and satisfactory both to the public and the architectural profession.

In the first place, let us have a practical definition. What is an architectural competition? It is a tempting bait cast forth by keen businesslike promoters to an overworked and underpaid profession.

This burning question of competition reform is continually before us, and judging by the various opinions of architects which we hear and read almost daily, the solution of the problem seems up to the present to be but a little nearer.

It is generally admitted, and I agree, that architectural competitions, both open and limited, when properly conducted, are a benefit to the art of architecture, but that the present method of carrying them out is unsatisfactory, and it is urgently desirable to

\* A Paper containing some views upon the reform of Architectural Competitions, read by Mr. John Murray F.R.I.B.A., before the Committee of the Competition Reform Society on May 15.



obtain some reform in their arrangement and administration.

Competitions appears to have been originally instituted without sufficient consideration of the subject in all its bearings both on the part of the promoters and the competitors, and the time has now arrived when the subject can be fully considered, and some permanent arrangement arrived at which will be satisfactory both to the public and the architectural profession.

It is to assist in the endeavour to obtain some redress of the existing evils that I venture to give you some of my views upon this subject, in the hope that you will lay them fully before the members of the Competition Reform Society, so that some adequate, permanent, and satisfactory policy may be soon adopted and pressed forward in the right direction.

The solution of the competition problem appears to me to rest entirely with the architectural profession, which must combine and work together to obtain effective reformation.

We have a Competitions Committee of the Royal Institute of British Architects and a Council to guide us, and yet no adequate, sufficiently definite, and common procedure has yet been formulated by them for the guidance of promoters of competitions and architects generally. How often we see members of the Royal Institute of British Architects appointed advisers and assessors, and the procedure of the competitions under their guidance is very different.

Some common course of action should be adopted by the profession, and if such were made known to those promoting competitions (who are generally ignorant of the subject) good results would undoubtedly follow. Effective reformation in this matter can only be obtained by drastic measures, and these should strike at the root of the defects.

In arranging any scheme of reform there is the all-important step, the interests and the authority of the public and promoters to consider as well as those of the architectural profession. Fairness, I am quite sure, is the desire of all, and what the public and promoters obtain they would, I feel convinced, be willing to pay for reasonably. Lack of knowledge on the part of the promoters is a fruitful source of the existing evils.

If a reasonable payment were demanded by a united profession for competition work, promoters would not so lightly undertake the compilation of such vague conditions, and issue such unfair invitations to architects as they have generally hitherto done.

By the present system how often we see that time, labour, and money are expended to an enormous extent by a number of architects upon designs for a building, the total cost to the profession often amounting to thousands of pounds; and the payment made by the promoters through an inadequate system of premiums is often only a very small percentage of the total cost of the work done by the competing architects.

We have seen sometimes that the design placed first has broken some important condition, which condition has deterred a more honest competitor from planning the building upon the lines of the winning design.

It has sometimes happened, although in future it should be made by careful conditions almost impossible, that a design could be materially improved and a much better solution of the problem obtained by overthrowing an important condition; and I consider the promoters should be able to obtain, if they wish, the benefit of a design thus improved; but in such a case let assessors be fair, fearless, and bold in their award. Let the award of the first place be given to the best design which is in accordance with the conditions of the competition, and let assessors boldly show to the promoters the superiority of the design which has violated the conditions, and even go so far as to advise its execution if they think fit. Then let the promoters acquire and carry out the design which has transgressed if they wish, but compel them in such a case to adequately compensate the competitor whose design was placed first by the assessors, and which has fulfilled the conditions laid down. This would give the promoters liberty of action, which they should have even after the assessors' award and advice have been given; but it would give the promoters no more than they often reserve at present, and to which they should, I think, have a right.

Promoters should be in a similar position to a private client, who can do, and often does,

as he pleases after the advice of his architects has been given; but he, nevertheless, has to pay for all the work done for him.

If the promoters, however, were at first to definitely agree by their conditions to appoint the architect to carry out the work whom the assessors advised, there is no doubt, that they would gain by obtaining more, and probably better, designs.

The following are, I consider, indisputable facts, which show the unsatisfactory position of the existing state of things:—

1. The system of architectural competitions has developed gradually without any general, definite, and logical rules being applied to it by any responsible and sufficiently enlightened authority—the inevitable result of which in most similar matters is chaos, and that is what practically now prevails in this case.

2. It is absolutely essential for the promoters to receive some good professional advice in order to frame proper conditions for a competition.

3. The system of offering two or three premiums is not satisfactory, and from this arise many evils.

4. The promoters are generally not cognisant of all the regulations which are necessary to compile a proper set of conditions for the design required, and if an architect be engaged to advise upon the conditions, even he is not infallible in dealing with such a complex subject.

5. The one-man assessor has proved to be unsatisfactory in numerous cases.

6. Architects compete in order to obtain the work, and not to win the inadequate premiums usually offered.

7. The premiums usually offered are totally inadequate to pay reasonably for the large amount of work required by the conditions.

8. The combined amount of work done and money expended by architects upon competitive designs is undignified, and is not calculated to serve the best interests of the public, the art of architecture, and the architectural profession.

9. The large amount of work done and the vast amount of time spent by individual architects in preparing competitive designs by the existing system is often very costly and also entails the loss of a large amount of time and money to the profession, which should be used in other directions, *inter alia*, to assist in raising the dignity and influence of the art of architecture and in physical recreation which it is so imperative, for an architect to take for his health's sake.

10. Sometimes an impossible condition is framed; in one point is demanded a building of a fixed and stated size to cost a fixed sum when the size demanded cannot possibly be erected for less than about 25 per cent. more than the limit of cost stipulated.

11. A competition is very often won in consequence of the first few main setting-out lines of the plan being correct, and which indicate the right and best scheme, because from these proceeds the whole design and the most artistic building and best architecture invariably emanate from the best plan.

12. It is not always the best or most skilful architect who wins a competition, but the one to whom the best scheme of the main disposition or setting out has occurred, and although this is only obtained sometimes after much work in testing every possible solution, and is often the outcome of an immense amount of thought and skill, it is not always so.

13. The best and most eminent architects are frequently too busy to undertake so much work as is demanded by the present system of competitions.

14. Many young architects of much ability, and even perhaps genius, have neither the time nor the money to spend upon the lavish competitive designs which are now fashionable.

15. The average architect who makes a practice of entering competitions wins so few that the total payment derived eventually from those he wins does little more than pay a small pittance for all the competition work he has designed, the result of which, like the unfortunate limit of 5 per cent. payment (which should be raised) is poverty, and thus another step towards the ignominy of the profession generally.

16. The result desired by promoters should be, and avowedly is, to obtain the best design possible under the conditions of the special case, and also the best architect for the work,

but under the existing system it frequently occurs that neither of these is obtained.

17. The designs awarded premiums have sometimes not been in accordance with the conditions which have been laid down as rigidly binding upon competitors.

18. All the intricacies of an extensive building problem have sometimes not been fully seen nor known to the promoters nor to the assessor or adviser when drawing up or advising upon the conditions for a competition, and some important point has been discovered by a competitor whilst working out the scheme which has been most beneficial to the whole design, although it has revolutionised some of the original conditions. This should, however, in the future be possible only upon very rare occasions, as the conditions could be framed to prevent it.

In view of the foregoing facts, I am constrained to suggest the following reforms for the consideration of the Competition Reform Society and the profession generally, and I am convinced that by the assistance of these or somewhat similar reforms a mitigation of the present evils can, to a very considerable extent, be obtained, and I think probably they can be entirely eliminated.

1. The Royal Institute of British Architects through its Council should take the lead in redressing this professional grievance, and should formulate and publish some definite rules or regulations to guide promoters, assessors, and competitors, and without the concurrence of the promoters in these, all members of the Institute and its allied societies, at least, should abstain from competitive work, and the Institute should communicate with all its members requesting them to do so. This might also be made a definite condition for future candidates for election to the Institute to undertake before, or as a condition of, their election. The penalty to be inflicted upon any member of the Institute and its allied societies for breaking any of these rules should be dismissal from their membership.

2. Every assessor should approve the conditions before accepting his appointment, or make his acceptance conditional upon his approving the conditions proposed by the promoters, and unless the conditions be framed in compliance with the Institute rules or regulations, no member of the Institute and its allied societies should accept an assessorship. The conditions should be so framed that they form a definite and binding agreement between the promoters, assessors, and competitors.

3. There should be a jury of three assessors, two of whom should be architects and the other one a specialist appointed by the President for the time being of the Royal Institute of British Architects; because the innate conservative instincts and diverse opinions of Britons will not always permit one British architect to judge and arrive at a satisfactory and unbiased conclusion upon such a complex subject, which involves a combined knowledge of art, science, and business. The design placed first by the jury must be in strict accordance with the conditions, and should be accepted by the promoters, they, however, reserving the right to acquire and carry out any other design they please providing they compensate fairly the competitor whose design be placed first, by employing him as architect to carry out the building or work. This would prevent any possible chicanery such as has been known to exist, and the architect placed first by the jury would be doubtless as capable and probably would be doubtless as capable and probably would be much more so than the competitor who had violated the conditions. In order to adjudicate fairly upon some designs it would be of the greatest possible assistance to receive an engineer's or other expert's opinion, and this jury system would fully meet such a contingency.

4. The fee to be paid to the jury should be higher than at present prevailing, and a scale might be arranged by the Institute, which might be regulated within limitations by a percentage of say one guinea per cent. upon the cost of the building or work proposed to be done plus a fee of, say, one guinea for each design submitted, and the total be equally divided amongst the jury.

5. The conditions should require small-scale sketches only to be submitted in a first competition to show the general scheme of the design, and such sketches should be limited to pencil only and not be elaborately finished in any way nor any unnecessary work repeated



thereon. The scale should be  $\frac{1}{8}$  in. to 1 ft. or less.

These sketches could be done quickly and with very little or no expense to the competing architects, but they would doubtless contain very fully the architect's own personal handiwork and embody all the main ideas of the design, which would be sufficiently intelligible to the assessors.

6. The sets of sketches submitted should be examined by the jury, and the best selected by them, if there be perfect unanimity in their opinion, or, failing this, they should select a few of the best designs, about six, more or less, according to the necessities of special cases, and the designers of these should be requested to enter a second competition, in which more finished drawings should be required; and the work then demanded should be no more than it is customary to require by the existing system, and unnecessary repetition should be prohibited. The selected sketches should be marked or photographed and returned to their respective designers, who should send them back again unaltered with their more finished designs. A perspective drawing should not be required unless in a very exceptional case, and then it should be drawn by every competitor from one definite and fixed point of view. The jury should jointly examine these more finished designs in conjunction with their original sketches, and select the design which, in the opinion of the majority of the jury, is the best, and report their selection to the promoters. There should be no selection of a second and third design, a proceeding which is fraught with great difficulty and danger; and there should be no award of premiums by the jury, for they are neither necessary nor desirable. A copy of the jury's report should be given to each of the six, more or less, selected architects. The unsuccessful sketches should be returned to their respective designers after the final award has been given in the second competition, and the name of the successful architect should be given to each competitor.

7. A sum equal to the total amount now usually awarded by the two or three premiums usually offered, or somewhat more, should be equally divided between the six, more or less, selected competitors as expenses, and upon receipt of their more finished designs; and the amount so awarded to the successful competitor should not merge in the commission or payment for the work if it be subsequently carried out.

In the case the work be abandoned or be not proceeded with within twelve calendar months after the award be given, at the request of either the promoters or the competitor whose design was placed first by the jury, a payment should be made by the promoters for the competition drawings of the said competitor, whether they be those done in the first or both first and second competitions, amounting to a sum equal to 2 per cent. upon the estimated cost of the building or work, and after such payment the said competitor should have no further claim upon the promoters.

Any subsequent business done by or between the promoters and the said competitor to be by a new and agreed arrangement, as if the competition had not been held.

8. In limited competitions the same arrangement should be adopted as embodied in the preceding clause.

9. The first selected design only should become the property of the promoters, and that only when they have fulfilled their part of the conditions and employed its designer to carry out the works or paid the sums set out in the conditions. If the promoters desire to acquire any of the other designs except the one adjudged the best by the jury, they should have power to do so by paying the designer of the work required a fee of 1 per cent. upon the estimated cost of the building or work as proposed by the promoters, but the architect whose design was placed first by the jury should be employed to carry out the work.

10. The Institute should take steps to obtain and examine systematically the conditions of all published or known competitions, and all architects, or at least all members of the Institute and its allied societies, should abstain from competing in all cases where the conditions have been disapproved by the Institute—such disapproval to be made and publicly advertised by the Institute as may be hereafter determined.

By this system which I have suggested the promoters would obtain the best architects and

the best designs, there would be little or practically no loss of time and money to the profession, and I claim that the system is commercially sound.

The young men, older practitioners, and busy architects could all compete without detriment to themselves or their work, and the promoters would thereby obtain better designs and more talented architects than is often possible by the existing system.

The promoters, after laying down conditions and obtaining designs, would have to pay the successful architect some compensation if they changed their views and selected another design or failed to carry out the building, but they would lose nothing, as they would be only paying fairly for the work they caused to be done, in a similar way that a private client would do after giving instructions to his architect.

There is at present too much conservative individualism and not sufficient combination amongst architects upon this whole subject, and it is only by a strict adherence to the principles embodied in the old adage, "Union is strength," that a successful solution of the problem is possible. This almost universal unity of action we see around us to-day on all sides, but it is not prevalent amongst architects, who are unfortunately far behind in this most desirable quality. We need more *esprit de corps* amongst us, and a more universal desire to work for the common good of the public and the profession, as well as for ourselves individually.

The past history of competitions does not help us much except to prove the existence of their inherent evils from the beginning.

I have searched for some of the earliest records extant upon this subject and have studied many of them. I have found that many years ago a Special Committee of the Royal Institute of British Architects was appointed to inquire into the subject of competitions, and they reported to the Institute on February 24, in the year 1839, about five years after the Institute was founded, and when Earl de Grey was President, Charles Barry Vice-President, Thos. L. Donaldson Hon. Secretary, and the Institute contained such distinguished men as Messrs. Gwill, Hardwick, Papworth, and others equally honoured.

The conclusions of that Committee embodied complaints which were very similar to those we hear on every hand to-day, and the Committee then, and the Institute itself from that day until now, have failed to effectively tackle and solve the one necessary and all-important point, namely, of formulating a system which will put competitions upon a satisfactory basis. No one has hitherto had the courage to thoroughly face this difficulty, although it has always apparently been admitted that the problem can be solved by a united profession.

I will now give you a few extracts from the Report of that Committee and a few notes of mine thereon, by which you will see the unsatisfactory and incomplete condition in which the Institute then left the subject, and it has remained in a very similar condition with comparatively little improvement from that 24th day of February, 1839, until the present, being a period of upwards of sixty-four years. The Council of the Institute reported upon competitions on May 6, 1844; Mr. Cole A. Adams instituted a memorial which was presented by Mr. Street to the Institute in the year 1880; the Conference of Architects submitted some resolutions to the Institute on May 23, 1881; several papers have been read upon the subject; but all have failed to formulate an effective remedy which will eradicate the inherent evils.

*Extracts from the Report of the specially appointed Committee of the Royal Institute of British Architects, submitted on February 24, 1839.*

"Your Committee are deeply impressed with a sense of the great and manifold evils arising from the defective system upon which competitions have been hitherto conducted, not only as regards the parties immediately concerned in them, but also the general interests of the public and the reputation of the profession at large; since it is abundantly proved that men of eminence are deterred from entering into competitions under a system which experience has taught them involves inherent principles of injustice. . . .

And it appears to your Committee that some endeavour, at least, to remedy them is required for the interest both of the public and

the profession. [I contend a full and effective endeavour to eradicate them permanently is now required.] As to the policy of competitions in general, or the comparative advantages of open or select competitions, your Committee do not feel called upon to give an opinion. [I say the opinion now is that they are both good for the art of architecture.] They conceive their duty to be limited to the investigation of the system as it exists. They avoid the consideration of any evils but those they consider inherent in it. They suggest no remedies for these evils, but such as they think the public will feel it to be their interest to adopt. They insist upon none but those which it lies within the power of the members of the profession to apply, and they think it not too much to expect from the Royal Institute of British Architects, an association founded and incorporated with the express object, among others, of promoting the interests of architecture, that they should interfere to the point of adopting and confirming their opinions thus far. [I strongly urge that a new system should now be adopted and effectively carried out by the Royal Institute of British Architects.]

Your Committee feel confident that the introduction of a better system by those who have the wish to do justice would be sufficient to crush the power of doing wrong which has too long been indulged with impunity. [This better system has never been introduced.]

It rests entirely with the professor to decide for himself whether the conditions and the personal character of those who propose them, are satisfactory. . . . [The Profession as a body must decide.]

But whatever the conditions may be, they ought to be clear and explicit, that the competitor may know precisely and unequivocally upon what he has to rely. Whenever it may be expedient to lay down definite instructions, they ought to be strictly adhered to, when judgment is to be founded upon them and every design rejected which shall be found not to conform to them. . . .

As the formation of definite preliminary instructions, and a decision strictly founded upon them require more experience and knowledge of architecture than miscellaneous committees may be generally supposed to possess, it is suggested that in all cases competent professional advisers should be referred to upon these and other points connected with the duties of the Committee; but without taking the final decision out of the hands of the original parties to the competition, or relieving them from its responsibility. . . .

Perspective drawings, if correctly made, are certainly desirable to show the proper effect of designs, but they should be restricted to specified points of view. . . .

They have the greatest reason to believe, from the information they have obtained, that in a very great majority of cases of competition, the committees or parties to whom judgment is confided [This was before the one-man assessor was generally appointed.] are quite ready to acknowledge themselves deficient in the means of fulfilling their duty, when once the nature of that duty is candidly and temperately explained to them; and that any suggestion, to the effect above stated, will be favourably received, when offered in proper terms and at a proper season. But to effect this object rests with the profession at large, upon whom the Committee would urge in the most earnest manner the necessity of refusing to enter into any competition which does not offer a sufficient guarantee that it will be conducted both with intelligence and justice. [The profession at large cannot act effectively as individuals and it can only so act through the Royal Institute of British Architects.] To secure these desirable requisites in competition let every architect examine the conditions . . . and address to the authorised party the most searching inquiries. . . . [This has been left to individuals, but should be done by the Royal Institute of British Architects through its Council.]

Although the inquiries, which may be addressed by professional men to the institutors of competitions must necessarily be dictated by the peculiar circumstances of every case, yet the following, although merely proposed as explanatory of the intentions of the Committee, may be found generally applicable:—

By whom are the designs to be examined and selected?

Have any designs been laid before the parties previously to the competition being proposed?



Have the parties any architect or person proposing to be an architect in their employ? Will any means be adopted to ascertain that the designs can be executed for the sums estimated?

Will the parties undertake to lay aside all designs which cannot be executed for the sums estimated?

Is it the intention of the parties at once to exclude from the competition all designs not in strict conformity with their instructions in every respect?

Will the architect whose design is selected be employed to execute the work, provided his character and standing in the profession be such as to render him unexceptionable?

Regarding some shortcomings in that Report, I will now only refer to the fact that the Committee pointed out serious evils in the system of competitions, and some of these exist until to-day. They suggested no remedies for these evils, "but such as they think the public will feel it to be their interest to adopt. . . . They insist upon none but those which it lies within the power of the members of the profession to apply."

Now these suggested remedies have proved to be insufficient, and I feel that the real remedy required is to go further than these and formulate such methods of action and such a system that not only the public, but the profession itself, both collectively and individually, will feel it to be their interest to adopt; and also insist that these methods of action shall be applied by the Royal Institute of British Architects as the governing body of the profession, and not leave the remedy to be applied by individual members of the profession, as this has been tried for upwards of the last sixty-four years and has miserably failed.

It appears to me to be the greatest folly that an overworked, underpaid, and long-suffering profession has allowed itself to remain since the founding of the Royal Institute of British Architects under the scourge of these competitions containing evils which have been readily, continually, and universally admitted to exist by architects during that long period, and yet no sufficiently strong, effective, and business-like action has been taken to remedy the evils until this Competition Reform Society was recently established.

There has been since the year 1839 a long, timid, and vacillating policy adopted about this subject by individuals with the consent and approval of the Royal Institute of British Architects, and it is now high time that the Institute should take the lead itself and thoroughly work out this whole problem and adopt a strong, combined, vigorous, and effective policy upon the matter, which will commend itself to both the public and the architectural profession, and which will be a solution of, and protection from, the evils which have attended nearly all competitions since their inception. Some may still ask, Is it possible to solve this problem? I say most emphatically it is possible, and by dignified and honourable methods. Some may hurl at me the accusation that my methods are only a glorified form of trade unionism. I frankly admit there may be some similarity in my suggestions; but it is not necessary, reasonable, nor fair to apply such a title to them, and I contend that the requirements of this age, which are very different from those of our forefathers in many respects, demand united action in this matter, and upon the best and most forcible lines. Some may urge that my methods would wreck the Institute, but in my opinion they most certainly would not do so. The Institute is now strong and rich enough to thus assert itself, and manifest its strength, and any one who would leave it or hold aloof from it for such a reason could not be imbued with the true interests of our art and progress, and such men would not add any good influence or dignity to the Institute. A simple solution, moreover, could be obtained by the Institute testing the methods I suggest in a few cases which could doubtless be readily and easily arranged.

I have spoken somewhat strongly, but I consider the theme demands it: I possess the conviction of my opinions as well as proofs of my statements, and I feel sure that it is only by energetic and vigorous methods based upon the lines of those which I have suggested, that this difficult problem will be solved—solved it can be and solved it should be.

**BANK OFFICES, NEWCASTLE.**—Premises have been erected in Cullingwood-street, Newcastle, for Messrs. Barclay & Co., Ltd. Messrs. Cackett & Burns Dick, of Newcastle, are the architects.

## THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A SPECIAL meeting of the Royal Institute of British Architects is to be held on Monday, June 8, when the following resolution will be moved by the Chairman, viz.:—

"That, subject to the sanction of the Lords of the Privy Council, the words 'during the five years from the date of approval of this provision by the Privy Council' be omitted from the proviso of By-law 9."

The fifteenth general meeting (business) of the session will then be held for the following purposes:—

To receive the report of the scrutineers appointed to direct the election of the council, standing committees, &c., for the year of office 1903-4; and to proceed with the election of candidates for membership under By-laws 7, 8, and 9.

At the same meeting the Chairman will make a statement with regard to the negotiations with the Institute of Builders in the matter of the "Schedules of Conditions of Contract," and will move that Clause 1 of both documents be amended as follows (the references are to the clause as printed in the current "Kalendar," p. 310):—line 3, for "said" read "signed;" lines 4 and 5, for "and instructions in explanation of the same" read "instructions, directions, and explanations;" line 9, for "in excess of" read "extra to;" line 12, for "excess" read "extra;" bottom line, for "excess" read "extra."

[Thus amended, the clause would read as follows:—

"1. The works shall be carried out in accordance with the directions and to the reasonable satisfaction of the architect, in accordance with the signed drawings and specification, and in accordance with such further drawings, details, instructions, directions, and explanations as may from time to time be given by the architect. If the work shown on any such further drawings or details, or necessary to comply with any such instructions, directions, or explanations be, in the opinion of the contractor, extra to that comprised in the contract, he shall, before proceeding with such work, give notice in writing to this effect to the architect. In the event of the architect and contractor failing to agree as to whether or not there is any extra, and of the architect deciding that the contractor is to carry out the said work, the contractor shall accordingly do so, and the question whether or not there is any extra, and if so the amount thereof, shall, failing agreement, be settled by the Arbitrator as provided in Clause 32, and the contractor shall be paid accordingly. The contract drawings and specification shall remain in the custody of the architect, and shall be produced by him at his office as and when required by the employer or by the contractor."

Further, the Chairman to move that the following clause be inserted after Clause 12 in the Form for use where Quantities are part of the Contract:—

"12A.—Should any error appear in the Bills of Quantities other than in the Contractor's prices and calculations, it shall be rectified, and such rectification shall constitute a variation of the Contract, and shall be dealt with as herein-after provided."

The annual dinner will be held on Tuesday, June 23, at the Whitehall Rooms, Hôtel Métropole, London.

## THE SURVEYORS' INSTITUTION.

THE annual general meeting of the Surveyors' Institution was held on Monday at No. 12, Great George-street, Westminster, Mr. Arthur Vernon, President, in the chair.

The scrutineers' Report on the election for officers for the ensuing year was read by Mr. Penfold, hon. secretary. The new President is Mr. A. Buck, the new Vice-President Mr. G. Langridge, and the new Members of Council Messrs. Chatfield Clarke, E. B. T'Anson, John German, and C. Pell Hall (new Professional Associate Member of Council).

Mr. Julian C. Rogers, secretary, then read the thirty-fifth annual Report of the Council, from which we take the following extracts:—

"During the session ending May, 1903, the net increase in the number of Fellows was six, the loss by death or resignation being thirty-eight, the transfers from the Professional Associate class being thirty-six, and the direct elections to the class of Fellows eight in number. The net increase of 119 in the number of Professional Associates is accounted for by 165 elections, against which must be set a loss of forty-three by death or cesser of membership, or by transfer to the class of Fellows. The number of new students enrolled during the session was 120, while fifty-four were elected to the

Professional Associateship, and sixty-two ceased to be students on attaining the age of 21½ years.

The receipts, both on income and capital account, for the year 1902, are practically the same as those of 1901.

Included in the number (421) of the candidates who sat for the professional examinations, 1903, were thirty-five who came up for re-examination in the 'typical subjects' appertaining to their subdivisions. Of these two were 'Land Agency,' twenty 'Valuation,' and thirteen 'Building' candidates. In the result twenty-three, by satisfying the examiners in their typical subject, completed their examination. The number of fresh candidates who obtained sufficient marks to pass the examination as a whole, but failed to satisfy the examiners in their typical subject, and were consequently referred back to their studies, was twenty in the 'Valuation' and twelve in the 'Building' sub-division. As in former years, the Scottish Examinations were held in Glasgow under the able management of Mr. William Frazer, the local Honorary Secretary, and the members of the Scottish Committee, to whom the cordial thanks of the Institution are again due. At the Professional Examinations five candidates presented themselves, all of whom passed. For the Professional Examinations in Dublin, there were this year one Associateship and one Fellowship 'Land Agency' candidate, and one Direct Fellowship candidate in the 'Building' sub-division.

The 'Institution' prize, of the value of 15 guineas, was won by Sidney J. Tillyard, a 'Valuation' candidate, who headed the list of student candidates in Division II, with 776 marks out of a possible 1,000. The 'Special' prize awarded to the candidate who obtained the highest number of marks over 500 in one of the sub-divisions of Division II, was gained by Harold Williams, a 'Valuation' candidate, with 765 marks out of a possible 1,000. The 'Penfold Gold Medal,' given to the candidate in Division I, V, who obtains highest marks, was awarded to Percival T. May, a 'Land Agency' candidate, with 865 marks out of a maximum of 1,000. This candidate was also bracketed equal for the 'Crawley' prize for the best work in Division IV, in the subject of valuation. A 'Land Agency' candidate, A. W. Hoesgood, was also bracketed equal for the 'Crawley' prize, the amount, 100, being divided. The 'Penfold' silver medal, was awarded to Arthur John Hoare, a candidate in the 'Valuation' sub-division of Division II, who obtained the highest proportion of marks in the Professional Associateship Examination, calculated on the respective standards of pass marks in the two sub-divisions. The 'Driver' prize of the value of 150, was won by the same candidate, with 986 marks out of a possible 1,200. The 'Easdale' prize, for the best work in the subject 'Agriculture,' open to student and non-student candidates in the 'Land Agency' sub-division of Divisions II and III, was gained by Arthur P. Ker, with 92 per cent. of the possible marks. The 'Preliminary' prize, for the candidate who passed at the head of the list in the January examination was gained by Harry L. Small, who obtained 457 marks out of maximum of 500.

The number of candidates being much larger than in any previous year the work has been correspondingly heavy, and the hearty thanks of the Institution are due to the honorary examiners for their generous expenditure of time and trouble, and the performance of duties of a most exacting character. Among the names outside the Council service are His Honour Judge F. A. Philbrick, K.C.; Mr. E. J. Castle, K.C.; Mr. J. W. Willis Bund, Mr. H. A. Rigg, and Mr. R. F. Colam (who dealt with the legal papers), and Mr. H. Chatfield Clarke, Mr. W. Eve, Mr. C. John Mann, Mr. J. Douglas Mathews, Mr. C. J. W. Penfold, Mr. E. E. T'Anson, Mr. Gilbert Murray, Mr. J. H. Oakley, Mr. F. Lee, Mr. H. W. D. Theobald, and Mr. J. D. Wallis. The thanks of the Institution are also specially due to those members of the local committees in Manchester, Glasgow, and Dublin, who gave so much time and attention to arranging and conducting the preliminary and professional examinations held in their respective centres. A Committee of the Council has been engaged for some months past in the revision of the rules of professional examinations. These rules have undergone only very slight modifications since they were first framed nearly a quarter of a century ago. An endeavour has been made to more definitely specialise some of the branches of the examination system, to simplify its framework, to give more relative importance to the practical as compared with the theoretical subjects, and to equalise the tests applied to various classes of candidates.

The Council have to acknowledge a most munificent act on the part of their valued and esteemed colleague, Mr. F. T. Galsworthy, in transferring to the Corporation 500l. 3½ per cent. Irredeemable 'B' Mortgage Debenture Stock in Courage & Co., Ltd., calculated to yield 17l. 10s. per annum, the interest to be awarded annually as a prize in connexion with the Fellowship Examination in a form to be hereafter determined. The Council desire to place on record an expression of their sincere regret that Mr. F. T. Galsworthy feels himself unable owing to advancing years and domestic anxiety, to undertake the duties of president of the Institution, for which he stood next in rotation.



Considerable additions have been made to the general library during the year by the purchase of new books and by the substitution of fresh editions for those which had become obsolete. The library has also been increased by the presentation of many valuable and interesting works contributed by public bodies as well as by individuals. The Council willingly acceded to what appeared to be a general wish on the part of country members by establishing a loan library comprising all the principal professional textbooks and works of reference, which they trust will prove to be increasingly useful as the advantages thus offered become more widely known and appreciated. A special catalogue of the loan library has been prepared by the Secretary, for distribution, on application, to the members of the Institution.

The thirty-fifth volume of the 'Transactions' of the Institution, completed by the publication of this Report, contains papers of considerable professional interest and many valuable expressions of the views of members in the resulting discussions. The eleventh volume of the 'Professional Notes,' just completed, contains, like its predecessors, a large amount of matter of the utmost value for purposes of reference.

These eleven volumes, numbering in all some 6,400 pages, contain reports of the decisions in 1,253 law cases on matters relating to the surveyors' profession, and embody 847 queries, and some 2,200 replies. This section now forms a feature of the Notes of increasing value, as shown by the fact that the first volume contained twelve queries and fifteen replies, whereas the eleventh volume contains 171 queries and 388 replies.

Three years having elapsed since the completion of the new building, the Council considered that the time had arrived for the more permanent decoration of the principal rooms. This has been done and the Council are glad to learn that the result has proved generally satisfactory to the members.

The success of the conversation held last year at the Natural History Museum, by kind permission of the trustees, was such as to warrant the Council in making arrangements for a similar gathering during the coming summer. It is hoped that the conversation to be held at the Natural History Museum, South Kensington, on Thursday, June 18, will be as largely attended (especially by country members and their friends) as was the case last year.

A draft Bill for the amendment of the Law as to easements of light, prepared by a joint committee of the Surveyors' Institution and the Royal Institute of British Architects, to which reference was made in last year's report, is now completed, and is awaiting the opportunity of introduction into the House of Commons, where it must take its chance with the many other private Bills which fail to obtain a hearing owing to the absorption of public time by Government measures.

At a general meeting of members held in October last the Council agreed not to proceed further with the proposal, which originated with the members themselves, for the adoption of a descriptive title alternative to the designatory letters 'F.S.I.' and 'F.A.S.I.' until the members at large had been afforded an opportunity of expressing their opinions on the matter. A circular letter inviting opinions on the subject was accordingly issued to all the members, and met with an unusually large response. An analysis of the returns disclosed the fact that the members who replied were in favour of the introduction of the alternative title in the proportion of about three to one. This being so, the Council submitted the matter to another general meeting of members, with the result of its adoption by a large majority of those present, and its confirmation at a further meeting held a fortnight later. The matter will now go forward for the sanction, or otherwise, of H.M. Privy Council.

The London Building Acts Amendment Bill was referred to a strong Council Committee, on which the general body of members was also represented. The measure was so hastily prepared and introduced that no opportunity was afforded the Institution, as was done in the case of the London Building Act, 1894, of criticising the proposals before their embodiment in the Bill. Although there was little chance that a Bill embodying such drastic and confiscatory proposals would receive the sanction of the Legislature, the Council decided, as a precaution, to oppose its passage through Parliament, and with this object prepared a petition against it, but in consequence of the withdrawal of the Bill, withheld it at the last moment.

The Council summoned a general meeting on November 17 last, for the consideration of certain proposals contained in a memorial from members in the South of England, the most important being the reduction of the subscriptions of country members, the establishment of a loan library, the payment of the expenses of provincial committees, and the holding of some of the ordinary general meetings of each session in the afternoon. The memorialists being satisfied that the proposal for the reduction of country members' subscriptions was impracticable, withdrew it unreservedly. As has been already explained, the Council adopted the suggestion for the establishment of a loan library, and agreed that, as an experiment, two at least of the ordinary general meetings in each session should be held in the afternoon.

During the year steps have been taken by the Institution, in conjunction with nearly all the other

chartered societies, for the protection of their respective designatory letters and descriptions against infringement by unscrupulous persons. Happily, the evil is not very widespread, but it is extremely desirable to devise a means whereby these practices may be stopped, or greatly discouraged, and a deputation, selected from a committee representative of all the chartered societies, has approached the authorities with a view to such repressive measures as may prove to be practicable.

Mr. E. L. Clare moved, and Mr. E. Harper seconded, the adoption of the Report and balance-sheet. This having been agreed to,

Mr. Chaffield Clarke moved a vote of thanks to the auditors, Messrs. Newmarch and Hall, and in doing so he expressed his thanks to the Institution for electing him as a member of Council.

Mr. R. B. Mann seconded, and the motion was agreed to.

On the motion of Mr. L. R. Vigers, seconded by Mr. G. Langridge, Mr. E. O. Wells was appointed auditor in place of Mr. C. P. Hall, who has been elected on to the Council.

Mr. Harston proposed a vote of thanks to the retiring President, the Vice-Presidents, and other members and Associates of Council for the able manner in which they had administered the affairs of the Institution.

The motion having been seconded and

heartily agreed to, Mr. T. M. Rickman suitably proposed and Mr. Martin seconded, a hearty vote of thanks to Mr. J. W. Penfold, hon. secretary, and Mr. Julian C. Rogers, secretary, and other members of the staff, for the way in which they had carried out their various duties.

Mr. Penfold, in reply, said he had replied thirty-four or thirty-five times to similar eulogies. Some of the pleasantest years of his professional career had been devoted to the Institution, but he thought the time had come when he must hand over his position to some younger man.

Mr. Rogers also replied, expressing regret at the announcement made by Mr. Penfold, and hoping that Mr. Penfold was merely foreshadowing an event long to be deferred.

A vote of thanks having been accorded to the scrutineers, the Chairman distributed the prizes to the successful students.

On the motion of Mr. R. Vigers, seconded by Mr. J. H. Oakley, a vote of thanks was accorded to the President for his services during the past year.

The President suitably replied, and then transferred the chain of office to the new President, Mr. A. Buck, who took the chair, and briefly thanked the members for the honour they had conferred upon him.

The meeting then terminated.

#### THE WORKS DEPARTMENT OF THE LONDON COUNTY COUNCIL.

The following adjourned Report of the Works Committee of the London County Council on the erection of the superstructure of Horton Asylum was discussed at Tuesday's meeting of the Council:—

"The superstructure of Horton Asylum was practically completed before the appointment of the present Works Committee, and before the present manager of works entered upon his duties, but though we informed the Council on June 24 and December 16, 1902, that the cost of the superstructure would exceed the amount voted for the work, we are only now able to report that the measurements of the work are completed, and were furnished to us by the Asylum Committee's quantity surveyors on March 21, and that the approximate final estimate and cost have been ascertained.

2. The standing orders direct us, within three months of the specified dates, to present to the Council statements showing the estimated and actual cost of works completed up to September 30 and March 31 in each year, and in the ordinary course, therefore, the details of cost of the superstructure of the asylum would be included in the statements to be presented by us to the Council on or before June 30, 1903, but, as the matter is one of general interest, we think it desirable to lay the facts at once before the Council.

3. We have to report that the cost has exceeded by about 30,000 £ the amount of the architect's final estimate. The increase of cost over estimate is serious, and the causes of it require careful examination.

4. The following are the details of the estimated and actual cost of, and the tenders received for, the erection of the asylum superstructure:—

The total of the bills priced by the quantity surveyors (i.e., the estimate based on quantities) was ... .. £274,475 18 8

The tenders received in response to public advertisement were—

Kirk & Farrell	£201,575	0	0
Henry Lowatt	207,008	0	0
Leslie & Co.	217,900	0	0

The amount at which the work was undertaken by the manager of works was ... .. £284,445

Various additional services were accepted by the Works Department at an estimated cost of ... .. 8,215

Three services—the roads, medical superintendent's house and entrance lodges—at an estimated cost respectively of 4,300, 2,700, and 1,775, were referred to the department on a measurement basis with an increase of 10 per cent on main asylum prices. The approximate estimate of cost may be put at 9,652

Making the total approximate accepted estimate ... .. £302,312 0 0

The final estimate of the asylum architect, after allowing for extras and omissions is (approximately) ... .. £291,110 0 0

The actual cost is (approximately) ... ..

Wages on site and in shops	£155,000
Materials and cartage	152,000
Plant (use and waste)	4,200
Establishment and general charges	19,300
	330,500 0 0

The balance of cost above final estimate is (approximately) ... .. £39,500 0 0

5.—The causes to which, in our opinion, this excess of cost over estimate must be attributed may be summarised as follows:—

- Error of judgment on the part of the late manager of works in undertaking the work, and insufficiency of accepted estimate.
- Refusal of Local Authority to allow temporary railway for carriage of materials, &c.
- Rise in prices of materials and in wages.
- Scarcity of labour.

We will now proceed to deal with the excess under these heads:—

6. The late manager of works was appointed in February, 1897, and the Works Department was reorganised in June, 1897. The old Works Committee had then been abolished, and the Council had determined that the manager should have a free hand in the acceptance and execution of works by the Department, and should be subject only to the financial control of the Finance Committee. That Committee, while accepting reluctantly the duty, did so on the clear understanding that their control was to be purely financial. They entrusted the exercise of that control to a sub-committee, which reported weekly to the main Committee.

7. At the commencement of 1898 the Asylum Committee undertook the erection of the superstructure of the Horton Asylum, and asked the manager to state whether he would accept the work. On March 29, 1898, the manager reported to the Asylum Committee that his estimate of cost was 284,445 £, which was 9,607 £s. 4d. above the quantity surveyors' estimate. In his report he called attention to the fact that quotations for materials had shown recent increases in prices and also a tendency to continue to rise.

8. The Asylum Committee thereupon approached the Finance Committee with a view to ascertain whether it was advisable for the Works Department to undertake the erection of the asylum, and the Finance (Works Department) Sub-Committee, judging the question simply from a financial point of view, thought it inadvisable, having regard to the short time that had elapsed since the recent reconstitution of the Works Department, for the Department to undertake work of such magnitude.

9. This decision was confirmed by the Finance Committee and communicated to the Asylum Committee, who then invited tenders for the work by advertisement—three tenders, the amounts of which are given above, being received. The manager expressed to the Asylum Committee at the meeting at which the tenders were considered his willingness to undertake the work at the amount of his estimate, previously submitted, of 284,445 £, and on the subject being again brought before the Finance Sub-Committee they decided that, since the Asylum Committee continued to urge that the work should be undertaken by the Works Department, they would not insist on their objection as recorded above, that objection being founded only on their



doubt whether the newly-organised Department would act wisely in undertaking at once so large a work. The work was thereupon, on the recommendation of the Asylums Committee, referred by the Council to the Works Department for execution, the amount of the accepted estimate being 284,445*s.*, outside contractor's tender received from an Asylum Committee that the building should be entrusted to the Works Department was not accompanied by any Report from the Finance Committee, but that Committee thought further examination desirable, and, under their instructions, their Chairman moved in the Council that the recommendation of the Asylums Committee should be referred to the Finance Committee for report. The Council, however, did not adopt the view of the Finance Committee.

10. It will be noted that the lowest tender was not less than 22,100*l.* above the quantity surveyors' estimate, and 12,150*l.* above the estimate prepared by the manager, at which he undertook the work, and we are driven to the conclusion that the manager's estimate was insufficient, and cannot be accepted as a test of what the work under the conditions prevailing at the time should have cost. It is evident, also, from the full information now available, that the then manager, with his limited experience of the department, should have hesitated to undertake so large a work, bearing in mind the expressed opinion of the Finance (Works Department) Sub-Committee.

11. After the Works Department had undertaken the work it found that it had assumed facilities for the carriage of materials which it could not obtain. The manager had calculated that there would be no difficulty in getting a temporary railway to the site, as was done in the case of the Heath Asylum, Bexley, but the Local Authority, after prolonged negotiations, refused permission on the ground that they objected to a level crossing over the public road. Consequently, cartage had to be resorted to, and a sleeper road constructed from the highway to the works and round the building at a cost of 1,500*l.* This, of course, entailed additional handling of materials to an extent of, say, 5,000*l.*, being 1*s.* per ton on 100,000 tons. The amount spent in cartage was 8,150*l.*

12. The Local Authority also made a charge, amounting to a total of about 800*l.*, for extraordinary traffic on their roads.

13. The proposed railway was estimated to cost about 6,000*l.*, including traction, and the plant would have been worth at completion at least 2,000*l.* The additional expenditure occasioned by the loss of the railway is therefore estimated at 11,150*l.*, made up as follows:—

Cost of sleeper road ... ..	£1,500
" extra handling of materials .....	5,000
" extraordinary traffic .....	800
" cartage .....	8,150
	£15,450

Deduct the cost of proposed railway and traction after allowing for value of plant at completion... 4,000

£11,450

14. We are of opinion that the manager should not have framed his estimate on the assumption that a temporary railway would be available.

15. Although the work was referred to the Department for execution in July, 1898, the official order to commence was not received until the following October, and building did not actually commence until December, the interval being occupied in accumulating materials and other preparations, the foundations being already in.

16. The large increase in the price of materials over prices ruling in 1898 (the date of the estimate) which took place in the year 1899 and extended into 1901 is well known; the rise in price of all materials since the date of the estimate varied from 3 per cent. to 30 per cent., so that of the amount actually paid for materials it may fairly be assumed that 10 per cent., or 14,000*l.*, represents the rise in price of materials.

17. There was also an unforeseen rise in wages, which it is calculated increased the cost of the work by 2,150*l.*

18. The large amount of work going on in this country, coupled with the abatement of able-bodied men for the war, reduced very appreciably the standard of labour available for public works, and led the large contractors to resort to very unusual and expensive methods in unsuccessful efforts to keep up the supply of capable workmen. This, together with the position of the site, made it excessively difficult to obtain and keep competent men, and in order to induce men to stay on the works, overtime had to be paid during the summer months, entailing an additional cost of 1,000*l.* Although the reasons which led to the general scarcity of labour throughout the country could not have been foreseen at the time the estimate was framed, yet we think it probable that the manager did not allow for the difficulty in obtaining workmen which should be anticipated having regard to the locality of the site, which is 12 miles from Epsom, a town of about 10,000 inhabitants.

19. The explanations given under the above heads more than account for the balance of cost above

final estimate, the total estimated additional cost incurred being 40,730*l.*, made up as follows:—

(a) Insufficiency of accepted estimate (difference between that estimate and the lowest tender) ... ..	£12,130
(b) Cartage .....	11,450
(c) Rise in price of materials and in wages .....	16,150
(d) Scarcity of labour .....	1,000
	£40,730

20. As stated above, the excesses under (a) and (b) are, in our opinion, attributable to errors of judgment on the part of the manager, but as regards the excesses under (c) and (d) it may, we think, fairly be assumed that, as the tenders received were made at about the same time as the manager's estimate, had one of those tenders been from the manager, he would have lost heavily from the advance in wages and in the price of materials, and from the difficulty of obtaining sufficient competent workmen. It is also probable that the difference between the contractor's tender and the contractor's expenditure would, from the above causes, have been so great that difficulties and differences of opinion would have arisen, and that the amount paid under the contract would have been nearer the actual cost than the amount of the lowest tender when finally adjusted would seem to indicate. Again, the final estimate being some 11,200*l.* below the accepted estimate shows that large omissions must have been made in the original design, and points to the absence of any large charge for unforeseen occurrences. Payments on account during the progress of the work not being necessary in the case of works executed by the Works Department, regular monthly measurements were not made. We think that a better result would probably have appeared had some arrangement been made whereby the estimated value of the work done could have been regularly determined from time to time. We are considering as to the steps to be taken with a view to securing this object in future.

21. The time allowed for the work was two years, this period being, however, declared at the time to be insufficient by the late manager. In January, 1900, the Department was asked when the male side and a portion of the administrative block could be handed over, and the Department stated in reply that possession of the portion referred to could be given in July, 1900. The work in question was completed at the time stated, but it was not until April, 1901, that two blocks and one villa on the male side were taken over by the Asylums Committee. This delay in taking possession was, we understand, principally caused by the fact that the sewage outlet was not completed—a matter quite beyond the control of the Works Department. The whole of the main building was handed over in September, 1901, leaving only some outside buildings, such as lodges, superintendent's house, &c., to be completed, but four years elapsed before the work was completely handed over and the cost account closed; this has without doubt adversely affected the result.

Some notes of the discussion on the Report will be found on this page.

#### THE LONDON COUNTY COUNCIL.

THE last meeting of the London County Council before the Whitsun recess was held on Tuesday in the County Hall, Spring-gardens, Lord Monckswell, Chairman, presiding.

**Loans.**—On the recommendation of the Finance Committee it was agreed to lend Greenwich Borough Council 2,400*l.* for mortuary and street improvement; Hampstead Borough Council 21,000*l.* for electric light installation; School Board for London 187,630*l.* for new schools; and sanction to the following loans: Westminster City Council 2,605*l.* for street improvement; Camberwell Borough Council 33,748*l.* for paving works; Islington Borough Council 92,447*l.* for electric light installation; and Eddington Borough Council 4,800*l.* for paving works.

**The Works Department.**—A long discussion took place on the adjourned Report of the Works Committee in reference to the cost of erecting Horton Asylum, which Report we print on another page.

Mr. A. M. Torrance, chairman of the Committee, said he had to report that the amount of the excess was now found to be 37,878*l.*, instead of 39,500*l.*

Mr. Cousins said the question of work by the direct employment of labour had been the most thorny subject ever dealt with in the Council. What he and his Party contended was that the system of Municipal venture in these building exploits was a bad system. The fine they took was that the policy was wrong,

and that they could not get the necessary stimulus to success which existed in the case of the contractor, whose very livelihood depended on his work. They were told they were going to save 10 per cent. on the work done, which would otherwise go into the contractors' pockets, and if this had been the case, they would have saved 144,000*l.* on the jobs done by the Works Department. Instead of this, they had lost 100,000*l.* on these jobs. The Department was not able to do work as cheaply or as well as contractors, even though they selected the works they carried out. The contractors took the work the Department refused, and made a profit in doing so, carrying out the work at less than the architect's estimates. He submitted that they were doing London a damage by continuing a policy which had proved to be financially so wrong.

Sir John McDougall pointed out that the lowest tender for the work was 12,000*l.* in excess of the architect's estimate, and that, and a saving of 7,000*l.* which had recently been reported by the Asylums Committee, considerably reduced the loss on this asylum. He was sorry the work had not been done cheaper; but after all was said and done, they had got extremely good workmanship, and had an exceedingly good asylum.

Mr. E. White remarked that they were told that cartage and materials had cost more and that labour was scarce; but if a contractor had had the job he would have had to take the risk, and the Council would not have heard of it. The whole reason for the failure was defective organisation, and the enormous management charges. One of the contractors told him that he had made arrangements with the railway company and the Local Authority for cartage before he sent in his tender, but the Works Department seemed to have bungled this. It was impossible for the Council to carry out this class of work at contractors' prices and make it pay. As to the lowest tender for the work being 12,000*l.* above the Architect's estimate, that was due to the fact that the contractors, in view of the Council's inquisitorial conditions, agreed amongst themselves to add 5 per cent. to their charges in order to ensure against the risks due to these conditions.

Mr. McKinnon Wood said there was no doubt they had to deal with a ring of contractors, who could only be met by the Council keeping in their hands the power of doing work themselves. The existence of the ring was evident after Mr. White's admissions. If contractors could meet together and raise their prices for one reason they would for another.

Mr. Beachcroft observed that it was the irony of fate that the Council should in this particular case, be saddled with the most costly asylum that had been built. The whole root of the thing was that they were throwing money away broadcast in building asylums which were too good for the purpose.

Mr. Sears contended that, in all probability, had a contractor taken the job, the extras would have brought up the cost to that at which the Works Department carried out the work. Large contractors employed surveyors to watch for extras.

Mr. Burns, M.P., quoted figures to show that Horton Asylum compared favourably in cost per bed with other asylums in different parts of the country. If they had done nothing else, they had freed London from the toils and artful dodges of contractors.

Mr. Cohen submitted that the difference between the lowest tender and the cost by the Works Department was 67,847*l.*

Mr. Torrance briefly replied, and expressed the opinion that the experiment of direct employment would turn out for the benefit of London in the long run.

The Report was then received.

The Housing Committee recommended that the Works Committee be entrusted with the task of erecting two blocks of Wessex Buildings, Upper Holloway, under Part III. of the Housing of the Working Classes Act, at a cost of 31,100*l.*

Working drawings, bills of quantities, specification, and estimates have been prepared in respect of two of the three blocks of dwellings proposed to be built on the site. These dwellings have been named Wessex Buildings, and in the two blocks now referred to accommodation will be provided for 710 persons in fifty tenements of three rooms, 100 tenements of two rooms, and five tenements of one room. The estimate of the total cost of these two blocks of dwellings amounts to 32,600*l.*, and



the architect's building estimate amounts to 31,100l.

Mr. A. T. Williams moved, and Mr. Beachcroft seconded, an amendment to the effect that the work be carried out by a contractor.

On a division, the amendment was rejected by seventy-seven votes to twenty-four, and the recommendation was carried.

**Widening of Piccadilly.**—It was recommended by the Improvements Committee that the estimate of 45,000l. be approved, and, subject to the Westminster City Council agreeing to contribute 4,000l. towards the cost, the Committee be authorised to take all necessary steps to secure the widening of Piccadilly to 85 ft. between Arlington-street and the Green Park. The scheme is made possible owing to the proposed rebuilding of Walsingham House, the company owning the property having agreed to surrender the necessary land on condition that they are allowed to build over the footway, and thus forming a colonnade, which the Committee think will introduce a very pleasing architectural feature in that part of London. The Committee reported as follows:—

"We have no hesitation in strongly advising the Council to seize the present opportunity for carrying out the very necessary widening of a further portion of the important main thoroughfare connecting Piccadilly-circus with Kensington and Hammersmith. The heavy and increasing traffic is constantly congested, and the present is in every way a most favourable opportunity for effecting the improvement. The method of securing the additional width, namely, by the formation of a colonnade, will introduce a very pleasing architectural feature in that part of London. Having regard to the recent views expressed in the Council against new financial commitments, we should hesitate to advise the Council to incur further expenditure at the present time, but the immediate rebuilding of the premises where the widening will be effected leaves us no alternative but to submit the scheme to the Council at once. If the Council does not avail itself of the favourable offer now made by the owners, the new buildings will be erected to the existing line of frontage, and the opportunity for effecting the very necessary widening of the thoroughfare merely by the acquisition of vacant land, and without paying large sums as compensation for disturbance or loss of trade, will be irrevocably lost. The present width of the carriage-way varies from about 45 ft. to 50 ft., and it is proposed to increase this to a width varying from about 58 ft. to 63 ft. The total width of the thoroughfare, including the footways, is at present about 70 ft., and this will be increased, as already stated, to 85 ft. for a length of about 300 ft. by adding to the public way about 4,200 sq. ft. of land. . . . We are advised that if the present opportunity is lost, and new buildings are erected, the cost of widening the thoroughfare at any future time will, on the ordinary basis, be more than four times the amount of the present estimate. We have caused to be hung in the Council Chamber a cartoon plan showing by red colour the improvement now suggested."

Mr. W. Davies (Chairman of the Committee) said, unless the recommendation was agreed to that day, the Company would commence building, and the opportunity of widening Piccadilly would be lost.

Mr. W. H. Dickinson said that Piccadilly was too narrow all through, and to widen the road by 15 ft. only was a waste of money. It would be better for the Committee to take into consideration the question of having a new thorough avenue from west to east than to go on with what really meant the commencement of widening the whole of Piccadilly. If the Council decided to go on with the scheme, the Westminster City Council should pay one-fourth of the cost. He moved that the Report be referred back.

Mr. Parker seconded the amendment, which was defeated.

The Rev. Fleming Williams moved a further amendment, to the effect that the improvement be carried out on condition that the Westminster City Council contribute one-fourth of the cost.

Mr. Radford seconded the amendment.

Mr. W. Emden urged that this was undoubtedly a Metropolitan improvement, and they could not ask the Local Authority to contribute more than the value of the improvement to the locality.

The amendment was rejected, and the recommendation carried.

**Proposed New Asylum.**—The Asylums Committee again brought up their report on the proposed erection of a replica of Horton Asylum, on the Horton estate, in which they expressed their opinion that 10,000l. was a reasonable fee for Mr. Hine, the architect to whom they wished to entrust the work. The

Council, at a previous meeting, had agreed that the fee should not exceed 7,000l., but Mr. Hine had decided not to accept the work at that sum. The facts were more fully stated in our last issue, p. 539.

Mr. Phillimore moved that, in view of Mr. Hine's refusal, it be an instruction to the Committee to obtain new plans without further delay. He said the Council ought not to discourage competition in such important work. Mr. Hine did not appear anxious to undertake the work, and if so he was not likely to throw his heart and soul into it, and the Council, in those circumstances, ought to get another architect.

Dr. Cooper seconded, and said that the Council ought to have the undivided services of the architect for such an important work.

Mr. Piggott said that no man took more interest in his work than Mr. Hine; all able men were more or less independent.

Sir J. McDougall said the time had arrived, unfortunately, for obtaining plans for an asylum in addition to the one now under discussion.

The amendment having been defeated, the recommendation of the Committee was agreed to.

**Waterloo Bridge: Repaving.**—The Bridges Committee reported as follows:—

"On February 24, 1903, we were authorised to invite tenders for the repaving of the carriageway of Waterloo Bridge. Tenders as under were opened by the Council at its meeting on the 5th inst.:—

The Acme Wood Flooring

Co., Ltd. ... .. £1,733 6 8

The Improved Wood Pavement Co., Ltd. ... .. 1,000 0 0

Messrs. Mowlem & Co. ... .. 2,500 0 0

Messrs. Pethick Bros. ... .. 2,083 6 8

We have carefully considered the tenders received, and are of opinion that that of the Improved Wood Pavement Co. should be accepted. In 1889 the company carried out the paving of Westminster Bridge, which it was unnecessary to have relaid until last year."

The Committee recommended accordingly.

Mr. Emden moved that the lowest tender be accepted.

Mr. Sears, Chairman of the Committee, said the matter had been carefully inquired into, and on the strong recommendation of the Engineer it had been decided to pass over the lowest tender.

The amendment was rejected and the recommendation agreed to.

**Holborn to Strand: Conditions of Letting.**—The Corporate Property, Charities, and Endowments Committee reported on the subject of the letting of land left over from the Holborn to Strand Improvement. They had discussed the matter with the Improvements Committee, and one of the conclusions arrived at was that the condition relating to the approval of the elevation and design of the buildings to be erected should not be left to the "uncontrolled discretion" of an individual officer. With regard to the elevations of buildings on land fronting the Strand, Aldwych, and Kingsway, they had, after consultation with the responsible officers concerned, prepared a clause for insertion in the building conditions of letting by auction, and agreements for building leases. They reported as follows:—

"In the submission of this clause we have had regard to the important character of the new street, in which we are most anxious that the buildings to be erected shall be of an elevation and design worthy of the architectural position they occupy. It will be observed that an intending lessee is not prevented from choosing his own architect, whose design, if considered suitable, would be accepted. On the other hand, a lessee has the option of associating with his own architect any one of the four architects mentioned below who were named by the assessors in the Strand 'concours' of designs, for the purpose of securing an acceptable elevation. If the Council objects to such amended design, the fitness or otherwise may be referred to the arbitration of the Senior Architectural Royal Academician. With the erection of advertisement boards at each end of the improvement, the insertion from time to time of advertisements in the daily and weekly papers, and the holding of an auction at an early date, we trust that the Council will be satisfied that every effort is being made to dispose of the land at the eastern horn of the crescent which, until our last meeting, was the only surplus property in connexion with this improvement which had been transferred to us. We recommend:—

(b) That the clause to be inserted in the building conditions of letting by auction, and agreements for building leases with regard to the elevation and designs of buildings to be erected on land fronting the Strand, Aldwych, and Kingsway, Holborn to Strand Improvement, be as follows:—

The elevation of the buildings fronting the Strand,

Aldwych, and Kingsway shall be constructed of Portland stone, and be of such design as the Corporate Property Committee of the Council shall approve as worthy of the position. Provided that if the design for the elevation submitted by the lessee shall not be approved by the Corporate Property Committee of the Council, the lessee shall submit a new or amended design, and for that purpose shall be at liberty to retain, either alone or in association with any other architect, any one of the following architects, namely:—

Mr. Henry Thomas Hare, 15, Hart-street, Bloomsbury.

Mr. William Flockhart, 180, New Bond-street.

Mr. Mervyn F. MacCartney, 2, New-square, Lincoln's Inn.

Mr. Leonard A. S. Stokes, 2 and 4, Great Smith-street, S.W.

and if the Corporate Property Committee of the Council does not approve of such new or amended design, and cannot agree with the lessee upon any satisfactory amendment thereof, the designs submitted by the lessee shall be referred to the Senior Architectural Royal Academician for the time being invited to act, who shall determine whether the designs or either of them submitted by the lessee are or is worthy of the position, and the costs of the reference shall be in the discretion of the referee; and in case the referee shall determine that the designs are not worthy of the position, the lessee shall submit new designs for approval of the Corporate Property Committee of the Council, and in case of difference thereon they shall be submitted in like manner to the aforesaid referee."

Mr. Emden moved to insert the words "or bricks" after "Portland stone" in the clause; to delete all words after the words "and be of such design as the," and to insert instead the words, "Council shall approve for the position." He said the conditions imposed by the Committee would complicate the letting, and would not help them to get the best elevations.

Mr. Cohen seconded.

Mr. John Burns pointed out that the ratepayers were going to spend five millions on magnificent thoroughfares, 100 ft. wide, with trees, and desired that it should be free from the objections which had spoiled so many other thoroughfares in London. Right on the flank of Somerset House, one of the finest public buildings we had, there had been erected a tailor's shop built of yellow terracotta and artificial stone—an abomination. If it had been constructed of Portland stone, we should have been saved one of the most disgraceful acts of vandalism. By insisting that only stone, granite, or similar material should be used, they would enhance the value of the property. To the credit of the City it might be said that there they would find the banks and insurance offices adapting themselves to the environment of great public buildings. He trusted that they would have no cheap and nasty buildings. They wanted real stone, not artificial stone.

Mr. Howell Williams called attention to the offices of the Prudential Insurance Co. and to New Scotland Yard, designed by Mr. Norman Shaw. (A voice: A disgrace to the Embankment.) Such buildings would be absolutely prohibited in the new thoroughfare. There was not a single gentleman on the Corporate Property Committee who knew anything about the matter—he meant not a single architect.

Mr. Yates pointed out that when designs were invited for the Strand frontage, stone, marble, granite, and brick were allowed.

Mr. Mullins (Chairman of the Corporate Property Committee) urged that the Council's standard should be a high one. If they lowered the standard of the property they would inevitably lower its value.

The amendments were agreed to.

**Plumstead Baths.**—The Theatres Committee reported that they had considered plans, submitted by Mr. F. Sumner on behalf of the Woolwich Borough Council, of the baths which it is proposed to erect off High-street, Plumstead. The Committee had been informed that application will be made for permission to use the large swimming-bath for public entertainments during the winter months. The exits from the ground floor of the hall were not, in their opinion, sufficient for the large number of persons which this part will accommodate—viz., 1,355—and they thought that the number of persons admitted to the ground floor when the premises are used for entertainments should be limited to 800. It was agreed to grant a certificate on certain conditions.

**District Surveyors.**—The Building Act Committee reported as follows:—

"We have considered as to the arrangements that should be made for filling the vacant posts of District Surveyors for the Districts of Sydenham



West Wandsworth, Catford, and West Hackney. The estimated gross values of these districts are approximately £1000, £600, and £500 respectively. In response to the advertisements that were issued, twenty-seven applications were received, but of these only sixteen complied with all the conditions laid down by the Council in regard to candidates for appointment as District Surveyors. The Council will remember that District Surveyors at present divided into two classes, viz., those subject to the standing conditions of the Council relating to the appointment of District Surveyors, and those not subject to such conditions. The surveyors in the first-mentioned class are by the terms of their appointment precluded from increasing their incomes by carrying on private practice, and we think they should therefore be given a prospect of promotion to more valuable districts. As regards the second class, it may happen that a surveyor will be willing to subscribe to the Council's conditions in consideration of receiving a more valuable appointment. For these reasons we are of opinion that in filling the appointments for the more valuable districts the claims of District Surveyors holding less remunerative districts should receive consideration.

We have included of eight of the older District Surveyors, who are not subject to the standing conditions of the Council relating to the appointment of District Surveyors, whether they would be prepared to accept a transfer to the district of Sydenham upon such conditions or not. Each of the candidates has signed a declaration that he will accept the appointment, if he should be appointed, on terms laid down in Standing Order No. 250, and Mr. Monier-Williams has expressed his willingness to resign his appointment as District Surveyor for South Fulham in the event of the Council appointing him to Sydenham. After giving the most careful consideration to all the circumstances, we recommend—

(a) That Mr. Stanley Faithfull Manier-Williams be appointed District Surveyor for the district of Sydenham as from and including June 1, 1903, on the conditions laid down in the Council's standing order relating to the appointment of District Surveyors, and that his resignation as District Surveyor for South Fulham be accepted as from and including June 1, 1903.

(b) That Mr. Lawton Robert Ford be appointed District Surveyor for the district of West Wandsworth, as from and including June 1, 1903, on the conditions laid down in the Council's standing order relating to the appointment of District Surveyors.

(c) That Mr. Richard Dominic Hanson be appointed District Surveyor for the district of Catford, as from and including June 1, 1903, on the conditions laid down in the Council's Standing Order relating to the appointment of district surveyors.

(d) That Mr. William George Perkins be appointed District Surveyor for the district of West Hackney, as from and including June 1, 1903, on the conditions laid down in the Council's Standing Order relating to the appointment of district surveyors.

The recommendations were agreed to, with the exception of (b) which was withdrawn. *London Building Acts (Amendment) Bill*.—The following joint report of the Building Act, Fire Brigade, and Parliamentary Committees was submitted:—

"The Council on March 3, 1903, resolved not to proceed further in the present Session of Parliament with the *London Building Acts (Amendment) Bill, 1903*, but to refer the Bill as drafted to the Building Act, Fire Brigade, and Parliamentary Committees with a view to their advising the Council, after consultation with such persons and authorities as might be desirable, as to the ultimate form the Bill should assume. It will be remembered that this Bill dealt only with the question of means of escape from fire, and left untouched other important questions with respect to which the *London Building Act, 1894*, has been found to need amendment. The Building Act Committee, in recommending the Council on November 4, 1902, to introduce this Bill, stated that they had had under consideration for some time past the question of a general amendment of the *London Building Act*, and we are informed that only the special reason for urgency that existed last year, viz., the offer of the Home Secretary to assist so far as possible in any proposal that the Council might make in the present Session of Parliament to amend the *London Building Act, 1894*, so as to deal with the subject of safety from fire, induced the Building Act Committee to recommend the Council to introduce a Bill which did not aim at securing all the important amendments required. The letter from the Home Secretary was received on August 16, 1902, and there was not then time to prepare a Bill dealing with the general amendment of the Act for introduction into the present Session of Parliament, and one was therefore prepared which dealt with the subject of safety from fire only. It having been found impracticable to proceed with this Bill in the present session, we think that a Bill should now be prepared embodying all the important amendments which experience has proved to be necessary. As

to a great extent the same authorities and persons will be interested whatever may be the scope of the Bill, the Building Act and Parliamentary Committees do not consider that it would be expedient for three committees to be dealing with questions of safety from fire, and for the Building Act Committee to be engaged at the same time in preparing proposals for amendments in other directions. The Fire Brigade Committee are of opinion that the need of further legislation with regard to protection against fire in and provision of means of escape from buildings is extremely urgent. However, as the Building Act Committee, with whom primarily rests the responsibility of submitting to the Council proposal with respect to the amendment of the Building Acts, question the expediency of promoting a Bill exclusively dealing with this matter, and the Parliamentary Committee endorse that view, the Fire Brigade Committee have no alternative but reluctantly acquiesce in the proposal to defer action until the introduction of a Bill which, whilst securing a general amendment of the Building Acts, will deal with the matters included in the Bill withdrawn last March. After carefully considering all the circumstances, we have come to the conclusion that the best course will be for the reference to the Building Act, Fire Brigade, and Parliamentary Committees to be discharged, and for the Building Act Committee to proceed with the preparation of proposals for securing all the amendments required in the *London Building Act, 1894*, conferring with such authorities and persons as may be desirable.

A recommendation to this effect was agreed to.

The Council adjourned at 9.30 p.m. until June 23.

#### THE R.I.B.A. COUNCIL ELECTION.

MR. E. A. GRUNING sends us the following correspondence for publication:—

"Palace Chambers,  
Westminster, S.W.  
May 19, 1903.

E. A. Gruning, Esq.

#### R.I.B.A. ELECTIONS.

DEAR SIR.—I observe by the list issued by the Secretary that you have been nominated for the Council.

Before filling up and returning my voting paper, I shall be glad if you will kindly inform me whether you are in favour of the statutory registration of duly qualified architects or not.

I enclose a stamped, addressed envelope for reply.—Yours faithfully,

(Signed) SILVANUS TREVAIL.

#### "Re R.I.B.A. COUNCIL ELECTION.

25, Gresham House,  
Old Broad-street, E.C.  
May 21, 1903.

Silvanus Trevail, Esq.

SIR.—I have duly received yours of the 19th inst., from which I understand that I shall not have the benefit of your support at the coming election unless I am once stated whether or not I am in favour of the statutory registration of duly qualified architects.

Under no circumstances should I commit myself to any such statement without the fullest and most careful consideration, and I feel bound to observe also that in no case would I associate myself with any party canvassing for election (in itself, as I think, a most undesirable proceeding) whose methods were similar to those adopted by you, and which I consider to be detrimental to the character of an honourable profession.

I hold myself at liberty to make any use I may think fit of this correspondence.—I am, your obedient servant,

(Signed) EDWARD A. GRUNING.

\*\*\* We entirely agree with the tone of Mr. Gruning's reply. A similar impertinent communication was addressed to the Editor of this Journal, who has been invited to put up his name for election on the Council. He contented himself with the simpler treatment of putting it in the waste-paper basket.

In reference to the same subject the following admirable letter from Professor Pite appeared in last Saturday's *Times*:—

"SIR.—Your issue of to-day reports the annual dinner of the Society of Architects on Friday last, at which were entertained, apparently, a considerable number of legislators and at which was discussed a Bill for the registration of architects introduced into the House on behalf of the Society, Sir Arthur Hayter expressing his pleasure at this step and his hope that it would receive the sanction of the Government.

I hope that the visitors to the Society's festival are not under the impression that in this matter it has the countenance or sympathy of the Royal Institute of British Architects or of the leaders of the profession of architecture either in or out of that body, and it may be well to draw attention to the important protest initiated by eminent artists independently of the institute, and published in your columns about ten years ago, against any attempt

whatever to make architecture a close profession by examination.

The registration of architects will not effect any public benefit. Any one, honestly ignorant or incompetent, or dishonestly jerrybuilding, will still be able to endanger human life, and will only be prevented by such an Act from calling himself an architect; the resources of æsthetic and scientific nomenclature are still open to him, and an artist and an architect will be as engraving to the public as the then illegal term 'architect'.

That completer and fuller education in building art will be beneficial to the public needs no proof, and if it is capable of enforcement as a corollary to the Education Act it will be welcomed by all architects, and should be imposed upon all who build, but whether Englishmen will ever consent to have their liberty of action in building castles of liberty curtailed by Act of Parliament is another matter. But no registration of architects alone will improve the building art of the country.

Architecture, however, appeals to qualities of intellect and has imaginative range and purpose that demand its treatment as among the greatest of the liberal arts. To fetter its exercise by Act of Parliament will be as foolish as the action of the 'Masters' of Florence in opposing Brunelleschi's appointment to build the Duomo dome because he was not registered by them, and a Registration Bill such as proposed by the Society of Architects would have prevented an Oxford don named Christopher Wren from building St. Paul's, while registering all the incompetent quacks whose claim to be considered architects is best judged by their works.—I am, Sir, yours obediently,

BERESFORD PITE.

Royal College of Art, South Kensington, May 18."

#### ARCHÆOLOGICAL SOCIETIES.

BRITISH ARCHÆOLOGICAL ASSOCIATION.—A meeting was held at 32, Sackville-street, on the 20th inst., Dr. W. de Gray Birch in the chair. Mr. T. Bates sent for exhibition a brass military badge recently found at Brickendonbury, Hertfordshire. It appears to have belonged to the old Volunteers of that county, and is probably of the date 1760, and is in very good preservation.—Mr. Patrick, hon. sec., read, on behalf of the author, Major Thomas Gray, a very interesting paper dealing with the history of "The Granges of Margam Abbey." The Cistercian Abbey of Margam was founded in 1147 by Robert Earl of Gloucester, after his marriage with Mabel, or Mabilla, daughter and heiress of Sir Robert Fitz-Hamon, who styled himself Prince of Glamorgan. They determined to devote part of her dower lands to the service of God and to the monks of Clairvaux, and the lands thus given are described as situated between the Kenfig river and the further bank of the Alan. The granges in the parish of Margam numbered ten, but there were many more outside the parish. The reason for their being so numerous was the necessity of finding shelter for the sheep and cattle, sometimes almost at a moment's notice, against the incursions of the wild Welsh of the hills. These granges were named Grange de Melys, Grange of Groes-wen, Grange of Grug-wylt, Grange of the Hermitage of Theodorick, Le Neure Grange, Grange of Eglwynnydd, Grange of Llanmieuangel, and Grange of Hafod Hanlog. They were originally farmed by the labour of the "fratres conversi," but, at the beginning of the sixteenth century, the Abbot had become simply a great land-owner, and the zeal and activity of the Cistercian Order had become greatly enfeebled by the wealth of the monks and the gradual abandonment of the austere life. The lay brethren, or "conversi," were no longer welcome at the abbey, so the farming was given up, and the granges and other lands were leased to secular holders. It is much to be regretted that no record has been kept of the buildings of the old granges, as all have been rebuilt, with the exception of the Court Farm and the "New Grange," now in ruins. There is a very early notice of coal being worked on the Grange of Penbydd Waelod, in a grant, circa 1249, which gives to the monks all the "stony coal," with ingress and egress for two-wheeled and four-wheeled carts and other vehicles, the monks undertaking to make compensation for all damage done by their coal-working to the arable land. This coal was worked in the neighbourhood of Bryn, where coal is worked at the present day. From a lease dated March 8, 1509, it would seem that the Welsh language was a source of considerable trouble to the monks, notwithstanding that they and their predecessors had dwelt so long in the land. They certainly could not manage the spelling,







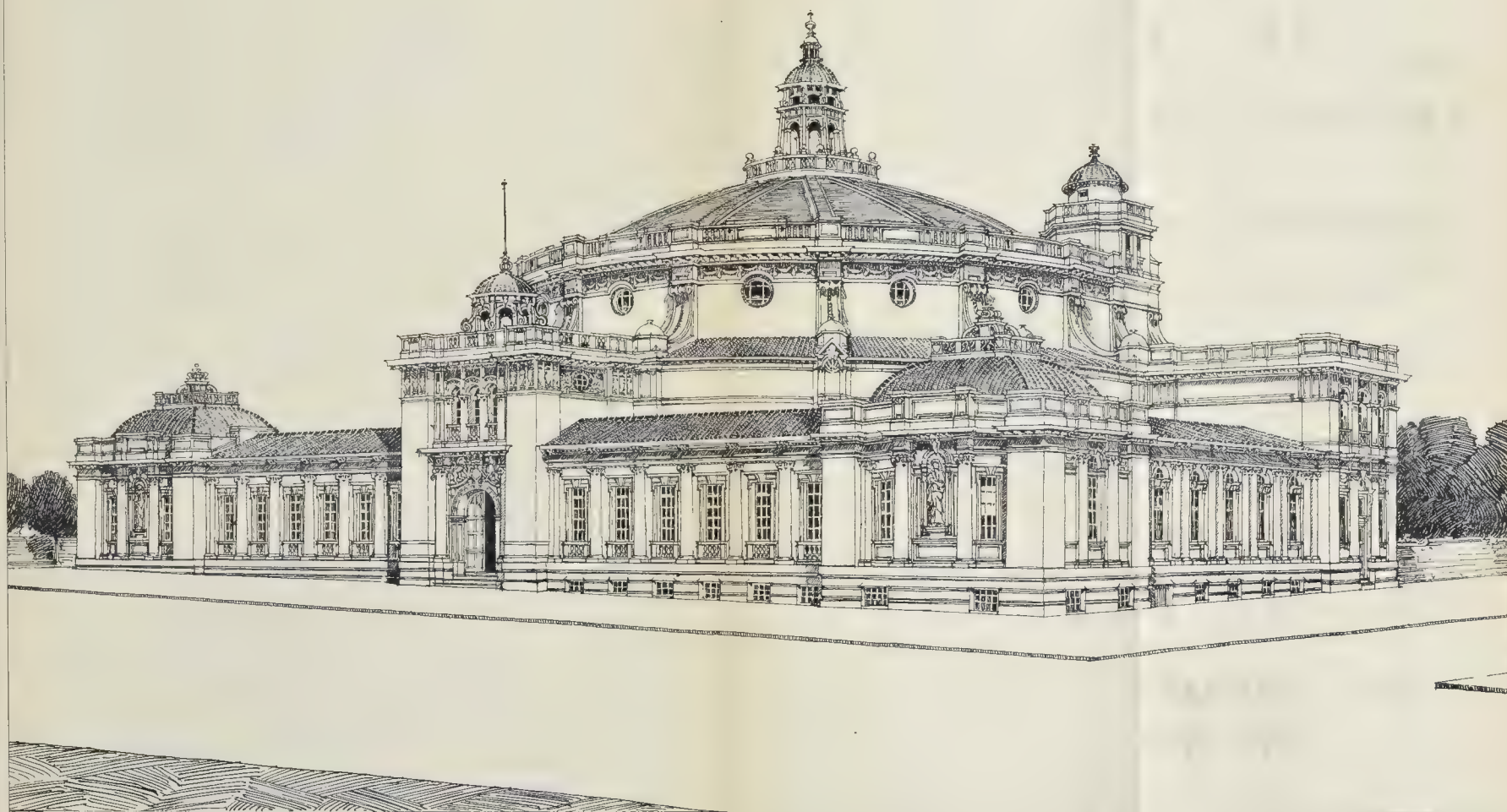


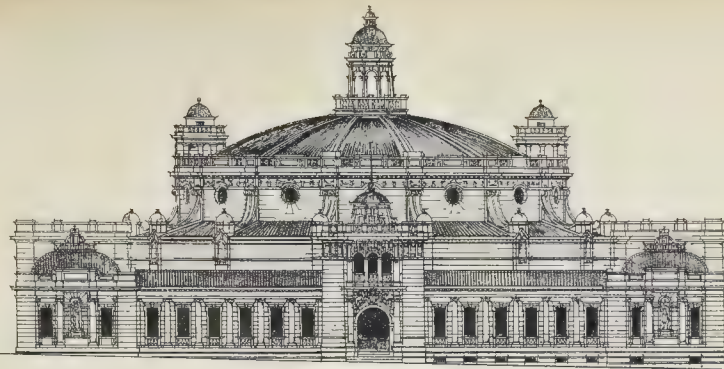
PHOTO LITHO SPRAGUE & CO. 17 & 15 EAST HANOVER STREET LONDON E.C. 4

CAPE UNIVERSITY COMPETITION. SELECTED DESIGN.—Mrs. W. HAWKE, A.R.I.B.A., ARCHITECT

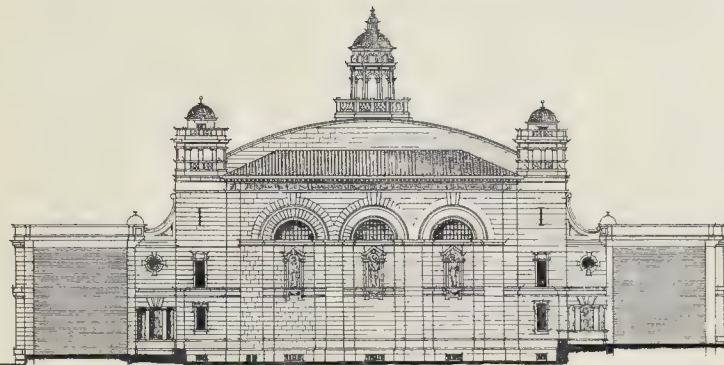








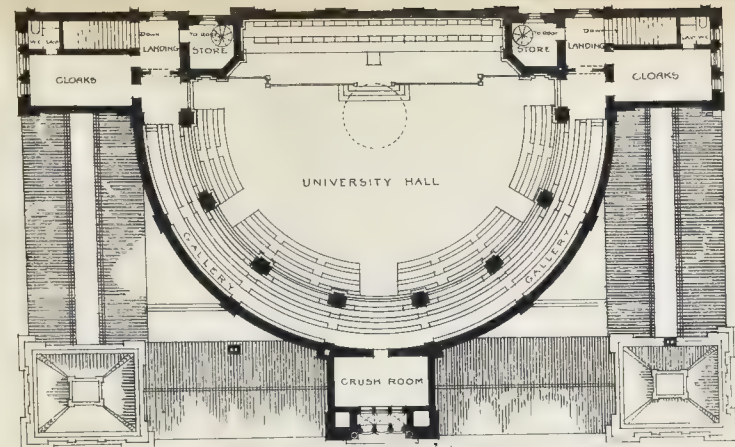
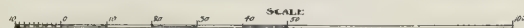
FRONT ELEVATION



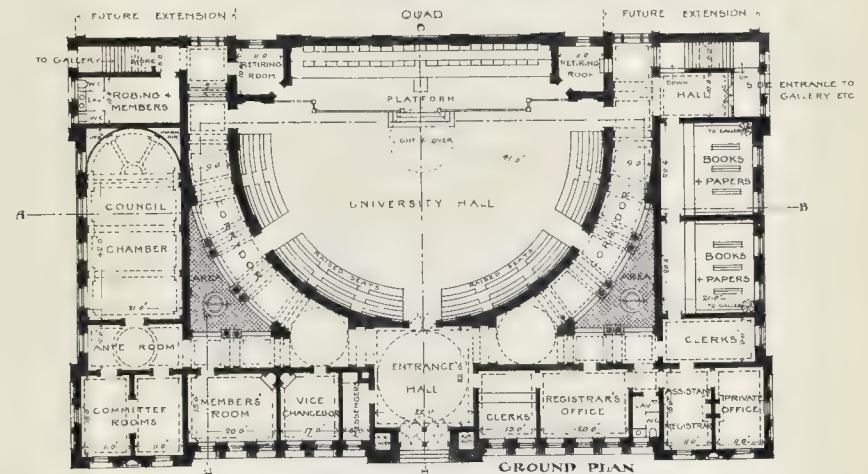
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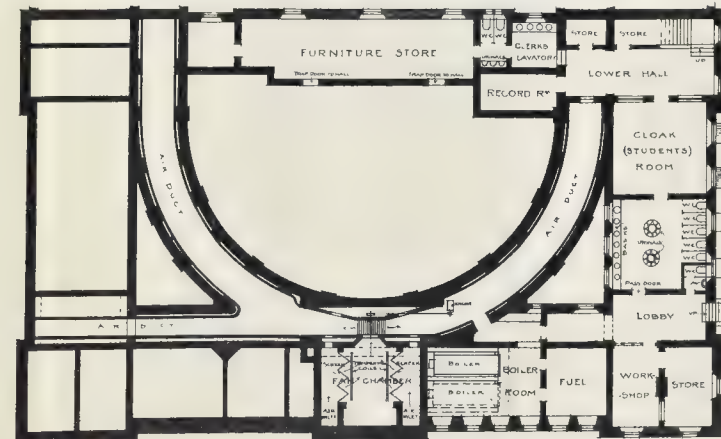
SIDE ELEVATION



PLAN OF SPECTATORS' GALLERY



GROUND PLAN



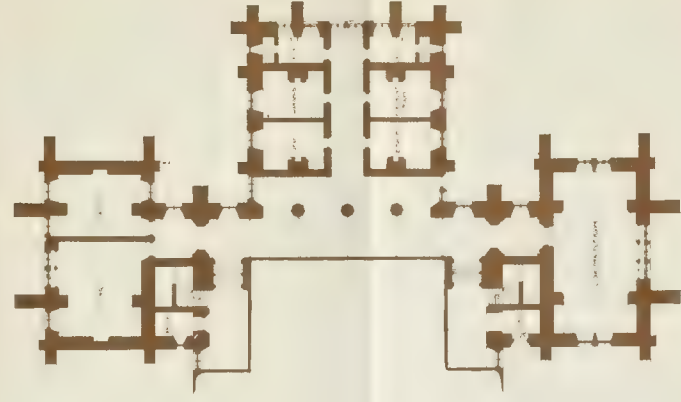
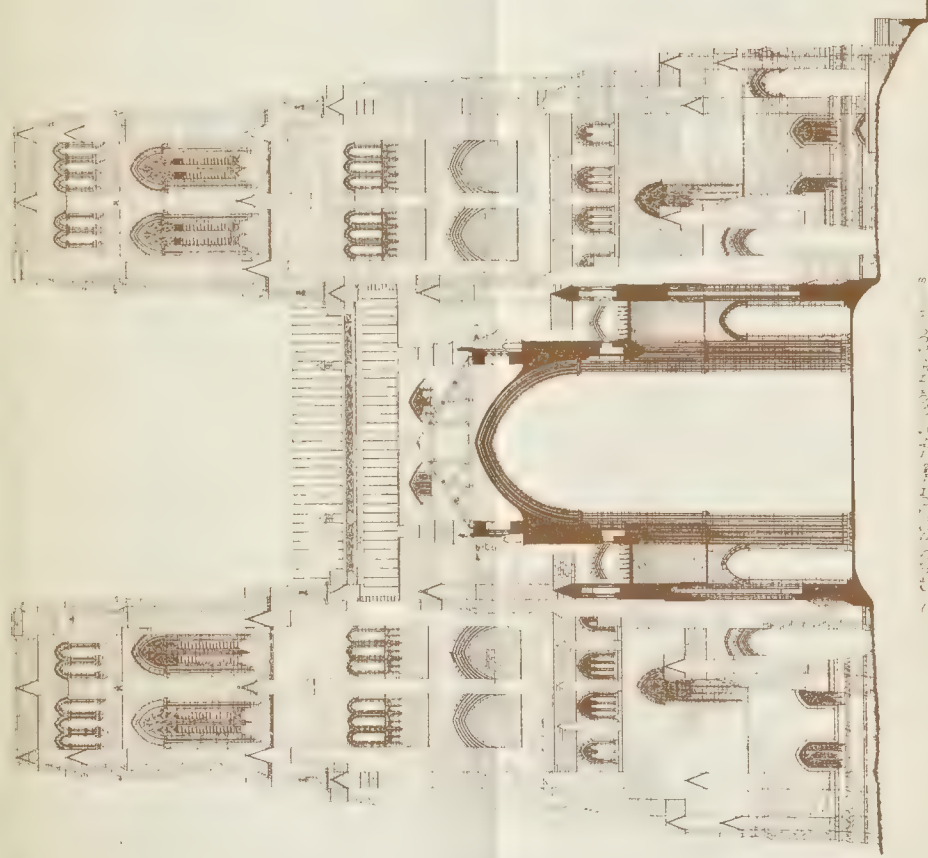
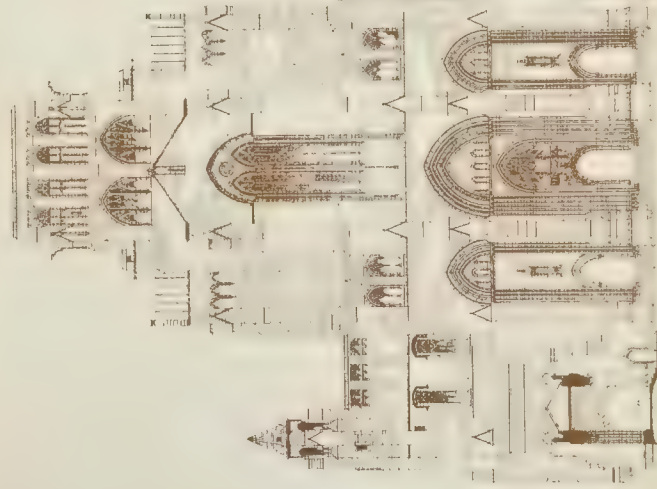
BASEMENT PLAN







# LIVERPOOL CATHEDRAL.



DESIGNED BY G. G. SCOTT, ARCHT.







# LIVERPOOL CATHEDRAL



LIVERPOOL CATHEDRAL COMPETITION DESIGN RECOMMENDED BY THE ASSESSORS M. G. GILBERT SCOTT ARCHITECT







although they did their best. The narrow lanes of monastic times still exist in the hamlet of Hafo-y-Porth, in Dyffryn valley, some near Hafo-y being only 6 ft. or 7 ft. in width. One of these lanes is mentioned in a deed dated 1516, and is still in existence. The paper was well illustrated by many beautiful photographs and a very carefully prepared map showing the sites of the several granges on the land in Margam parish given to the monks of Clairvaux. Mr. Blashill, Mr. Rayson, Mr. Patrick, Mr. Gould, and the Chairman joined in the discussion following the paper.

## Illustrations.

### CAPE UNIVERSITY COMPETITION: SELECTED DESIGN.

**WE** give the illustration of the selected design in the competition for the new building for the Cape University, for which Mr. Aston Webb acted as assessor. The architect is Mr. W. Hawke, of London.

The design was commented on in the general review of the competition in our issue of May 23.

### DESIGN FOR LIVERPOOL CATHEDRAL.

**WE** give this week the principal elevations and the plan of the design for Liverpool Cathedral, by Mr. G. Gilbert Scott, to which the assessors awarded the first place, and which, from the latest information, it appears will now probably be carried out.

The designs are all commented on in our leading article of this week, and therefore we need not here remark upon them further, except in regard to one point. We observe that the Cathedral Committee now aver that their first statement that the plan of this design did not meet their requirements, only arose from the fact that their method of computing the number of sittings had differed from that of the assessors. We cannot understand this argument, and our belief is that the Committee have felt obliged to accept the assessors' award, owing to the pressure of public opinion, and that this is a kind of diplomatic excuse for their change of front. It is one that will hardly be accepted. They state that they asked for a plan with a wide open space; they have got a plan with the usual long narrow space of the medieval cathedral only slightly modified. The position of the pulpit on the plan shows that what they profess to have required is not provided.

We give the following description of his intentions in the design, which has been sent to us by the architect—

"The general design is severe in treatment, and relies for its effect upon the general mass formed by the grouping and proportion of the various parts. In order to increase the effect of mass, transepts have been introduced throughout the length of building, the interior of these transepts being well lighted, and the intervening barrel vaults, fairly dark, would give a curious effect of light and shade to the interior.

The nave and choir are wide (50 ft.), the aisles narrow, being intended solely as a means of access to the seats, &c. Cloisters are introduced at the quasi-west end, and apart from the effect produced, enable persons alighting from carriages to reach the building under cover should it be necessary.

The large flanking towers, connected by a gable higher than the adjoining roofs, form the culminating feature of the exterior.

G. GILBERT SCOTT."

### ARCHITECTURAL SOCIETIES.

**MANCHESTER SOCIETY OF ARCHITECTS.**—On the 23rd inst. about fifteen members, under the leadership of Mr. G. W. Lord, made a sketching visit to Mobberley Church, Cheshire. The rector, Rev. H. S. Mallory, explained various points of interest. By the kindness of Mr. Ernest Leycester, Mobberley Old Hall was also visited, and several sketches made of it. On Tuesday evening, May 26, about sixty members visited the new Midland Hotel, Manchester, by permission of the architect, Mr. C. Trubshaw. The visitors were shown round by Mr. Elwell and Mr. Sund, who explained the general design of the building, and the elaborate warming and ventilating arrangements.

### COMPETITIONS.

**LIVERPOOL CATHEDRAL.**—A meeting of the Liverpool Cathedral Committee was held on Tuesday, under the presidency of Sir William Forwood. After a long discussion it was resolved, on the motion of Mr. Hampson, seconded by the Hon. Arthur Stanley, that Mr. G. F. Bodley and Mr. Gilbert Scott be approached with the view of their appointment as joint architects of the proposed Liverpool Cathedral, and that the design marked No. 1 (Mr. Gilbert Scott's) be selected subject to the above arrangement, and to such alterations and modifications as may be advised by the architects and approved by the Committee; also subject to the signing of an approved agreement.

**CARNEGIE FREE LIBRARY, LIMERICK.**—At the request of some competitors, the trustees have decided to extend the time for receiving designs in this competition to July 1. Some competitors having inquired as to the entrances, replies have been sent that there shall be no entrances to the library and museum from the park—one entrance only to library and museum from Percy-square front.

### APPLICATIONS UNDER THE 1894 BUILDING ACT.

**THE LONDON COUNTY COUNCIL** at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses—

**Bermondsey.**—(a) That the resolution of the Council of December 16, 1902, in regard to the erection of a one-story building on the east side of Weston-street, Bermondsey, be rescinded.

(b) That the Council, in the exercise of its powers under Section 13 of the Act, do consent to the erection of a one-story building on the east side of Weston-street, Bermondsey (Mr. E. Crocse for Messrs. J. Salomon & Co.)—Consent.

#### Lines of Frontage and Projections.

**Hammersmith.**—Three houses, with one-story shops in front, upon the site of Montague Lodge, No. 264, King-street, Hammersmith (Messrs. B. T. and W. J. Fleeman)—Consent.

**St. George, Hanover-square.**—A projecting sign in front of No. 7, Wood's-mews, Park-lane, St. George, Hanover-square (Mr. W. J. Smith)—Consent.

**Debford.**—Buildings on the south side of New Cross-road, Debford, between Nos. 106 and Portland House (Mr. H. Stock for the Haberdashers' Co.)—Consent.

**Leisham.**—Wood and tile pents to the entrances to Nos. 14 and 16, Micheldever-road, Lee (Mr. F. Britton)—Consent.

**Holborn.**—A projecting iron sign at No. 34, Eagle-street, Holborn (Messrs. H. Cooper & Co.)—Refused.

#### Width of Way.

**Rotherhithe.**—Buildings on the north-western side of Horselydown-lane, and south-western side of Shad-Thames, Rotherhithe (Mr. E. Faux for Messrs. Courage & Co., Ltd.)—Consent.

**Poplar.**—A wall, to form an enclosure to an extension of the East India Graving Dock, at less than the prescribed distance from the centre of the roadway of Orchard-place, Blackwall (Mr. W. Jaffrey for the London Graving Dock Co., Ltd.)—Consent.

**Limchase.**—A building at No. 490, Commercial-road, Limehouse, with the external wall at less than the prescribed distance from the centre of the roadway of Dorset-street (Mr. J. M. Knight for the Commercial Brewery Co., Ltd.)—Consent.

**Southwark, West.**—The re-erection of a one-story building on the west side of Dantzie-street, Borough-road, Southwark (Mr. W. Downs for Messrs. R. Hoe & Co.)—Consent.

#### Width of Way, Lines of Frontage and Projections.

**St. George, Hanover-square.**—Bay-windows in front of Nos. 77 and 78, South Audley-street, St. George, Hanover-square (Messrs. E. George & Yeates for Mr. E. A. Whitlock)—Consent.

**Paddington, South.**—A structure in front of No. 240, Harrow-road, Paddington (Mr. W. R. Phillips for Mr. G. May)—Refused.

#### Width of Way and Space at Rear.

**Kennington.**—Deviation from the plans approved on March 3, 1903, and a modification of the conditions of the approval, for the erection of a three-story stable building, with loft over, on a site on the west side of Vauxhall-walk, Lambeth (Messrs. J. A. J. Woodward & Sons)—Refused.

#### Cubical Extent.

**Kennington.**—A building (formerly known as the Crown Baths) on the south-west of Harleyford-road, Kennington, with one division, exceeding in extent 250,000, but not 450,000, cubic feet, being used as granite, marble, and stone works (Messrs. J. Whitehead & Sons, Ltd.)—Consent.

### BOOKS RECEIVED.

**THE TECHNICAL DICTIONARY—CYCLOPEDIA.** Edited by P. R. Björling, C.E., and F. T. Gissing, M.I.P.S., Part I. (Rebman, Ltd. 2s.)  
**THE FLEXURE OF BEAMS.** By Albert E. Guy. (Crosby Lockwood & Son. 9s.)  
**JOURNAL OF THE ARCHITECTURAL, ARCHEOLOGICAL, AND HISTORIC SOCIETY OF CHESTER.** New Series. Vol. IX. (Chester: G. R. Griffith.)  
**TRAVELS IN SOUTHERN EUROPE AND THE LEVANT: 1810-1817.** The Journal of C. R. Cockerell, R.A. (Longmans, Green, & Co. 10s. 6d.)  
**MODERN SUBURBAN HOMES.** By C. R. Snell. (B. T. Batsford.)

## Correspondence.

### LIVERPOOL CATHEDRAL.

**SIR,**—The Cathedral Committee have now, it appears, decided to adopt the design of Mr. Gilbert Scott, associating with him Mr. Bodley, R.A.

As a student deeply interested in ecclesiastical architecture since the year 1840, I feel greatly disappointed in the selection of this design, which does not follow the types of any of our glorious old cathedrals.

Externally the desired grandeur has not been attained, the whole building being broken up in frequent projections, which destroy the effect so desirable in so great a length from north to south.

Numerous towers are provided, but they are not very successfully treated, and are all greatly wanting in the culminating outline, which is the great opportunity in church architecture, the top stages now finishing in every case with an unbroken horizontal parapet. Again, the several transepts, which cut the nave in pieces, are each finished with a very flat and ineffective gable.

It is stated that these transepts will produce internally agreeable shade contrasts to the intervening nave windows, but I fear their projections will take from those windows much useful light. I have been hoping to see a truly grand tower over the crossing, with a magnificent spire above, but we are left without these and the usual entrance towers, so frequent in our cathedrals. The evident objection is a total want of the dignified repose which characterises our best ancient cathedrals and several other buildings of great national interest.

THO. D. BARRY.

Liverpool, May 27.

### INCURSTATION IN WATER MAINS.

**SIR,**—I shall be obliged if you can give me a solution to the following question:—

"How can incurstion be removed from the interior of water mains without disturbing the pipes, viz., without lifting and relaying them?"

ARTHUR STREET.

**P.S.**—Question asked at last year's examination in practical sanitary science at Sanitary Institute.

[Incurstion in water mains is often removed by means of "devils" or scrapers. These are made in various forms by different makers, but consist essentially of a number of iron or steel scrapers around a central spindle, to which two discs or plugs (of approximately the same diameter as the pipe to be cleared) are attached. The discs are centred on the spindle at a distance from each other somewhat greater than the diameter of the largest branch in the main. The spindle may be a flexible steel tube, or may be knuckle-jointed, so that the scraper will pass around bends. To insert the scraper the water must be turned off, and a pipe cut out to the required length, and made good temporarily but securely after the scraper has been inserted. The water is then turned on, and the pressure, acting on the plugs, forces the scraper forward to another opening. In some cases pipes with bolted covers are laid in the mains at suitable points, and the scrapers can be inserted after removing the covers. Scrapers of this kind are made by the Glenfield Co., Kilmarnock, and others. A different kind is made by J. Tylor & Sons, of Newgate-street, and can be propelled by water pressure or drawn through the pipes by means of ropes attached to eyes provided for the purpose.—Ed.]

### R.I.B.A. "SPECIAL" EXAM.

**SIR,**—Will you kindly allow me, through the medium of your paper, to ask for a concise list of the books considered essential for an intending candidate, of modest means, to purchase, as the list recommended to students in "The Kalendar" is intended to be merely suggestive?

A READER.

**"SHEPWOOD" PARTITION BRICK.**—This is the form of partition brick which was noticed favourably in our first review of the Earl's Court Fire Exhibition (p. 511 ante), when we observed that the name could not be found either on the stall or in the catalogue. It is made by Messrs. Shepwood, of Walton-on-Thames, and seems to be one of the best fireproof partitions of its kind.



## GENERAL BUILDING NEWS.

**PRIMITIVE METHODIST BUILDINGS, WALLSEND.**—The foundation-stone has just been laid of Primitive Methodist Sunday-school at Wallsend, at the corner of Station-road and Elton-street. Adjoining these premises it is intended eventually to erect a church. Mr. T. E. Davidson, of Newcastle, prepared the plans for the building, and Messrs. Davidson & Bolam, of Birtley, are the contractors.

**NEW CHURCH, ST. PETER'S, LOWESTOFT.**—The dedication-stone of the new chancel and vestries in connexion with St. Peter's Church was laid recently. The extension consists of a new chancel, a morning chapel, with organ chamber over, and vestries, with heating chamber underneath. Mr. E. P. Warren, of London, is the architect, and the builders are Messrs. Collins & Godfrey, of Tewkesbury.

**CHILDREN'S HOSPITAL, SHEFFIELD.**—A new administrative and out-patients' block has been built at the Western bank branch of the Sheffield Children's Hospital. The building consists of new out-patients' and administrative department. The out-patients' department is entered from Clarkson-street, and the rooms set apart for the purpose are waiting-room, 34 ft. by 23 ft., surgeons' examination-rooms, isolation ward, dispensary, theatre, &c. The administrative department is entered from Western bank, and provides for kitchen, boardroom, store-room and larder, nurses' mess and sitting-room, matron's department, and house surgeon's department. The two upper floors above this provide for nurses' bedrooms, &c., and servants' bedrooms. The contractors were Messrs. Geo. Longden & Sons; Mr. J. Bussey was the clerk of works; and Messrs. John D. Webster & Son the architects.

**BATHS, WEST HUMBERSTONE, LEICESTERSHIRE.**—The new Corporation baths at West Humberstone were opened on the 18th inst. The baths are situated at the angle formed by Spence-street and Bridge-road, with a frontage of 190 ft. to the former, along which is ranged the swimming-pond, measuring in itself 100 ft. by 45 ft. Over this is constructed a roof span of about 80 ft., supported on nine steel principals. The walls are lined with white pressed bricks, relieved by ornamental bands, and the bath itself is faced with white glazed bricks. Surrounding the swimming-bath is a gallery with a promenade, and under this a gallery with tiers of seats ranged over eighty dressing-boxes, approached by wide corridors with glazed screen doors. There are five exits. In addition to the dressing-boxes are dressing-rooms designed for the accommodation of clubs or teams. A feature of the new buildings is the addition of twelve spray baths, with marble divisions and recessed floors in mosaic; and behind these is a vapour bath. There are also the attendants' office, and a waiting and cooling-room. The exterior is of Ellington pressed bricks with Darley stone dressing. The architect was Mr. Arthur H. Hind, of Leicester; Mr. John Scholes acted as clerk of the works. The principal contractors are Messrs. F. Beck & Co.

**BATHS, BRADFORD.**—New central baths for Bradford are being erected in Great Horton-road from the plans of Mr. A. H. Hessel Tiltman. The duty of superintending the carrying-out of the work is in the hands of the City Architect, Mr. F. E. P. Edwards. The whole building will be lighted by electricity, and the total cost of the present scheme, including 6,000l. for the site, is 33,250l. The clerk of the works is Mr. N. A. Atkinson. The following are the principal contractors:—Masons and excavators, Mr. Walter R. Booth, Clayton; contractors and plasterers, Messrs. B. Dixon & Co., Bradford; carpenters and joiners, Messrs. Jackson Bros.; ironfounders and smiths, Messrs. J. Hitchin & Son, Halifax; plumbers and glaziers, Messrs. H. Braithwaite & Co., Leeds; slaters, Messrs. Hill & Nelson, Bradford; painter, Mr. Walker Priestley; electric lighting, Mr. C. W. Webster; boilers, Messrs. Hewitt & Kellett; heating and ventilating, the Lancashire Heating Co., Manchester; and laundry fittings, W. Summerscales & Sons, Limited, Keighley.

**NEW BUILDINGS IN ABERDEEN.**—The plans of the following new buildings in Aberdeen have been sanctioned:—Additions to offices on the east side of Miller-street, for Messrs. J. Miller & Co., per Messrs. Jenkins & Marr, architects. Granite works on the north side of Leslie-road, for Messrs. Mearns & Reid, granite merchants, per Mr. Duncan Hodge, architect. Addition to the Northern Nursing Home on the south side of Albion-place, for Miss Horsnail, per Mr. A. H. L. Mackinnon, architect. Shops, offices, and dwelling-house at Market-street, for Mr. John Drummond, per Messrs. Cameron & Watt, architects. Two dwelling-houses on the south side of Howburn-place, for Mr. Alexander Sim, per Messrs. Cameron & Watt, architects. Shop on the south side of Mid Stockton-road, for Mr. Robert Barron, per Messrs. Walker & Duncan, architects. Two dwelling-houses on the west side of Burns-road, for Mr. George Milne, per Messrs. Cameron & Watt, architects. Four dwelling-houses on the north side of Hutcheon-street, for Messrs. E. Brown & Watt, architects. Two dwelling-houses on the west side of Berryden-road, for the Loyal Order of Shepherds, per Messrs. Sutherland & Pirie, architects. Coopers at Point Law, for Messrs. Stewart, Duthie, & Co., per Messrs. D. & J. R. McMillan, architects. Alterations and additions in connexion

with dwelling-house on the east side of Crown-street and its junction with Portland-street, and dwelling-house and shops on the north side of Portland-street immediately east of the first-mentioned dwelling-house, for Messrs. Sutherland & Pirie, architects. Alterations and additions to premises at rear of No. 177, Union-street, for the Aberdeen Dairy Co., Ltd., per Mr. A. M. Mackenzie, architect. Dwelling-house and shops on the north side of Great Western-road at its junction with Claremont-street, for Mr. John Fraser, per Mr. R. G. Wilson, architect.

**THE "KENILWORTH" WAVERLEY HOTEL.**—This hotel, in Great Russell-street, Bloomsbury, is the second of the Cranston's Waverley Temperance hotels erected in London, the first being in Southampton-row. The dressings are in Portland stone, and the porch in white Italian granite. The hall is lined with Pavanazza and Cipolino marbles, and the lounge with oak panelling. The joinery in all public rooms is in varnished oak. The floors are Messrs. Stuart's granolithic, with wood margins round the walls, and where flooring is necessary it is in oak, maple, or pitchpine blocks. The partitions are in solid plaster, and there are no wood joists, floor plates or partition timbers. The roof timbers are oak, and the roof is shunt off by a granolithic ceiling. There are two sets of fire escape stairs, with straight flights and square landings, and an escape door from each corridor. The bathrooms and lavatories are paved with marble terrazzo, and lined with embossed tile dados and Licurista fillings. The kitchen, larders, and servery are lined with white glazed bricks and white tiler, and furnished with coal, gas and steam fittings. The ground floor servery is fitted with gas and steam fittings for carving and serving, and for preparation of tea and coffee. Accommodation is provided for about 350 visitors, and there is a complete system of electric lighting, speaking tubes and bells, and a telephone service. Mr. George Waymouth is the architect, and Messrs. Howard & Co. the chief contractors, the cost of erection being about 50,000l.

**THE GROSVENOR GALLERY, NEW BOND-STREET.**—Consequently upon the migration of the Grosvenor Club to new quarters, all the contents and household effects of the club in New Bond-street have recently been dispersed by sale at auction. The premises are now being extensively altered by Messrs. J. Simpson & Son, contractors, under Mr. W. Cave's directions and superintendence, for the Orchestral Company, and will be reopened under the name of the Eolian Hall.

**PIER, BLACKPOOL.**—The Blackpool Promenade widening project having necessitated the setting-back of the Central Pier entrance, the directors decided on what is practically the reconstruction of the shore end of the pier, and the various works are now approaching completion. The main frontage and deck have been widened from about 60 ft. to 110 ft., the turnstiles and toll-offices have been set back 60 ft., and the waist of the pier has also been doubled in width from 22 ft. to 43 ft. Forty feet from the main entrance have been erected the new entrance buildings and arcade, with an elevation of 90 ft. to the promenade front. In the centre is placed the arcade, or shelter, with a promenade space of 80 ft. by 50 ft., which also serves as the main approach to the pier, and on each side of this arcade, extending for a distance of 80 ft., are placed new shops, offices, &c. The central arcade is covered by a circular hipped and boarded roof. Along each side and end of the new building has been formed, by means of a flat roof over the shops and ends of the arcade, a continuous promenade 18 ft. wide, and approached by spiral staircases fixed in the single turnstiles, each corner of the main front to the promenade. The new buildings have been carried out from the designs and under the supervision of Messrs. R. Knill Freeman and F. Freeman, architects, of Bolton. The engineer for the iron and steelwork in the superstructure is Mr. Walter Tester, C.E., of Manchester, and for the substructure ironwork, Mr. Thomas Dryden, of Preston. The total cost of the extensions is about 12,000l.

**SUNDAY SCHOOLS, HALEBANK, LANCASHIRE.**—The foundation-stones were laid on the 21st inst. in connexion with the new Wesleyan Sunday Schools at Halebank. Provision is being made for one large room, to accommodate 200 scholars, and three classrooms, obtained by the conversion of the present school, which will be connected with a corridor to the new building, with necessary cloak-room and other accommodation. The building will be erected by Mr. Edwin Wood, contractor, of Widnes, from designs by Mr. John K. Newburn.

**POST OFFICE, SUNDERLAND.**—A new post-office has been erected at Sunderland. The new building occupies a site 270 ft. by 65 ft. in West Sunniside, and the plans were prepared by Mr. Henry Tannock, London. The work of construction has been carried out by Mr. J. W. White, of Sunderland, under the supervision of Mr. E. J. Searchfield, of H.M. Office of Works, London.

**KURSAAL, WHITBY.**—A Kursaal building is to be erected at Whitby, near Monkseat station. Mr. N. V. Hope, of Newcastle, is the architect, and Mr. S. F. Davidson is the contractor.

**LIBRARY AND BATHS, CAMBERWELL.**—The joint public library and baths and washhouses in Wells-street, Camberwell, were opened recently by Lady Llangatock. The buildings have frontages in

Wells-street and Neate-street, and will serve for the northern part of the borough. The library comprises a newspaper reading-room on the right hand of the entrance, and on the left the reference reading-room is located, with a lending library to the rear. The baths accommodate fifty slipper baths in four departments, these and the washhouses being controlled and served by a central office. The builder is Mr. H. L. Holloway, Deptford. The cost of the building, exclusive of the engineering work and value of the site, amounts to over 18,000l. The clerk of the works was Mr. J. Lake. The architects were Messrs. W. B. Adams and William Oxtoby, 11 East C.E. the Borough Engineer.

**RAILWAY GOODS DEPOT, BERMONDEY.**—In the course of next month will be opened a range of buildings erected by the London, Brighton, & South Coast Railway Company, at a cost of about 250,000l. for their goods and parcels traffic. The new premises are situated at Willow Walk, near Upper Grange-road, and include a shed, measuring 580 ft. by 135 ft., above which is a warehouse for the storage of grain, and of produce and merchandise awaiting delivery to the consignees. At an official inspection of the premises last week it was stated that whereas all the goods traffic fifty or sixty years ago was dealt with in a single shed underneath one acre, now the goods traffic of the London and South Eastern Railway amounts to 630 tons inward and 1,450 tons outward, being for the greater portion Continental goods. The new buildings have a capacity for 10,000 tons.

**BAPTIST SCHOOL, HALIFAX.**—On the 21st inst. Trinity-road Baptist School, Halifax, was reopened after alteration. The work has been carried out under the direction of Messrs. Uley, Hebblethwaite & Uley, architects.

## FOREIGN.

**FRANCE.**—The Society of "Amis du Louvre" has united with that of "Amis du Luxembourg" in petitioning the Art Department of the Ministry to remove Carpeaux's celebrated group, "La Danse," from the front of the Opera-House and place it in a museum, replacing it on the building by a copy in stone. —M. Bechmann, the Director of the "Service des Eaux" of Paris, is preparing a scheme for getting water from the Loire, taken from the subterranean strata in the Val d'Oise. The aqueduct for this purpose will be 100 kilometres in length, and could furnish to Paris daily 450,000 cubic metres of water, taken from the north bend of the Loire. —There is an exhibition of the works of M. Carolus-Duran at M. Bernheim's gallery, Rue Lafitte, which will remain open till June 10. —The twenty-seventh Congress of the Société des Beaux-Arts is to open on June 2, at the Ecole des Beaux-Arts, under the presidency of M. Lucien Magne, the architect. —The State has opened an establishment for a sale of national manufactures. It is situated at the angle of the Boulevard des Italiens and the Rue Favart. —The new college of Pontoise, of which M. Guerhard is the architect, was officially opened on Sunday last. This graceful building, which is planned also with every modern improvement, is situated on a hill which overlooks the whole valley of the Oise. —The town of Nice, where a competition was opened for making awards for the most beautiful buildings erected, has awarded gold medals to the architects MM. Delmas Randon, Mars, and Bermond; and silver medals to MM. Bellon, Virello, Sioly, Grassi, Dalmas, Girard, and Sander. —M. Henriot, architect of Nice, has drawn up a scheme for a "Port de Plaisance" at Pierre-Fourni, at an estimated cost of 25 million francs. —The Croix Rousse railway terminus at Lyons is to be rebuilt; it has long been too small for the traffic. —M. Gérôme has modelled a monument to the Imperial Guards who fell at Waterloo. It is to be inaugurated in November, on the field of Waterloo. —M. Petit, architect to the Department of Seine-et-Oise, has been commissioned to prepare the plans for a new Palais de Justice for Mantes, to cost about 250,000 francs. —The inauguration of the Victor Hugo Museum, in the Place des Vosges, will take place in the latter part of June.

**AUSTRIA.**—Among the ancient buildings in Vienna now undergoing demolition is the bail house, or raquet court, attached to the Hofburg. For many years, until 1871, the house was used as a museum. Now it has been decided that the building ill accords in an artistic sense with the restored Hofburg, and that is why it is being levelled to the ground. —The authorities in Vienna who have control of the canals advertise a competition, open to the world, for a scheme for the construction of quays and ship accommodation generally, the plans to be sent in by March 31, 1904. The premiums offered are 10,000 kronen, 75,000 kronen, and 50,000 kronen.

**UNITED STATES.**—The Massachusetts Legislature Committee on Metropolitan Affairs has voted to report favourably on a Bill providing for the construction of a dam across the Charles River, between Boston and Cambridge, substantially in accordance with the scheme drawn up by the Commission which has been considering the matter for the past year. Boston architects and engineers are strongly in favour of the scheme. —The annual Report of the Boston Museum of Fine Arts has recently been issued, from which we gather that the new department of Egyptian antiquities has grown very con-



siderably, and a special curator has been appointed to take care of it. A keeper of paintings and an assistant curator of classical art have also been appointed "to continue more efficiently the policy of giving personal explanations of the collections to those who wish for them."

#### MISCELLANEOUS.

##### PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.

—The Simplex Steel Conduit Co. have opened a branch office at 165A, West George-street, Glasgow. —The business of Messrs. Mellows & Co., roof glazing manufacturers, of Sheffield and London, has been converted into a limited company under the name of "Mellows & Co., Ltd." The registered office is at Corporation-street, Sheffield, the London office at 28, Victoria-street.

SEWAGE DISPOSAL AND DRAINAGE, NORTHAMPTON.—A Local Government Board inquiry into the application of the Northampton Town Council for sanction to borrow 3,500l. for works of sewerage and surface water drainage, including the construction of works in the parish of Weston Favell, was held at the Council Chamber, Town Hall, Northampton, on the 15th inst., by Mr. H. Perry Boulton, M.Inst.C.E., one of the Inspectors of the Local Government Board. There were present Mr. Herbert Hankinson (Towns Clerk), Mr. A. Fidler (Borough Engineer), and Mr. T. E. Goosey (manager of the Northampton Sewage Farm), and

WAR MEMORIAL, TYNEMOUTH.—A South African war memorial is to be erected at Tynemouth—from the design prepared by Mr. A. B. Plummer—in commemoration of the services rendered by Tynemouth men who took part in the late campaign.

CORNHURY PARK.—Mr. J. Belcher writes to say that the late Mr. J. Belcher, who was the architect of this house, has been given as 160, not 175, in the short description under "Illustrations" in our issue of May 16. The date 1750, we may say, was furnished to us by Mr. Belcher, the architect of the new portion of the house, and we accepted it at the moment on his authority. We find, however, that we had recorded the correct date, 1730, in note on Cornbury Park published two years ago (April 13, 1901).

INSPECTION OF BUILDINGS BY THE METROPOLITAN FIRE BRIGADE.—The Fire Brigade Committee of the London County Council reported as follows at the meeting on Tuesday:—"For many years past it has been the practice, when the authorities of public institutions have applied for advice in connection with the fire arrangements of buildings under their control, to allow the desired service to be rendered by the fire brigade, on the understanding that neither the Council nor the brigade undertook any responsibility in the matter, or incurred any fee in respect of the assistance given."

The work has been done without any addition being made to the staff of the brigade, but at times difficulty has been experienced in doing the work, which necessarily occupies a considerable amount of time. It is important, moreover, to bear in mind that the inspection has, save in the case of certain Government buildings, not been periodic, but has been done without any regularity. The existence of the requests for assistance were few in number, but during the last year or so the requests made to us for assistance of the kind referred to have become more numerous, and at present we have before us applications with regard to some thirty buildings of all sizes, in addition to the usual assistance required by the Council. In these circumstances we have devoted careful consideration to the question whether the course which has hitherto been followed in this matter should be continued. We cannot regard as entirely satisfactory the practice which has obtained in the past, for, notwithstanding the disclaimer of responsibility to which we allude above, we feel that it is possible that, should loss of life from fire occur in an institution with regard to which the fire brigade had at any time given advice, persons unacquainted with the facts might attempt to attach responsibility to the Council as well as to the brigade, even though the inspection by fire brigade officers might have taken place years before the fatality occurred, and even though the advice given might not have been acted upon. We think that, if the brigade is to continue to undertake work of the nature in question, it should be done in a systematic and thorough way, and that the inspections should be periodic. We cannot disguise from ourselves, however, that if this be done the annual cost of the brigade will be greatly increased, especially having regard to the circumstance that, once the Council agreed to undertake the work of periodically inspecting public buildings, it might be difficult for the Council to decline to comply with applications for similar work to be undertaken in the case of mercantile establishments. It has been urged that the expense of the inspection staff that would be necessary might be met by charging fees according to a scale, and it has even been suggested that the receipts from such a source would eventually substantially exceed the expenses, but we are dubious as to this. In view of the undoubted fact that the annual expenditure on the brigade would ultimately be largely augmented if the Council were to embark on the policy of general inspection, we have come to the determination that,

without express instructions from the Council, we will not allow advice to be given by the brigade with regard to any buildings except those belonging to the Government, with respect to which we wish to have an opportunity of further considering the circumstances. As it is desirable that a definite answer should be sent without unnecessary delay to the authorities and persons who have written asking for advice, we propose to reply to these as well as to other applicants, except those requiring assistance to the effect that the Council regrets to be unable to accede to their request." A recommendation to this effect was agreed to.

EVERY HILL.—Lord Monckswell, the Chairman of the London County Council, opened on Saturday last the estate at Eltham known as Every Hill, which was purchased recently by the Council for 25,000l. The property has an area of eighty-four acres, and includes the house and outbuildings erected for the late Colonel J. T. North. The Council now proposes to reserve a portion of the house as a convalescent home, and in connexion therewith the part of the garden to the north has been enclosed for the benefit of the patients. The rest of the estate will be devoted to the public for the purpose of recreation and rest, the ballroom, the sculpture gallery, and the conservatories being retained as shelters and refreshment-rooms.

THE CHURCH CRAFTS LEAGUE.—The half yearly general meeting of this Society was held on Monday evening last in the hall of Clifford's Inn, when the Dean of Westminster presided over a crowded gathering of members and friends. Amongst those present were Mr. Stirling Lee, Miss Emily Ford, Rev. Percy Dearmer, Mr. Nelson Dawson, Mr. F. C. Eccles (the newly appointed secretary of the Alcuin Club), Mr. John P. Seddon, Miss A. M. Homan (secretary of the St. Dunstons Society), and Mr. Francis Burdett, the President of the League. A lecture on "Altars—their Arrangement and Ornamentation," was delivered by Mr. F. C. Eccles, who in the course of his remarks, traced the gradual development of the Christian altar of primitive times into the altar of the medieval type found in the illuminated manuscripts which have come down to us. By means of a series of lantern slides, he showed that the modern altar would find plenty of scope for his inventive genius, even if restricted to the traditional treatment of the Holy Table imposed upon us by the "Ornaments Rubric." He strongly deprecated the prevailing tendency of making the altar insignificant by drawing the eye of the observer from the table itself to an erection of candlesticks and pots of flowers behind it.

CLIFFORD'S INN.—In regard to the sale of Clifford's Inn, at the sale the auctioneer was asked if he would guarantee that the western portion of the site could be built upon. The auctioneer, it is said, replied that the land could all be built upon, and he had received no notice from the Crown to the contrary. Questioned as to how the land could be set aside, the auctioneer replied that legal advice had been taken, and the vendors were advised not only that the land could be built upon, but that there was no one to put the covenant in force. It now appears that the Crown have placed two large notice boards to the north of Clifford's garden, on the space surrounding the Record Office. These boards state that the land is entitled to rights of light over Clifford's Inn in connexion with the windows of a building known as Judges' Chambers, which formerly stood on the site of these boards.—The City Court of Common Council, on the 21st inst., had before it a letter from the Clerk of the London County Council in reference to the preservation of Clifford's Inn and Garden, and suggesting it might be kept as an open space for the benefit of the many people around Fetterlane and neighbourhood. The matter was referred to the Streets Committee.

THE INCORPORATED CHURCH BUILDING SOCIETY.—The eighty-fifth annual Report of this Society records that the Society has been instrumental in aiding in the erection of no less than 2,302 additional new churches, and in assisting in rebuilding, enlarging, or otherwise improving the accommodation in 6,280 other churches or consecrated chapels of ease. By these means more than 2,000,000 additional seats have been secured, by far the greater part of which are for the free use of the parishioners according to law. The actual amount of money entrusted to the Society and used in making grants towards the objects named has reached 897,416l. The report includes the following very necessary and practical recommendation in regard to fire insurance:—"Every year the Committee feel it imperative to remind incumbents and churchwardens how important it is for churches to be adequately insured against fire, and within the last year two cases have come before the Society in which the churches have been almost entirely destroyed by fire, and it has been found afterwards that they have not been insured for an adequate amount to enable the damage to be repaired. This is very false economy, and it may be well to point out that insurance against fire can be effected in the Ecclesiastical Insurance Office, which makes grants from its surplus profits to the Incorporated Church Building Society, and to other church societies."

REBUILDING OF ABERGWHY PALACE.—The paragraph, which was quoted last week from the *South Wales Daily News* in reference to the rebuilding of Abergwhyl Palace appears to be incorrect in one

respect. Mr. Coombs is not the architect to the Ecclesiastical Commissioners; he was acting on the occasion for Mr. W. D. Caroe.

DISUSED BURIAL GROUNDS ACT.—ST. SEPULCHRE, HOLBORN.—The Parks Committee of the London County Council reported as follows at Tuesday's meeting of the Council:—"In November last our attention was drawn by Mr. H. McLauchlan, District Surveyor, to a proposed extension of some of the schools on the disused burial ground of St. Sepulchre, Holborn. From an inspection of the plans of the proposed building it appeared that the building would occupy a larger area than that approved under the faculty, and that the whole of the elevations, sections, and internal arrangements were different from those sanctioned by the faculty; and the solicitor was instructed to take any steps that might be necessary to prevent a contravention of the Act. The architect to the vicar was communicated with, and it was understood that, having regard to the Council's objections, the proposal would not be proceeded with without notice to the Council. We have since received notice from the Bishop of London's registry that a petition has been lodged by the vicar for a further faculty to carry out an extension of the school buildings differing from that authorised by the faculty of 1890. On an inspection being made of the petition and plans it appeared that the proposal, if carried out, would be a contravention of the Act, and we consequently caused an appearance to be entered in the matter, and have since on behalf of the Council, filed an answer to the petition."

GUIDE TO SOUTH-EASTERN AND CHATHAM RAILWAY.—This is a nicely got-up guide to the holiday places on the route of the South-Eastern Railway, giving information and illustrations as to various seaside places.

EVERYBODY'S STREET GUIDE TO LONDON.—The small street guide under this name, published by Mr. John Dicks at the price of 1d., gives in alphabetical order the names and postal districts of the London streets, and in two parallel columns the names of the nearest main thoroughfare and nearest railway station. It is a very useful publication, even for those who know London pretty well; and, specially so, of course, for strangers.

MOVING A BRICK BUILDING.—An unusual and somewhat complicated feat recently accomplished consisted in the removal of a two-story brick and frame building for a distance of 50 ft. in one direction, then 100 ft. in another direction, and finally in lowering it 35 ft. to a new foundation. It is almost unnecessary to add that this amazing series of operations took place in the United States. The building in question, measuring 40 ft. by 38 ft. was the residence of a gentleman in Pittsburgh, who wished to build a better house on the original site without wasting the money he had already expended in bricks and mortar. Under the direction of specialists, holes were cut through the walls of two opposite sides just below the first floor, and through them were placed fifteen horizontal needle beams, 12 in. square, upon which the walls, partitions, and floors were wedged up, and which were supported by double tiers of cross timbers. These were in turn carried on four equidistant lines of continuous longitudinal timbers, which were simultaneously lifted by screw-jacks, when wooden rollers were inserted. The lower part of the brickwork was then cut free from the foundation, and the house was drawn along by the aid of suitable tackle. As the new site and the intervening ground were both much lower than the original level, it was necessary to block the wheels for the greater part of the journey, and in some places the blocking had to be built to a height of 40 ft. The cribbing was built of 6-in. by 8-in. timber in towers about 4 ft. square, and about 2 ft. apart, braced transversely and longitudinally by long timbers, passing through several towers. In order to change the direction of movement after the first section of 50 ft. had been traversed, the rollers were removed by the aid of screw-jacks; new sails were then laid in the required direction on a descending gradient of 1 in 24, and the rollers were again inserted. At the end of the course, a lower level of 6 ft. had been reached, and the remaining descent of 29 ft. was accomplished by transferring the weight from the cribbing to screw-jacks, two courses being dealt with at a time until the building finally rested upon its new foundation. The weight of the house was about 300 tons, and it is a noteworthy fact that the moving was safely accomplished by only fourteen men in the short time of sixteen days, without even cracking the plaster.

PAINTING OF EXTERNAL WOOD AND IRONWORK AT FIRE STATIONS.—At Tuesday's meeting of the London County Council the Fire Brigade Committee reported as follows:—"With a view to convenience and economy, we decided two years ago that the painting of the external wood and ironwork at stations, instead of being, as heretofore, included in the repairs carried out from year to year at each station, should be executed separately, a certain number of stations to be painted each year, and the work to be so arranged that each station is painted once every four years. Since then we have decided that street-stations shall be painted triennially, and that the front appliance-room doors at stations shall be painted externally once every two years. The architect has submitted to us a list of twenty-one stations and street-stations, the



external wood and ironwork of which, he suggests, should be painted this year, and a list of twenty-three stations at which the application of paint should be made this year. We have referred the specification and bills of quantities, with the architect's estimate, to the Works Committee, but they have not yet had an opportunity of considering the matter. If the Works Committee are satisfied with the estimate, we propose that the work shall be carried out without the intervention of a contractor. In the contrary event we propose that tenders shall be obtained. It is desirable that the painting should be put in hand, and we therefore ask the Council to authorise an arrangement under which the delay incidental to the adjournment for the Whitsuntide recess will be avoided. For obvious reasons we do not now state the amount of the architect's estimate, but we may mention that it is less than £100. The expenditure is covered by the amount provided in the estimate for the current financial year for work at stations. The Committee recommended accordingly, and the recommendations were agreed to.

**LONDON WATER BOARD.**—Mr. R. M. Beachcroft, Chairman, presided over a special meeting of the Metropolitan Water Board held on the 22nd inst. at the offices of the Metropolitan Asylums Board. The General Purposes Committee reported that 121 applications had been received for the appointment of Clerk to the Board, and the names of three candidates were submitted to the Board: Mr. George W. Clarke, Town Clerk of Stepney; Mr. Albert B. Pilling, Town Clerk of Devonport; and Mr. William Terrey, general manager of the Sheffield Corporation Waterworks. The two last named having been interviewed by the Board Mr. Terrey was appointed by a large majority. The salary attaching to the office is £500l. per annum, and the question of pension or superannuation is left open. The Law and Parliamentary Committee recommended that Messrs. Linklater & Co., of Lond-court, Valence, be appointed solicitors to the Board, and that Mr. H. L. Cripps, senior member of the firm of Messrs. Dyson & Co., Parliamentary agents and solicitors, should be engaged to advise the Board generally on the conduct of its case before the Court of Arbitration, Mr. Cripps being willing to accept the position on the terms of receiving a specific fee of 500 gs. by way of retainer in respect of each of the cases of the eight companies, and a covering retainer of 500 gs. in respect of the minor arbitrations and agreements, with an additional fee of 500 gs. in the event of the arbitration proceedings not being completed within eighteen months. The recommendations of the Committee were agreed to. The Chairman stated that an intimation had been received to the effect that the fees of the arbitrators had been fixed at 5500l. each.

**CITY SQUARE, LEEDS.**—The Improvements Committee of the Leeds City Council met on the 20th inst., and devoted the greater part of the sitting to the consideration of the means to be adopted for the development of City-square. For some weeks housebreakers have been busily engaged on the plot of land lying in the narrow neck between Queen's-street and Wellington-street on the south-western side of the square, where stood a number of ugly buildings, some one-storied tobacco kiosks, and an unseemly wealth of hoarding. These buildings have now been razed to the ground, and it is for the Improvements Committee to determine the future of the site. The Committee had previously decided that the greater portion of the land should be re-let for building purposes, and had provisionally fixed the line whereat the new erection should terminate and the pavement begin. This decision had a disturbing effect upon the members of the Leeds and Yorkshire Architectural Society, who deputed Messrs. Butler Wilson (President), Richard Wood (Vice-President), and H. S. Curley (Hon. Sec.) to wait upon the Committee with an expression of their views. The deputation attended the meeting, and suggested that the line of building should be carried further back from the square, in order that perfect harmony might be attained with the corresponding pavement on the north-western side of the square. They further suggested that the purchasers of the vacant land should be required to erect a building symmetrical with the Standard Assurance Buildings, which forms a conspicuous feature of the square on the far side of the General Post Office, with respect to contour, skyline, and general architectural outline. The City Engineer (Mr. Thomas Hewson) introduced a third building line, farther back still than the line suggested by the deputation, who, however, intimated that this would likewise meet their suggestion. The Committee eventually resolved to visit the site and decide for themselves which of the three building lines was the most suitable. It should be added that the statue of the Black Prince is expected shortly to assume its legitimate position on the pedestal in the centre of the square, and, if only the Midland Company could be induced to build or remodel the entrance to their station, Leeds would possess a really handsome piazza.—*Yorkshire Observer.*

**BIRMINGHAM MUNICIPAL SCHOOL OF ART.**—The Museum and School of Art Committee recently held a special meeting in order to appoint a successor to Mr. Edward R. Taylor, who will retire on June 30 from the head-mastership of the Municipal School of Art under the terms of the

Corporation superannuation scheme. Alderman the Right Hon. William Kenrick presided. The Committee unanimously appointed Mr. R. Catterson-Smith, who has since 1901 been head-master of the Victoria-street School for Jewellers and Silversmiths. Mr. Catterson-Smith was born in Dublin. His father was President of the Royal Hibernian Academy. Originally a successful student and assistant teacher at the Dublin School of Art, Mr. Catterson-Smith, at the age of twenty, entered the studio of Henry Foley, R.A., and remained with him until his death. Then he became well known as an exhibitor, especially of landscape, but also of portraiture, at the Royal Academy, and as a draughtsman in black and white. In 1893 he entered the service of William Morris. It was to assist Morris and Sir Edward Burne-Jones in the production of drawings for the Kelmscott Press that Mr. Catterson-Smith first joined them; he executed most of the "Chaucer" drawings, and designed and executed three of the borders for the "Earthly Paradise." In 1892 Mr. Catterson-Smith began to work in metal. He is a member of the Art Workers' Guild and of the Arts and Crafts Exhibition Society, and was for some time associated, as a teacher, with Mr. George J. Frampton, R.A., and Mr. W. R. Lethaby, then co-directors of the London County Council Central School of Arts and Crafts.

**MEMORIAL WINDOW, ST. THOMAS' CHURCH, EASTVILLE, BRISTOL.**—A stained-glass window has just been erected in St. Thomas' Church, Eastville. The window was designed and executed at the studio of Messrs. Joseph Bell & Son, Bristol.

**PAVING CHARGES, CLAPHAM, PLUMSTEAD, AND TOOTING COMMONS.**—The Parks Committee of the London County Council reported as follows at Tuesday's meeting of the Council:—"We report that we have received the following claims for payment of the apportioned cost of paving roads adjoining commons—Clapham Common (Battersea Borough Council), 998l. 0d.; Plumstead Common (Woolwich Borough Council), 461. 13s. 5d.; Tooting Bec Common (Wandsworth Borough Council), 391. 19s. 0d. The Council has on several previous occasions received similar demands, but in all the cases which have been pressed the police magistrates have upheld the Council's contention that the Council is not liable under the Metropolitan Management Acts, to contribute towards the cost of paving roads adjoining parks and open spaces. Other demands have been withdrawn upon the Council objecting to pay. The present demands were made in consequence of the decision of the Divisional Court in January, 1901, in the case of *Minter v. Fulham Vestry*, which related to a similar charge in respect of Bishop's Park (now Fulham Park), in which case the authority in whom the park is vested was held liable to contribute. The matter being one of considerable importance owing to the number of parks and open spaces in the control of the Council, we directed the solicitor to take all necessary steps to protect the interests of the Council in the event of the claims being pressed. A summons was issued by the Wandsworth Borough Council in respect of the demand relative to Wandsworth Common, and the case was heard on December 3, 1901, at the South-Western Police-court. On December 23 Mr. Plowden decided that he was bound by the case of *Minter v. Fulham Vestry*, and gave judgment for the amount claimed, with 5l. 5s. costs. We instructed the solicitor to appeal against the magistrate's decision. Summons were issued in the other cases, but they have been adjourned. The case stated by the magistrate before a Divisional Court, consisting of the Lord Chief Justice, Mr. Justice Darling, and Mr. Justice Channell, on May 23, 1902, who intimated that they felt themselves bound by the decision of the Divisional Court in the case of *Minter v. Fulham Vestry*, and, without expressing any opinion as to the correctness of the decision in that case, dismissed the Council's appeal with costs, but gave leave to appeal. After taking the opinion of counsel, we directed the solicitor to take all the steps necessary to bring the subject before the Court of Appeal. The appeal was argued before Lords Justices Vaughan Williams, Lindley, and Mathew on March 11 and 12, 1903, and on March 31 the unanimous judgment of the Lords Justices was given in favour of the Council's contention, that it was not liable to contribute towards the cost of paving roads adjoining parks and open spaces, and the appeal was allowed, with costs, in both Courts. Since this decision was given the summonses issued by the Battersea and the Woolwich Borough Councils have been withdrawn.

**THE OLD BURIAL GROUND IN WHITEFRIARS.**—The House of Commons have rejected by a majority of forty-seven over seventy-one, upon Mr. Faulton's amendment, the motion for the second reading of a private Bill for enabling Lord De la Warr, as owner, to provide for the erection of buildings upon the former grave yard in Dorset-street appertaining to Bridewell Hospital. The Bill was opposed by both the London County Council and the Corporation of the City of London, upon the contention that the land, albeit unconsecrated and no longer serving for purpose of interments, came within the provisions of the Metropolitan Open Spaces Act of 1881, the Disused Burial Grounds Act of 1884, and subsequent statutes. The ground was closed against interments in 1854. In 1892 the Home

Secretary made an order for the removal therefrom of all human remains, and it has since been deemed as an open space, though latterly used as a builder's yard.

#### CAPITAL AND LABOUR.

**WALSALL BUILDING TRADE STRIKE.**—After being on strike about eight weeks for an advance of wages and concessions as to working arrangements, the bricklayers and labourers engaged in the building trade at Walsall have returned to work.

#### LEGAL.

##### LIBEL ACTION BETWEEN BUILDERS.

THE case of *Dandridge v. Hayles* again came before the Court of Appeal, composed of the Master of the Rolls and Lords Justices Stirling and Mathew, on the 22nd inst., on the application of defendant for judgment or new trial on appeal from verdict and judgment entered at the trial before Mr. Justice Ridley, and a special jury in the King's Bench Division. The case was reported in the *Builder* of January 24 and May 23, 1903. The appeal first came before this Court on the 19th inst., when it was directed to stand over in order to give the parties an opportunity of arriving at a settlement. It being stated, however, that the parties could not come to terms, the appeal now came on for further argument.

This was an action by the plaintiff, a builder and contractor, against the defendant, also a builder and contractor (both carrying on business at Shanklin, Isle of Wight), to recover damages for libel. The case for the plaintiff, Francis Dandridge, was that in April, 1900, the Sandown Urban District Council decided to have Wilton-road, Shanklin, in which the defendant, George Hayles, resided, repaved, properly, sewered, levelled, metalled, and put in proper repair. Plaintiff tendered for the work and obtained the contract, which was, he said, properly carried out under the supervision of the Surveyor of the District Council and his clerk of the works. While it was proceeding the defendant wrote a letter to the District Council containing the words complained of, in which he imputed that the contract was being carried out in a "barefaced scamping manner," and complained of a deficiency of ballast, &c. The Town Council inquired, and found the complaint was groundless, but the defendant still persisted in his allegation, and resisted the payment of his proportion of the cost as frontager on the ground that the work was not properly executed. He was, however, ordered to pay the amount to which he was assessed by the magistrates, and on appeal to the King's Bench Division was unsuccessful. The letter was read out at the Council meeting and made public, and had, plaintiff said, done him a great deal of injury, and, therefore, he brought the present action. The defendant pleaded that he wrote the letter bona fide as a ratepayer and frontager, and that, therefore, it was privileged. In the result, the jury awarded the plaintiff 50l. damages, and judgment was entered accordingly. Hence the present appeal of the defendant on the grounds that there was no evidence of malice, and that on the issue of privilege he was entitled to judgment. In the alternative the defendant alleged that as the question of justification had not been gone into at all at the trial, he was entitled to have the case sent down for a new trial in order that that question might be tried.

Mr. Montagu Lush, K.C., and Mr. C. B. Marriott appeared for the appellant; and Sir Arthur Collins, K.C., and Mr. Turrell for the respondent.

At the conclusion of the arguments of counsel the Master of the Rolls, in giving judgment, said no question was put to the jury as to whether the matter complained of was a libel, Mr. Justice Ridley having merely left it to the jury to say, it being a libel and the occasion being admittedly privileged, whether there was express malice. It was proved that the surveyor had approved the way in which the repairs to the road were executed and the learned judge presumably made the opinion of the surveyor the test whether the road was properly made up as a question of fact, and whether the surveyor had approved of the work was no determination of the matter at all. His Lordship said he was of opinion that the learned judge had misdirected the jury, and it was possible that that misdirection had led the jury in returning a verdict for the plaintiff, but he expressed no opinion as to whether it had or had not. His Lordship could not say there was no evidence of malice, and in those circumstances there must be a new trial.

The Lords Justices concurred.

##### POINT UNDER A REPAIRING COVENANT IN A LEASE.

IN the Court of Appeal, composed of Lords Justices Vaughan Williams, Romer, and Cozens-Hardy, on the 22nd inst. the hearing was concluded of the case of *Wright v. Lawson* on the plaintiff's appeal from a decision of Mr. Justice Kekewich in the Chancery Division giving judgment for the



defendant with costs. The case was reported in the *Builder* of February 7, 1903.

This was an action by the plaintiff, the lessor, under a lease dated February 24, 1888, of a house and shop situated in King's-road, Fulham, against the defendant, the lessee asking that the defendant might be ordered to restore the premises to the condition in which they were when the lease was granted by replacing a bay window which had been removed. It appeared that the lease contained a covenant by the lessee that he would during the term of the lease, as often as occasion should require, to the satisfaction of the lessor or her surveyor, "substantially and effectually repair, uphold, maintain, drain, paint, whitewash, and cleanse the premises for the time being held under this demise." On June 30, 1900, defendant was served with a notice by the London County Council, under the provisions of the London Building Acts, 1894 and 1898, to take down or secure the brickwork of the external walls and bay window (which was on the first floor), so far as it was cracked, bulged, loose, sunk, overhanging, out of the upright, or otherwise defective. The notice also called upon the defendant to shore up the bay window and the back door. The defendant instructed a builder to comply with the notice, and the window was taken down. As the house was old, it was found impossible to re-erect the window as it was before without its being condemned as dangerous by the Council, so defendant built a new window set back in the main wall of the house.

Mr. Justice Kewich held that erecting a new bay window, supported by columns, could not be regarded as the repair of the old bay window, and the defendant was not liable, and gave judgment, as before stated, for the defendant with costs. Hence the present appeal of the plaintiff.

Mr. Justice Kewich, K.C., and Mr. P. Wheeler appeared for the appellant, and Mr. Warrington, K.C., and Mr. Eustace Smith for the respondent.

At the conclusion of the arguments of counsel, Lord Justice Vaughan-Williams, in giving judgment, said that the decision of the Court of Appeal in the case of "Lister v. Lane and Nesham," having been applicable to the present case. Having regard to the nature and condition of the house as found by the learned judge at the trial, it was impossible to come to any other conclusion than that the learned judge was right, both upon the law and upon the facts. In these circumstances the appeal must be dismissed with costs.

The other Lords Justices concurred.

#### WORKMEN AND THEIR CONTRACTS.

At the Manchester County Court on the 25th inst. a riveter named Thomas Heywood brought an action against Messrs. M. A. Potts & Co., engineers and iron bridge to be built for the Great Northern Railway of Ireland. The men went to Newry, their fares being paid by the defendants. When they arrived, however, they found that there was neither material nor "tackle" ready at the site of the bridge. They were kept at Newry a fortnight, and were then directed to return. When they reached Manchester they went to the defendants' place of business, and were paid their wages for ten hours, that being the time occupied in travelling to Ireland. They were paid for the fortnight they remained in Ireland. They were not satisfied, and the following day were paid for an additional eleven hours, the time occupied on the return journey. They then stated, through Heywood, that they considered they were entitled to some compensation, as in the ordinary course the work would have occupied a month, and asked for 5*l.* a man. This was declined and the present action brought.

Heywood, in evidence, said the men had difficulty in getting work when they returned.

Other evidence was given, and it appeared that an iron bridge to be built for the Great Northern Railway of Ireland, the men went to Newry, their fares being paid by the defendants. When they arrived, however, they found that there was neither material nor "tackle" ready at the site of the bridge. They were kept at Newry a fortnight, and were then directed to return. When they reached Manchester they went to the defendants' place of business, and were paid their wages for ten hours, that being the time occupied in travelling to Ireland. They were paid for the fortnight they remained in Ireland. They were not satisfied, and the following day were paid for an additional eleven hours, the time occupied on the return journey. They then stated, through Heywood, that they considered they were entitled to some compensation, as in the ordinary course the work would have occupied a month, and asked for 5*l.* a man. This was declined and the present action brought.

Mr. Acton, for the defendants, contended that, under the circumstances, there was no case for a writ of *damnum solvendi*. The contract, under which the men were engaged did not, he said, specify any time, and was subject to the contract with Messrs. Cooper going through. In the course of argument the judge pointed out that the defendants had abandoned the contract. Whether the defendants had their remedy against Messrs. Cooper he did not know, because he had not the facts before him and was not asked to decide that point. He gave judgment for the plaintiff for 4*l.*

It was agreed that this verdict should apply to other ten of the workpeople concerned, and that three, who were described as boys and whose wages amounted to 25*s.* a week, should be awarded 2*l.* 10*s.* each.

Leave was granted to Mr. Acton to appeal—*Manchester Guardian*.

#### CROW v. DAVIS.

"PERSONS OF THE WORKING CLASS."—OPINIONS OF THE HIGH COURT.

This case, which arises under Sections 13 (5) and 47 of the London Building Act, 1894, came before the Lord Chief Justice, Mr. Justice Wills, and Mr. Justice Channell in the King's Bench Division on Tuesday, May 10, as an appeal from the decision of Mr. Haden Orser, a Metropolitan police-court magistrate sitting at Worship-street.

The material facts of the case are as follows:—On February 10, 1902, the respondent, Moses Davis, who is a builder and property owner, served the appellant, Arthur Crow, District Surveyor for Whitechapel, &c., with notices under Section 145 of the Act setting forth his intention to erect five shops and private houses in Spelman-street and Chickens-street, Whitechapel. He also submitted plans of the principal floors of the buildings for the approval of the District Surveyor.

Upon consideration of these the District Surveyor, on February 25, 1902, served the respondent with "notices of objection" under Section 150 on the ground that the proposed buildings would contravene Section 13 (5) of the Act of 1894, as amended by Section 47 of the Amendment Act of 1898 which provides *inter alia* that "no dwelling-house to be inhabited or adapted to be inhabited by persons of the working class shall without the consent of the Council be erected or re-erected within a distance of 20 ft. from the centre of the road to a right of way exceeding the distance of the front or nearest external wall of such building from the opposite side of such street."

Upon receipt of the "notices of objection" the builder appealed to the magistrate, who, after hearing the facts and arguments of counsel on March 20, 1902, and subsequent days, disallowed the objection of the district surveyor. He, however, on the application of the London County Council, who were supporting the action of the district surveyor, consented to state a case for the opinion of the High Court, which was subsequently drawn up and approved.

The chief points set forth in the case so stated by the magistrate are the following:—*Clause 10.*—The appellant relied upon certain features of the houses as showing that they were adapted and intended to be occupied by persons of the working class. These features were, in the case of house No. 1, which may be taken as an example, as follows:—

(a) The large number of rooms, viz., thirteen.  
(b) The number of water closets, viz., there being one in the basement, one on the ground floor, and one on the first floor.

(c) The presence of what are called "passage-rooms," that is to say, rooms arranged in pairs so that the inner room is only approached by passing through the outer room, and therefore adapted to be let together as a parlour and a bedroom.

(d) The number, viz., three of sinks or basins and corresponding water-taps, namely, one in the basement, one on the ground floor, and one on the first floor.

(e) The separate entrance giving access to the house without passing through the shop.

(f) The absence of the conveniences usual in a house of this size intended for occupation by a single family—that is to say, the absence of any coal-cellar, pantry, larder, wood-store, scullery, bathroom, lavatory, or hot-water service.

*Clause 12.*—The respondent produced an agreement dated March 10, 1902, for letting house No. 1 to a Mr. Isaac Bayne for one year at a yearly rent of 15*l.*, and a premium of 10*l.* He also produced an agreement dated December 12, 1901, for letting house No. 3 to a Mr. Goldstein for twenty-one years (determinable as therein provided), at a yearly rent of 115*l.* I was not satisfied that either Mr. Barr or Mr. Goldstein was in a position to pay the rent of his house without letting off some part.

*Clause 13.*—The immediate neighbourhood is almost entirely inhabited by persons of the working-class, and the surrounding circumstances are such that in all probability the houses, when finished, would be occupied chiefly by persons of the working-class. At the time when the respondent gave the building notices in respect of these houses he knew that they would in all probability be occupied by persons of the working-class.

*Clause 14.*—The houses when completed would not be specially adapted for habitation by persons of the working class only. They would be suitable for occupation by any persons living in a small way, whether belonging to the working class or not.

*Clause 19.*—I was of opinion that the respondent had no intention that the houses should be occupied by persons of the working class only, but that he intended them for occupation by any one who would take them. I was further of opinion that the present case was governed by the case of "L.C.C. v. Davis." I therefore decided to disallow the appellant's objection and to allow the appeal.

Mr. Avory, K.C., Mr. F. F. Dady, and Mr. A. S. Poyser were for the appellant; Mr. Cripps, K.C., and Mr. Clavell Salter for the respondent.

The Lord Chief Justice, in giving judgment, said: "After listening to the arguments of Mr. Avory and Mr. Cripps I have come to the conclusion that the case requires further consideration by the magistrate. I am not satisfied myself that the learned

magistrate has applied the proper test to either of the two questions of fact, or, in other words, . . . I think it is quite possible that he may have misdirected himself with regard to the way in which, if he has approached the question of fact, and has thereby misdirected himself in law. His first finding is:—'The houses when completed would not be specially adapted for habitation by persons of the working class only. They would be suitable for occupation by any persons living in a small way, whether belonging to the working class or not.' Now I confess I really do not quite understand what that means. If it means a class of persons who would be liable, whose surroundings and families, and whose living would be liable in some respects to the overcrowding that was contemplated no doubt in connexion with the legislation, I should have doubted whether it would have made any substantial difference, and, speaking for myself, I am rather inclined to think that on this question of adaptation the kind of question that ought to be considered by the learned magistrate would be:—'Whether it was adapted for habitation by persons who would live as the working classes do; that is to say, in small flats or separate tenements, all, so to speak, in the same house, as I think it is the true view of this section is that you have got to see whether the house is adapted to be inhabited by persons of the working class (meaning thereby a class of persons who would live in two or three rooms, and who would be likely to take two or three rooms in a house for the purpose of doing for themselves in those rooms without having any connexion at all with the rest of the house), then I think it might be quite possible that the learned magistrate in considering the question of 'adapted to be inhabited by persons of the working class only,' has excluded from his mind some of the broad considerations that he ought to have considered with reference to the overcrowding or the habitability of houses of this class. Now I pass on to another finding of fact, which, if it is to be taken as binding upon us, is, I think, conclusive under the case of the London County Council v. Davis with reference to the question of intention: I agree with what has been said both by Mr. Justice Hawkins and by Mr. Justice Channell in that case that the words 'to be inhabited by persons of the working class only' are intended to be interpreted. Now, the finding is: 'The respondent had no intention that the houses should be occupied by persons of the working class only, but that he intended them for occupation by any one who would take them.' That seems to me to exclude what I should call the natural construction of the way in which the houses would be occupied as they were built and constructed. If he constructed them in such a way that it was practically certain that they would only be inhabited by persons of the working classes, then the fact that he intended them for occupation by any one who would take them, meaning thereby that some persons would come along who might be willing to take a particular house out of a series and not occupy them or not underlet them for the purposes of the working classes, would not be sufficient. But coupling that as I do with the statement in the case that he does not think either of the lessees would have taken the houses for the purposes of occupation if they were not going to underlet part, it seems to me that he may have excluded from his consideration the question of whether or not the houses as constructed by the respondent were intended to be occupied by persons of the working classes, even although there may have been an intermediate tenant. I am not surprised to find in such an Act of Parliament certain difficulties, but I do not think whether in this case, applying the ordinary considerations to these words, the learned magistrate has not gone too far by limiting the scope of that adaptation, and by limiting the scope of the intention which is indicated, as I have said, by the introduction of the words 'special' and 'only' with regard to adaptation, and by the word 'only' with regard to intention. It is because I think that the learned magistrate has not considered those two phrases from a sufficiently broad standpoint that I think there ought to be a further consideration of the matter by him. I think he has rather felt himself bound by the finding of fact in the London County Council v. Davis, as well as by the finding of law. I must say, speaking for myself, that if I had to treat this matter as a question of fact, on the facts of this case, both from the point of view of adaptation and intention, it seems to me to be far stronger in favour of the view that the houses were intended to be inhabited, and adapted to be inhabited, than they were in the London County Council v. Davis."

Mr. Justice Wills said: "I am of the same opinion. It may very well be that the learned magistrate may arrive at the same conclusion that he has already arrived at, but I cannot help feeling that apparently he has put too much stress on that word 'only,' both with regard to adaptation and with regard to intention. With regard to adaptation, it seems to me that it is difficult to say that it is necessary that these should be adapted only to persons of the working classes if they are adapted substantially for persons who are liable to the same difficulties in respect to overcrowding, and who, in that sense, belong to the same class as the working classes. Then with regard to the question of inten-



tion, I cannot help thinking that what he means is that the person who built them, or the person who was intending to build them, was indifferent as to who would be his tenants so long as he could let them, but that their ultimate destination, in whose hands they were, was that they were to become working class tenements, or to be occupied by persons of the working-class. . . . If he meant that, it is difficult to say that he did not contemplate it. He intended that they should be occupied by persons of the working class, therefore he intended them for persons of the working class.

"Mr. Justice Channell said: 'I agree, but I prefer, I think, to base my judgment upon the ground that the fourteenth paragraph of the case as to the adaptation for persons of the working class only is not satisfactory, and it does not seem to me to bring the case within what I personally think I meant and what I think my learned brother Hawkins also meant in the case which has been referred to. . . . In the present case the learned magistrate says—apparently has found, and on the facts that he has set out reasonably found, that this house was specially adapted in its construction for separate occupations—occupations of persons living in a small way—by which, I suppose, he means living in some apartments or a suite of apartments, but whether those persons so living in a small way belong to the working class is another thing. . . . If he means to find that those buildings were specially adapted in their construction for occupation as small dwellings, not that the shop and rooms above it were to be occupied together, but specially adapted to the other, I should have thought that he had found facts which would bring it within this provision, because, as I do not see—as I said on the former occasion, as the learned magistrate says—how you can say that a room is specially adapted for a man belonging to the working class as distinguished from a clerk or any person of small means but earning his own living in any way. It must mean, I think, so adapted for separate dwellings as that it is likely that a large number of persons would be living in the house; and if so, it comes within the mischief of the Act.'

#### HOME AND COLONIAL STORES, LTD., v. COLLS

In this case the defendant, Mr. Colls, the appellant in the House of Lords, proposed to erect a building in the City of London on the opposite side of the street to that on which the plaintiff's premises were situated. The new building would deprive the plaintiff's premises of some of the light to which they were accustomed, but would not affect the selling or letting value of the premises, which would, after the proposed buildings had been built, still be well and sufficiently light for all ordinary purposes of occupation as a place of business. Mr. Justice Joyce, who tried the action, following a decision of Mr. Justice Wright given a short time before in the case of *Warren v. Brown*, held that the plaintiff had no cause of action. Both *Warren v. Brown* and the present case were reversed by the Court of Appeal, that Court, although differently constituted when the respective appeals came before it, holding substantially in each case that if ancient lights were interfered with and real damage caused to the tenant or owner, an action would lie. In the present case the Court of Appeal granted an injunction restraining Mr. Colls from erecting the proposed new premises higher than the old buildings that stood on the site previously, and from that decision Mr. Colls now appealed. The facts, together with the arguments for the appellant, were fully reported last week.

Mr. Bray, K.C., Mr. O. Leigh Clare, and Mr. A. B. Nutter (instructed by Messrs. Hyde, Tandy, Mahon, & Sayer) appeared for the appellant; while Mr. Haldane, K.C., Mr. Hughes, K.C., and Mr. W. E. Vernon (instructed by Messrs. Slaughter & May) represented the respondent company.

May 22.—Mr. Haldane, continuing his argument for the respondents, said it was an answer to an objection, that the proposed new premises would interfere substantially with the ancient light the respondents had formerly enjoyed as tenants of the property that would be adversely affected when the new buildings were erected, to say that, although the light was diminished, yet abundant light would remain for all ordinary purposes of inhabitation or business. That was so held in terms in *Warren v. Brown* by the Court of Appeal (Lord Alverstone, Lord Chief Justice, Vaughan Williams and Romer, Lords Justices), and their decision had not been appealed against. He did not suggest that the slightest infringement of light was ground for an injunction, but he contended that the measure of light to which a tenant or owner was entitled was the light which as occupier of the premises he had hitherto enjoyed. The Court was not entitled to go into the question of whether sufficient light would remain for ordinary purposes. If substantial damage was proved as likely to follow, then the occupier was entitled to come to the Court and ask that the building owner should be stopped building.

The Lord Chancellor pointed out that in this case the Home and Colonial Stores had only some ten years to run of their tenancy; that their buildings were not modern; and that probably when the lease ran out they would be replaced by higher and more up-to-date premises. If the injunction were rightly

granted now against Mr. Colls, and he was compelled to curtail his new buildings in height, then, when the time came when the respondents wished to rebuild, he might have a similar right, or should have, against the present respondent company. If that was so, how was a building owner in the City ever to improve his property? One knew the value of ground rents in the City, and it seemed to him that this "dog-in-the-manger" policy ought not to be encouraged.

Lord Davey remarked that where a man had a right given him by prescription or otherwise, he was justified in coming to the Court to have it preserved if it was threatened by the wrongful act of another party. The parties could agree to compensation for the interference of a right, but their ability to do so did not affect a man's legal right to say to the other, "You may not build on your property in such a way as to injure mine."

Mr. Haldane said that really was his whole contention, and he had the decision of the Court of Appeal in his favour.

The Lord Chancellor: But every one has to give up some right as the price to be paid for the privilege of living as a member of a community. If he wants everything his own way entirely he must live on an island like Robinson Crusoe.

The learned counsel then referred to numerous cases including *Parker v. First Avenue Hotel Co.*, 24 Ch. D. 282; *Martin v. Price* (1834), 1 Ch. 276; *Smith v. Baxter* (1900), 2 Ch. 138, where mere interference of light had been held to give a cause of action, and, in conclusion, pressed their Lordships to affirm the decision of the Court of Appeal.

Mr. Hughes followed on the same side. The decision of *Warren v. Brown* being no longer in favour of the appellant, upon the facts of this case the respondents were clearly entitled to the injunction granted. If the appellant's new buildings remained, they must cause a substantial and material diminution of light to the two ground-floor windows in question. It followed the respondents must suffer damage by reason of the diminution of light, and any substantial diminution gave a right of action.

The Lord Chancellor: The question of interference with light, Lord Justice Romer pointed out, was to a great extent one of expediency. You must have regard to the exigencies of life and the ordinary amenities of life. He said you must look at the question from a broad point of view.

Mr. Hughes replied that the appellant in the present case had chosen to go on with and complete his building after judgment, and on the authority of *Shelfer v. City of London Electric Lighting Co.* (1885), 1 Ch. 287, the occupier of the adversely affected premises was not forced to accept damages under Lord Cairns's Act, but was entitled to a mandatory injunction.

Lord Davey, one of the members of the Court of Appeal, pointed out that the elastic rule of our predecessors had given way to the hard logic of recent decisions, and although the learned Lord Justice thought that a different rule should be applied to light and air cases in towns from that which prevailed in the country, "nevertheless, recent decisions entitled you to your pound of flesh."

Mr. Hughes, in conclusion, said the respondents relied simply upon their legal right, and had asked for a mandatory injunction, as in *Parker v. First Avenue Hotel Co.* (1883), 24 Ch. D. 282, which, he submitted, exactly applied to this case. There, as here, the defendants chose to go on with their building after the judgment appealed from, and the Court of Appeal held that the plaintiff was entitled to a judgment on special verdict, and he should have had at the trial. For the reason they submitted that the respondents were at the time when the order of the Court of Appeal was made, and were now, entitled to be placed in the position in which they would have been if the judgment to which they were entitled at the trial of the action had been pronounced then in their favour.

Mr. Bray, in reply, said no doubt the strongest case in the respondents' favour was *Parker v. First Avenue Hotel Co.*, but the Court then did not lay down as a matter of principle that there must be a mandatory injunction instead of damages.

The Lord Chancellor said they would take time to consider their decision.

#### PATENTS OF THE WEEK:

##### APPLICATIONS PUBLISHED.\*

9,393 of 1902.—R. W. BARKER (L. H. HAMMITT and O. A. BRASETH): *Ventilating and Perfuming Rooms.*

This consists of the use in a compartment of the combination of a series of pipes, a blower, a motor for the blower, an air-supply pipe, a series of discharge nozzles, valves controlling the same, and a perfuming device connected with the pipe system for ventilating and perfuming rooms.

10,980 of 1902.—W. THORPE: *Pipes, and the Method of Venting, or Siphoning.*

In joining pipes, a device comprising a cam-shaped projection or lining in the socket of the pipe, a cam-shaped projection or collar on the spigot end of a smaller pipe, said cams being

\* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

adapted to lie upon one another when in position, so as to nearly fill the space usually allowed at the joint, and to be slidden upon one another so as to form a tight joint.

9,870 of 1902.—G. C. MARKS (O. W. NORCROSS): *Flooring of Buildings.*

A flooring resting on separate supports, and consisting of concrete with metallic network so arranged therein that the amount of metal will be greatest at the joints where the greatest tensile and shearing strains are to be supported. It also consists in the combination of separate posts or supports, and a flooring consisting of metallic network formed by strips of wire netting enclosed therein, so as to radiate from the posts or supports on which the flooring rests.

2,372 of 1903.—E. EATON, W. PFEIFER, and C. HERBERT: *A Process of Producing Building Bricks or Blocks and Apparatus for use therewith.*

This consists in the construction and arrangement of a cage or truck for conveying and containing bricks or blocks to and from the steaming chamber, by the use of which the steam has free and uninterrupted access to said bricks and blocks in the course of drying, through a central perforated steam-pipe and plates of truck or cage.

10,020 of 1902.—W. E. FARRER: *Penslocks.*

A penstock sewage valve, or the like, with a raising gear made up of bars in lattice form.

3,320 of 1903.—HARDY & PADMORE, LTD., and J. SOUTHALL: *Ventilating Shafts.*

An air-ventilating shaft, according to this invention, has the passage by which the gaseous matter ascends made of non-conducting material, the object being to reduce as much as possible the cooling of the gases on their way to the outlet of such passage. One form of construction may thus consist of an outside hollow metal pillar provided with an internal shaft made of stoneware piping, inside which the gaseous matters can ascend.

10,723 of 1902.—T. T. BEST and THE UNITED ALKALI CO., LTD.: *Apparatus for Slaking and Dressing Substances, more Especially Intended for Slaking and Dressing Lime.*

An apparatus for slaking and dressing lime, or other substances, the said apparatus consisting of, or comprising, a rotatable cylinder and means for admitting water thereto and for discharging, or allowing of the withdrawal of, the lime, or other substances, therefrom; the said cylinder being provided with an inlet for the lime, or other substances, to be treated, and being in communication with means for causing a current of air to pass through the cylinder.

23,254 of 1902.—E. N. SHUTE and W. BURGESS: *Construction of Partitions and Ceilings.*

A partition or ceiling constructed of blocks of plaster or other suitable material having grooves in their opposite edges to receive stanchions, joists, or rods, which are placed in position as the partition or ceiling is being erected.

13,276 of 1902.—E. PARRY and F. W. RIDDER: *Gully Frames and Grids.*

A gully frame having openings at the sides, and also grooves on the underside of the foot, or flange, for the purpose of allowing water to flow into a cesspit, or earthenware or other gully.

4,805 of 1903.—C. W. STANTON: *Ventilated Structures.*

An enclosed structure provided with a condensing apparatus communicating with the interior thereof, a cooling, condensing, and carrying-off medium upon the inside space, and means adapted to receive the said cooling, condensing, and carrying-off medium, and to prevent the admission of outside air to the air passage.

13,536 of 1902.—THE CASTNER KELLNER ALKALI CO., LTD., and A. T. SMITH and H. BAKER: *Means of Preparing Slaked Lime and of Heating and Purifying Water.*

The preparation of slaked lime in vessels closed to the air, but provided with exit pipes for the heated air, steam, and lime dust, which latter are conducted to a washing or condensing apparatus and there taken up by a suitable liquid.

13,830 of 1902.—G. ARCHER: *Fire-escapes.*

The ladder is capable of being attached on buildings of any height. At the top of the ladder are grooved pulleys which travel along a rod fixed round top of the building by means of brackets fixed in the wall. The means of running the ladder along the face of a building is provided by light wire ropes attached to top of ladder. Sliding platforms adjusted to the back of the ladder allow it to be used from either side of windows, from which a person can step on to a ladder with safety, the idea of sliding platforms being to avoid the ladder and persons escaping being caught by any fire issuing from windows.

24,359 of 1902.—A. WEBER: *Manufacture of Substitutes for Stone, Wood, Cork, and the like.*

A process of manufacture of a substitute for stone, wood, cork, whereof the main feature is that sawdust, wood shavings, grinding, or chips, or other wood fragments, no matter how divided, after having been subjected to a preparatory treatment with lime water or lime milk, are, in the ground or underground condition, mixed with pumice powder, cement, burnt clay, and acidulated clay water, whereupon scrap iron and sulphuric acid are added thereto; the ingredients of the mixture being then



made to react upon each other, and the whole being loosely, thoroughly mixed and stamped and kneaded, or, if necessary, worked in a tall mill, for the purpose of producing a plastic, or mouldable, material wherein all particles of wood are effectively shut out from contact with air.

27,804 of 1902.—B. J. B. MILLS (A. BOYEN and A. MORA, JUN.): *Process of Dyeing or Colouring Marble, Onyx, Calcareous Stones, in an Unbaked or Baked Condition.*

A process of dyeing or colouring calcareous stones, marbles, and other materials, in portious consisting in the use of colours unattainable by alkaline products mixed with one or several of these said products and spongy materials impregnated with these different colours placed in a grill or grating on the surface of the said materials and limiting the extent of each dye or colour.

28,679 of 1902.—C. G. LAIDE: *Process for the Manufacture of Artificial Building Materials and the like.*

A process of manufacturing substitute or artificial building materials, such as artificial stones, woods, and the like, which consists in incorporating acetate of lead with the ingredients to the preparation of these products, for the purpose of preventing oozing from the latter.

4,068 of 1903.—G. A. MOWER: *A Portable Blowing or Ventilating Apparatus.*

This invention relates to portable blowing or ventilating apparatus for blowing air into the electric light, cable, and telephone manholes, sewers, wells, graves, trenches, coal bunkers, petroleum tanks, boilers, digesters, flues, and the like, and comprises an air blower of the rotary type mounted on a wheeled carriage or hand truck, so that the apparatus may be conveniently conveyed from place to place.

10,930 of 1902.—H. L. DOULTON and R. J. PLEACE: *Water Valves.*

In valves, the attachment of a chamber through which water first passes, and in which is ground a hollow plug having apertures so arranged as to allow hot, cold, or tepid water to be drawn according as the valve handle is turned.

10,175 of 1902.—J. B. HARRIS: *Smoke-Consuming Furnaces and Fireplaces.*

In a smoke-consuming furnace, the arrangement of a hot-air pipe in the wall of the furnace opening at one end into the open air, and at the other end into an air-chamber between the fire box and the combustion chamber of the furnace, and perforated tubes connected with the said air-chamber and extending into the combustion-chamber.

10,675 of 1902.—W. RAYNER: *A Sash and Door Suspender and Fastener.*

A sash, door, or other sliding-frame suspender and fastener in the form of a crescent—with a handle pivoted to a surface with a frame and spring to hold the said crescent in position.

12,408 of 1902.—MAY & PADMORE, LTD., and W. J. MAY: *Manufacture of or Production of Certain Types of Fanlight, Ventilator, and Similar Openers.*

These relates to fanlight, ventilator, and similar openers, and consists of making the bracket fittings to which the connecting stay links are hinged from cut-out sheet metal blanks fashioned into the desired form by dies, press tools, or the like.

14,409 of 1902.—R. GEMINIANI: *Swing Doors.*

This consists of swing-door opening and closing devices in which the opening of one door in one direction effects the opening of the other door in the same or opposite direction, and the closing of the said doors is effected by means of a spring or springs acting upon the doors through the intervention of racks and pinions, or of chains and sprocket wheels.

14,727 of 1902.—W. STORR: *Manufacture of Window and Other Glass, Vases, and Other Objects of Glass, Porcelain, or Other Ceramic Material.*

The manufacture of window glass, vases, basins, and other articles of glass, porcelain, or like material, consisting in applying to the glass or other material a veining of an electric conducting mixture, and then electrically depositing a suitable metal thereon.

15,943 of 1902.—D. T. DONALD: *Decorative Coverings for Hangings, or Walls or Other Surfaces.*

A covering for walls or other surfaces having a face of canvas or other woven fabric, and a backing composed of paper with a coating of pitch or other suitable waterproofing material, a layer of cotton scrim or other suitable open or net-like woven fabric being applied over the waterproof material so as to constitute the inner surface of the covering.

16,309 of 1902.—TOKYNS, LTD., and W. SPARKS: *Fan light and Casement Openers.*

A fanlight or casement opener consisting essentially of the following construction and arrangement or combination of parts, namely, a foundation plate to be attached to the fixed frame of the window, the said foundation plate carrying two axes or spindles in parallel planes, but crossing one another at right angles, one of the said axes having on it a worm terminating at its outer end in a cord pulley, and the other carrying an operating arm or lever, the short arm of which is nearly circular, and has worm-wheel teeth upon its periphery engaging and

gearing with the worm on the rotation of the cord pulley; the long arm of the operating lever having a pin engaging in a slot in a plate to be attached to the hinged fanlight or casement frame of the window.

25,585 of 1902.—D. BARCLAY, JUN.: *Latrines.*

A latrine consisting of a basin having an open mouth at its base, outwardly diverging back, and side walls extending from the upper edge of the mouth, and a seating between the practically flat face of the basin and the front edge of the mouth.

3,630 of 1903.—P. M. JUSTICE (THE ACHESON CO.): *Manufacture of Earthenware and Ceramic Products, and the Preparation of Clays, Silicious Compounds, and Earthy Minerals for the Manufacture of Such Products.*

The new manufacture of earthenware, resulting from treating a body material with a modifying agent having effects like those due to the effects of tannin thereon, possessing the characteristics of increased strength and plasticity, and decreased absorption of water and shrinkage in drying.

4,929 of 1903.—W. B. H. DRAYSON: *Water closs.* A water-closet basin, supported from the wall by cantilevers or brackets, in combination with a lead trap, so connected to the said basin that its position may be varied according to the relative positions of the said basin and the soil-pipe.

7,104 of 1903.—W. L. EVANS, JUN.: *Spring Hinges.* A hinge for the connection of a sliding member adapted to be operated by the movements of the door, and to be independently rotated, of a spring mounted on the sliding member, and adapted to have its tension varied by the rotation of the member.

## MEETINGS.

FRIDAY, MAY 29.

Royal Institution.—His Serene Highness Albert Prince of Monaco on "The Progress of Oceanography." 9 p.m.

SATURDAY, MAY 30.

Edinburgh Architectural Association.—Visit to Perth and Stone. 8 p.m.  
Royal Institution.—Professor Silvanus Thompson on "The 'De Magnete' and its Author." I. 3 p.m.

TUESDAY, JUNE 2.

Royal Institution.—Professor E. J. Garwood, M.A., on "The Work of Ice as a Geological Agent." II. 5 p.m.  
Glasgow Architectural Association.—Business meeting. 8 p.m.

WEDNESDAY, JUNE 3.

Royal Archaeological Institute.—(a) Mr. J. H. Round, M.A., on "The King's Painter." (b) The Origin of Baldoche. (c) Professor E. McKenny Hoche, M.A. F.R.S., F.S.A., on "Buried Cities, with Special Reference to Herculanum." 4 p.m.  
Builders' Foremen and Clerks of Works' Institution.—Ordinary meeting of the Association. 8 p.m.  
Nottingham Architectural Association.—Visit to the Consett Iron Company's Works. Members to assemble at Blackhill Station at 6.10 p.m. upon the arrival of the 5.20 p.m. train from Newcastle.

THURSDAY, JUNE 4.

Royal Institution.—Professor J. A. Fleming, M.A., on "Electric Resonance and Wireless Telegraphy." II. 4 p.m.

SATURDAY, JUNE 6.

Royal Institution.—Professor Silvanus P. Thompson on "The 'De Magnete' and its Author." II. 3 p.m.

## SOME RECENT SALES OF PROPERTY:

### ESTATE EXCHANGE REPORT.

May 15.—By READERS & SONS (at High Wycombe).  
Princes Risborough, Bucks.—Station-rd., two plots of land, f. 2,280  
Market-sq., two houses and shops, f. yr. 47l. 15s. 845  
Aylesbury-rd., freehold building, with two cottages and land adjoining, area 2 a. 2 r. 20 p. 505  
Monks Risborough, Bucks.—Church-st., house and shop, f. yr. 22l. 400  
Church-st., two freehold cottages, w.r. 13l. 13s. 100  
High-st., blacksmith's shop and forge and two cottages adjoining, f. yr. 17l. 300  
Whiteleaf, Bucks.—Whiteleaf house and 13 a. 3 r. 6 p. f. and c. 4,450  
The Limes and Bijou Cottages, f. yr. 810  
Thirteen freehold cottages 1,310  
Three freehold building sites 700  
Jubilee Park, with cottage thereon, 2 a. 2 r. 20 p. f. 375  
Upper Cassden, Bucks.—Two freehold cottages.. 175  
Two freehold sites 270  
Enclosure of building land, 11 a. 1 r. 6 p. f. 490  
Two copyhold cottages and ground 385  
Rumborough (building site), 8 a. 3 r. 14 p. f. and c. 400  
Speen, Bucks.—Lodge House and King's Wood farms, 148 a. 0 r. 23 p. f. 2,275  
Freehold cottage and o. a. 1 r. 2 p. 145  
By D. SMITH, SON & OAKLEY (at Exeter).  
Broadmead, Devon.—Four small holdings, 64 a. 2 r. 25 p. f. 1,930  
Two freehold enclosures, 6 a. 0 r. 6 p. 185  
Smock and Twinnicks fields, 5 a. 2 r. 4 p. f. 105  
Cramer Farm, Devon.—1 a. 1 r. 38 p. f. 3,250  
Two freehold cottages and 1 a. 1 r. 25 p. 150  
Ugton Farm, 293 a. 2 r. 20 p. f. 6,000  
Bovey and Home Bovey fields, 9 a. 1 r. 21 p. f. 355  
The Red Lion Inn and 1 a. 2 r. 26 p. f. 1,580  
Nineteen cottages, shop, and parish reading-room, f. yr. 84l. 5s. 2,670

Two cottages, orchard land, &c., 3 a. 1 r. 5 p. f. 427  
Four cottages and o. a. 3 r. 9 p. f. 130  
Bridge End Farm, 15 a. 0 r. 19 p. f. 1,150  
May 16.—By WILLSON & PHILLIPS (at Rayleigh).  
Rayleigh, Essex.—The Mill-lane meadows, 30 acres, f. 2,212  
London-rd., enclosure of land, 5 a. 2 r. 19 p. f. 250  
Down Hall-lane, two freehold cottages 135  
Southend, Essex.—4, Nelson-rd. (S), f. yr. 70l. 1,225  
By WRIGHT & SCRUBY (at Cambridge).  
Reach, Cambs.—Farmhouse and homestead, also several enclosures of land, 58 a. 2 r. 27 p. f. (in lots). 1,893

May 18.—By G. BRINSLEY & SON.  
Clapham—2, Clitherow-rd., ut. 70 yrs, g.r. 12l. 455  
By FISHER, SPANHOPE & DRAKE.  
Stanford Hill—156, Bethune-rd., ut. 74 yrs, g.r. 12l. 800  
Clapton—2 and 2A, Rendlesham-rd. (house, also stabling), f. yr. 62l. 735  
Dalston—94, 95, and 98, Sandringham-rd., ut. 58 yrs, g.r. 21l. 1,275

By MAY HOUGHTON.  
Walthamstow—Wood-st., The Woodman b.-h., with cottage adjoining, f. p. 8,000  
The Aves, two freehold building sites 1,000  
159, Markhouse-rd., f. yr. 26l. 410  
39, Brunner-rd., f. w.r. 14l. 6s. 120  
Mile End—121 and 123, Enfield-rd. (factory, &c.), area 5,100 ft., f. yr. 68l. 1,520  
Bow—7 and 9, Vernon-rd., f. w.r. 75l. 950

By MAY & CO.  
Wapping—26, Red Lion-st., f. yr. 42l. 345  
Finchley—Woodside Grange-rd., Beechcroft and Teviotdale, f. yr. 98l. 1,315  
Holden-rd., plot of freehold building land 240

By MAY & ROWDEN.  
Whitechapel—57, High-st., C. yr. 90l. 1,780  
Minories—16, America-sq. (warehouse, &c.), area 1,298 ft., Corporation lease, g.r. 24l. 1,530  
By A. SAVILL & SONS.

Harlow, Essex.—Churchgate-st., The Collegiate School, area 1 a. 0 r. 24 p. f. p. 925  
Felstead, Essex.—Shatterglass and Stevens' Farm, 148 a. 2 r. 25 p. f. p. 1,560  
Six enclosures of land, 28 a. 0 r. 35 p. f. 400  
Two cottages with enclosures, 9 a. 1 r. 33 p. f. 410

By F. VARLEY & SON.

Highbury—24, Aubert Pl., ut. 78 yrs, g.r. 17l. 75s. yr. 44l. 505  
Finsbury Park—19, Turk-rd., ut. 24 yrs, g.r. 10l. 20s. yr. 55l. 450  
Caledonian-rd., 33, North-rd. (S), ut. 58 yrs, g.r. 8l. yr. 60l. 725  
Holloway—19, Yonge Park, ut. 48 yrs, g.r. 8l. 20s. yr. 45l. 390  
Hornsey—64, St. Mary's-rd., f. yr. 32l. 150

By T. B. WESTACOTT.

Mile End—27 and 29, Portman-pl., f. w.r. 41l. 12s. 710  
6, West-st., f. w.r. 16l. 18s. 250  
56, Seaport-rd., f. w.r. 18l. 4s. 350  
Camden Town—226 and 228, Great College-st., ut. 36 yrs, g.r. nil, yr. 90l. 905  
138, Camden-rd., ut. 35 yrs, g.r. 5l. 8s. yr. 70l. 300

By J. D. WOOD & CO.

Notting Hill—8, Ladbroke-sq., f. yr. 100l. 1,550  
Holloway—141, 143, and 145, Junction-rd. (S.), f. yr. 134l. 1,375  
By H. J. WAY & SON (at Freshwater).

Totland, Isle of Wight.—Heath Cottage and 2 a. 2 r. 0 p. f. 750  
Freshwater, Isle of Wight.—Two plots of building land, f. 151

May 20.—By ANSLOME & RINGLAND.

St. John's Wood—1, 2, 4 to 8, Fairlop-pl. (stabling), w.r. 200l. 10s.; also 10l. 5s. ut. 124 yrs, g.r. 19l. 500  
9 and 10, Fairlop-pl. (stabling), ut. 13 yrs, g.r. 8l. yr. 54l. 200

By AUSTIN & AUSTIN.

City of London—39, Watling-st. (offices, &c.), ut. 24 yrs, g.r. 195l. yr. 450l. 930  
By H. J. BROWLEY.

Wandsworth—5, 7, 9, and 11, Hillier-rd., ut. 84 yrs, g.r. 26l. yr. 135l. 1,190

By DAVID BURNETT & CO.

Peckham—52 and 54, Copplestone-rd., ut. 76 yrs, g.r. 16l. yr. 72l. 690  
78 and 80, Avondale-rd., ut. 76 yrs, g.r. 12l. 630  
9, 64l. 630

Tottenham—2 and 4, Grove-rd., f. w.r. 24l. 655  
27, 29, 27, 31, and 33, Grove-rd., f. w.r. 141l. 6s. 1,370  
1, 3, 9 to 23 (odd), Victoria-cres., f. w.r. 319l. 16s. 2,110  
Calvert-rd., two corner plots of building land, f. 1,750

Stoke Newington—51 and 53, Milton-rd., ut. 49 yrs, g.r. 12l. yr. 70l. 650  
Islington—1, 11, and 24, Rheidol-rd.; 15 to 39, Rheidol-rd., mews and stables in rear, ut. 13 yrs, g.r. 30l. w.r. 410l. 4s. 1,700

Hoxton—10 to 44, 5 to 9, ut. 1 to 23, Minters-st. mews, ut. 23 yrs, g.r. 10l. yr. 350l. 4s. 1,780

By COCKETT & HENDERSON.

Snarebrook—Snarebrook, Buxted Lodge, f. yr. 85l. 1,100

By DEBENHAM, TAYSON, & CO.

A rent charge of 74 p. per annum, payable in equal moieties by the Boroughs of Finsbury and Shoreditch 200  
Totteridge—Totteridge-lane, West End House and 20 a. 2 r. 27 p. f. 1,700

Hendon Wood-lane, enclosure of land, 8 a. 2 r. 8 p. f. 1,060

Hendon Wood-lane, enclosures of land, 70 a. 2 r. 2 p. f. 7,000

Mill Hill—Three freehold cottages, also a farmhouse, f. yr. 66l. 8s. 4,900

Clapton—Springfield, f.g.r. 15l. reversion in 23 yrs 620

Springfield, f.g.r. 45l. reversion 20 yrs. 1,800

6, Springfield, f. yr. 80l. 1,200

Upper Clapton Common, f.g.r. 15l. reversion in 20 yrs 610

63, Clapton Common, f. yr. 45l. 780

By DENNANT & CO.

Ilford, Essex.—16 to 28 (even), Manor-av., ut. 95 yrs, g.r. 31l. 20s. yr. 150l. 20s. 405

Forest Hill—59, Gabriel-st., ut. 75 yrs, g.r. 4l. 10s. w.r. 37l. 10s. 285



St. Albans, Heris—Cotlands, and 7 a. r. p. 1. p.	£3,450
South Kensington 72, Cornwall-gdns., u.t. 58 yrs, g.r. 36, 194, p.	1,800
Thrydon Bois, Essex—3, Manor-villas and 3 acres, f. p.	1,075
By ORDEN, SONS, & OLLEY.	
Merton, 13 and 14, Fairlawn-villas, f. y. 741.	1,100
By G. KNIGHT & SON (at Midhurst).	
Repton, Sussex—Little Ben Farm, 42 a. o. r. 10 p. c.	1,750
By G. JACKSON & SON (at Hitchin).	
Edworth, Beds.—The Church Farm and 545 a. 1 r. 23 p. f.	8,700
The Lower Farm, 554 a. 3 r. 8 p. f.	6,000
By FIELD & BLADES (at Masons' Hall Tavern).	
Caledonian-road—No. 70, The Star and Garner p-b. f. g. r. 200, u.t. 67 yrs, g.r. 701.	2,300
Camberwell—Grosvener, The, Palmerton Arms, p-b. f. g. r. 105, u.t. 49 yrs, g.r. 301.	1,300
Kill-st., i.g.r. 108, u.t. 38 yrs, g.r. 581.	600
Depford—Hamilton-st., The Railway Tavern, i.g.r. 124, u.t. 123 yrs, g.r. 551.	930
May 30.—By THURGOOD & MARTIN.	
Tottenham Court-road—Nos. 126 to 134; also 2, 4, and 6, Warren-st.; 1 to 9, Fitzroy-court; 9, Whitfield-pl.; 3 to 10, 15 to 33 to 74, Rothwell-buildings (seven blocks) area 23,740 ft. 2, f. y. 3,394 75.	82,250
By B. BAILEY & CO.	
Hilford, Essex—Hilford, a freehold building estate, 74 a.	6,700
By DAVID J. CHATTELL.	
Blackley—77, Vesta-rd., u.t. 72 yrs, g.r. 81, e.r. 481.	350
By DYER, SON, & HILTON.	
Penge—134, 136 and 142, Beckenham-rd. (S), u.t. 64 yrs, g.r. 331, y.r. 1241.	1,200
By EDWARDS & SHERBARD.	
Putney—8, Burton-rd., u.t. 59 yrs, g.r. 111, e.r. 251.	1,010
Manor Park—35 to 49 (odd), Greenhill-gr., f. w.r. 1261.	1,250
By FOSTER & CRANFIELD.	
Enfield—Bush Hill Pk., "The Firs" and 2 a. f. p.	2,500
Kentish Town—Marsden-st., i.g.r. rents 60, u.t. 37 yrs, g.r. 61.	760
By HOBSON, RICHARDS, & CO.	
Fitchley—7 and 2, Moss-bank, f. y. 1001.	1,310
By MAY & PIERCE.	
Streatham—64, Streatham-hill, and 1 a., u.t. 194 yrs, g.r. 251 p.	1,650
Brixton—25, Acre-lane, u.t. 39 yrs, g.r. 301, e.r. 1201.	925
Kennington—79 to 85 (odd), Newburn-st., u.t. 51 yrs, g.r. 161, w.r. 671, 125.	675
By STOKES & PINDER.	
Natting Hill, Basset-rd., u.t. 72 yrs, g.r. 101, y.r. 1051.	775
By R. TIDY & SON.	
Stoke Newington—91, Lordship Pk., u.t. 59 yrs, g.r. 191, e.r. 1001.	675
Homerton—10, 12, 14, 16, 18, 20, and 32, Oriol-rd., f. y. 201.	2,495
15 to 61 (odd), Oriol-rd., f. y. 1201.	1,355
Finbury Park—38 and 40, Charter-rd., u.t. 616 yrs, g.r. 121, y.r. 741.	665
Barnsbury—Hemmingsford-rd., i.g.r. 541, u.t. 304 yrs, g.r. 61.	850
17, 18, 19, 21, and 25, Romney-rd., f. y. 2121.	3,655
42 and 44, Huntingdon-st., u.t. 65 yrs, g.r. 141, y.r. 91.	2,005
Caledonian-rd.—24, Stanmore-st., u.t. 374 yrs, g.r. 41, 1001, y.r. 321.	390
24, Luard-st., u.t. 374 yrs, g.r. 61, y.r. 321.	290
By WAGSTAFF & SONS.	
Clerkenwell—29 and 35, Northampton-rd., u.t. 39 yrs, g.r. 211, w.r. 1561.	490
Highbury—38, Horsell-rd., u.t. 38 yrs, g.r. 41, y.r. 441.	430
By HENRY HENDRICKS (at Birmingham).	
Birmingham—Oozells-st., The Bate Works, area 175 yds., u.t. 404 yrs, g.r. 471, 1251.	750
Oozells-st., The Atlas Works, area 2,121 yds., f. y. 351.	6,350
Earlwood, Warwick—Two freehold fields, 3 acres.	300
Henley-in-Arden, Warwick—162, 164, and 166, High-st., f. y. 211.	270
Moseley, Worcester—The Green, plot of freehold land.	285
Handsworth, Staffs.—37 and 39, Stafford-rd., u.t. 924 yrs, g.r. 101, y.r. 561.	635
By LOWE & SMITH (at Royston).	
"Golden Morden, Cambs.—Enclosure of land, 4 acres, 6 a. o. r. 22 p. f.	142
Morden Field, 12 a. 2 r. 13 p. f.	280
By WRIGHT & SCRIBBS (at Cambridge).	
Cherryhinton, Cambs.—Enclosure of land, 4 acres, f.	240
Freehold allotment with chalk kiln, 3 a. 1 r. 39 p. f.	525
Three plots of building land, 3 a. 1 r. 18 p. f.	490
House, two cottages, and garden land, c.	320
Dawes Lane and Bush Closes, 14 a. 3 r. 58 p. f. and c.	610
Farmhouse and 2 a. 1 r. 6 p. c.	450
The Robin Hood, b-h., f. y. 411.	650
Enclosures of building land, 15 a. 2 r. 12 p. f. and c.	865
Two enclosures of land, 28 a. 2 r. 9 p. f.	1,305
Duxford, Cambs.—Three enclosures, 23 a. o. r. 25 p. f. and c.	490
Landbeach, Cambs.—Freehold enclosures, 21 a. 1 r. 25 p. f.	930
Residence, Homestead, and 6 a. 2 r. 22 p. f. e.r. 501.	680
Rueben's Closes and four cottages, 3 a. 1 r. 2 p. f.	200
A freehold cottage.	135
Swasey, Cambs.—Freehold Dairy Farm, 62 a. 3 r. 12 p. f.	1,575
By MAY & PIERCE.	
Kentish Town—123 and 124, Kentish Town-rd. (S), u.t. 45 yrs, g.r. 241, y.r. 1601.	2,030
7, Dartmouth Park-rd., u.t. 50 yrs, g.r. 91, p.	650
Camden Town—15, Caroline-st., y.r. 301; also i.g.r. 241, u.t. 194 yrs, g.r. 141.	600

Holloway—146, Brecknock-rd., u.t. 39 yrs, g.r. 81, y.r. 501.	£463
5 and 6, Charles-st., u.t. 40 yrs, g.r. 121, w.r. 851, 165.	405
By MANNING & SONS.	
Kennington—22, Royal-rd., u.t. 40 yrs, g.r. 51, e.r. 341.	300
Brixton—24, Crawshaw-rd., u.t. 60 yrs, g.r. 54, 55, y.r. 391.	315
By MANNING & SONS.	
Ashwell, Rutland—"The Teigh Estate," 627 a. 1 r. 15 p. f. (including the manor).	14,250
By C. C. & T. MOORE.	
Whitechapel—66, Greenfield-rd., f. y. 321.	710
Bow—51 to 61 (odd), Swaton-rd., u.t. 59 yrs, g.r. 211, w.r. 2181, 85.	1,680
Stepney—149 and 153, Stepney-green, u.t. 60 yrs, g.r. 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 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## PRICES CURRENT (Continued).

## TILES.

Best Ruabon Red, brown or brindled Do. (Edwards) 5/6	per 2,000 at rly. depot.	
Do. ornamental Do. .... 6/0	per doz.	
Hip tiles ..... 4/0	per doz.	
Valley tiles ..... 3/0	per doz.	
Best Red or Mottled Staf- fordshire Do. (Peakes) 5/6	per 2,000	
Do. ornamental Do. .... 5/6	per doz.	
Hip tiles ..... 4/0	per doz.	
Valley tiles ..... 3/8	per doz.	
Best "Rosemary" brand plain tiles ..... 4/8	per 2,000	
Do. Ornamental Do. .... 5/0	per doz.	
Hip tiles ..... 4/0	per doz.	
Valley tiles ..... 3/8	per doz.	

## WOOD.

Deals: best 2 in. by 11 in. and 4 in. by 9 in. and 11 in. .... 15/0	At per standard.	£ s. d.	£ s. d.
2 in. by 11 in. and 11 in. .... 15/0	do.	15/0	15/0
Battens: best 2 1/2 in. by 7 in. and 8 in. and 3 in. by 7 in. and 8 in. .... 14/0	do.	14/0	14/0
Battens: best 2 1/2 in. by 6 in. and 3 1/2 in. by 7 in. and 8 in. .... 10/0	do.	10/0	10/0
Deals: seconds ..... 1/0	do.	1/0	1/0
Battens: seconds ..... 1/0	do.	1/0	1/0
2 in. by 4 in. and 2 in. by 6 in. .... 8/0	do.	8/0	8/0
2 in. by 4 in. and 2 in. by 5 in. .... 8/0	do.	8/0	8/0
Foreign Sawm Boards— 2 in. and 1 1/2 in. by 7 in. .... 10/0	do.	10/0	10/0

3 in. fir timber: Best middling Danzig or Memel (average specification by 9 in. .... 4/0	At per load of 50 ft.	£ s. d.	£ s. d.
Second yellow deals, 3 in. by 11 in. .... 15/0	do.	15/0	15/0
Small timber (6 in. to 10 in.) .... 3/0	do.	3/0	3/0
Small timber (6 in. to 8 in.) .... 2/0	do.	2/0	2/0
Swedish balks ..... 2/0	do.	2/0	2/0
Pitch-pine timber (30 ft. average) ... 3/0	do.	3/0	3/0

White Sea: First yellow deals, 3 in. by 11 in. .... 23/0	At per standard.	£ s. d.	£ s. d.
3 in. by 9 in. .... 21/0	do.	21/0	21/0
Battens, 2 1/2 in. and 3 in. by 7 in. .... 18/0	do.	18/0	18/0
Second yellow deals, 3 in. by 11 in. .... 18/0	do.	18/0	18/0
Battens, 2 1/2 in. and 3 in. by 7 in. .... 18/0	do.	18/0	18/0
Third yellow deals, 3 in. by 11 in. .... 15/0	do.	15/0	15/0
and 9 in. .... 15/0	do.	15/0	15/0
Battens, 2 1/2 in. and 3 in. by 7 in. .... 18/0	do.	18/0	18/0
Peterburg: First yellow deals, 3 in. by 11 in. .... 21/0	do.	21/0	21/0
Do. 3 in. by 9 in. .... 18/0	do.	18/0	18/0
Battens ..... 18/0	do.	18/0	18/0
Second yellow deals, 3 in. by 11 in. .... 16/0	do.	16/0	16/0
Do. 3 in. by 9 in. .... 14/0	do.	14/0	14/0
Battens ..... 13/0	do.	13/0	13/0
Third yellow deals, 3 in. by 11 in. .... 13/0	do.	13/0	13/0
Do. 3 in. by 9 in. .... 13/0	do.	13/0	13/0
Battens ..... 10/0	do.	10/0	10/0

White Sea and Petersburg: First white deals, 3 in. by 11 in. .... 14/0	At per standard.	£ s. d.	£ s. d.
3 in. by 9 in. .... 13/0	do.	13/0	13/0
Battens ..... 11/0	do.	11/0	11/0
Second white deals, 3 in. by 11 in. .... 13/0	do.	13/0	13/0
Do. 3 in. by 9 in. .... 12/0	do.	12/0	12/0
Battens ..... 10/0	do.	10/0	10/0
First white deals, 3 in. by 11 in. .... 14/0	do.	14/0	14/0
3 in. by 9 in. .... 13/0	do.	13/0	13/0
Battens ..... 11/0	do.	11/0	11/0
Second white deals, 3 in. by 11 in. .... 13/0	do.	13/0	13/0
Do. 3 in. by 9 in. .... 12/0	do.	12/0	12/0
Battens ..... 10/0	do.	10/0	10/0
Pitch-pine: deals ..... 16/0	do.	16/0	16/0
Yellow Pine—First, regular sizes ..... 33/0	do.	33/0	33/0
Oddments ..... 22/0	do.	22/0	22/0
Second, regular sizes ..... 24/0	do.	24/0	24/0
Yellow Pine Oldments ..... 20/0	do.	20/0	20/0
Kauri Pine—Planks, per ft. cube ..... 0/3	do.	0/3	0/3
Danzig and Stettin Oak Logs— Large, per ft. cube ..... 0/2	do.	0/2	0/2
Small ..... 0/2	do.	0/2	0/2
Wainscot Oak Logs, per ft. cube ..... 0/5	do.	0/5	0/5
Wainscot Oak, per ft. sup. as in. .... 0/7	do.	0/7	0/7
Do. 2 in. by 4 in. .... 0/4	do.	0/4	0/4
Dry Mahogany—Honduras, Tabas- co, per ft. sup. as in. .... 0/9	do.	0/9	0/9
Do. 2 in. by 4 in. .... 0/6	do.	0/6	0/6
Dry Walnut, American, per ft. sup. as in. .... 0/10	do.	0/10	0/10
Teak, per load ..... 17/0	do.	17/0	17/0
American Whitewood Planks per ft. cube ..... 0/4	do.	0/4	0/4

Prepared Flooring— 1 in. by 7 in. yellow, planed and shot ..... 0/13	per square.	£ s. d.	£ s. d.
1 in. by 7 in. yellow, planed and matched ..... 0/14	do.	0/14	0/14
1 in. by 7 in. yellow, planed and matched ..... 0/16	do.	0/16	0/16
1 in. by 7 in. white, planed and shot ..... 0/11	do.	0/11	0/11
1 in. by 7 in. white, planed and matched ..... 0/12	do.	0/12	0/12
1 in. by 7 in. white, planed and matched or V-jointed boards beaded or by 7 in. do. do. .... 0/12	do.	0/12	0/12
1 in. by 7 in. white, planed and matched or by 7 in. do. do. .... 0/12	do.	0/12	0/12
1 in. by 7 in. do. do. do. .... 0/12	do.	0/12	0/12
6 in. at bd. to qd. per square less than 7 in. .... 0/12	do.	0/12	0/12

## JOISTS, GIRDERS, &amp;c.

In London, or delivered.

Railway Vans, per ton. £ s. d. £ s. d.			
Compound Girders ..... 6/5	do.	6/5	6/5
Angles, Channels, ordi- nary sections ..... 8/5	do.	8/5	8/5
Flat Plates ..... 7/6	do.	7/6	7/6
Cast Iron Columns and Stanchions, including ordinary plates ..... 7/6	do.	7/6	7/6

## METALS.

IRON— Common Bars ..... 7/10	per ton, in London.	£ s. d.	£ s. d.
Staffordshire Crown Bars, good merchant quality ..... 8/0	do.	8/0	8/0

## PRICES CURRENT (Continued).

## METALS.

IRON— Staffordshire "Marked Bars" ... 10/10	per ton, in London.	£ s. d.	£ s. d.
Mild Steel Bars ..... 8/15	do.	8/15	8/15
Hoop Iron, basic, per cwt. .... 9/0	do.	9/0	9/0
" " galvanised ..... 10/0	do.	10/0	10/0
(* And upwards, according to size and gauge.)			
Sheet Iron, Black— Ordinary sizes to 20 g. .... 9/15	do.	9/15	9/15
" " to 24 g. .... 10/15	do.	10/15	10/15
" " to 26 g. .... 12/5	do.	12/5	12/5
Sheet Iron, Galvanised, flat, ordi- nary quality— Ordinary sizes 6 ft. by 2 ft. to 3 ft. to 20 g. .... 12/15	do.	12/15	12/15
" " 22 g. and 24 g. .... 13/5	do.	13/5	13/5
" " 26 g. .... 14/5	do.	14/5	14/5
Sheet Iron, Galvanised, flat, best quality— Ordinary sizes to 20 g. .... 16/0	do.	16/0	16/0
" " 22 g. and 24 g. .... 17/0	do.	17/0	17/0
" " 26 g. .... 18/0	do.	18/0	18/0
Galvanised Corrugated Sheets— Ordinary sizes, 6 ft. to 8 ft. 20 g. .... 12/15	do.	12/15	12/15
" " 22 g. and 24 g. .... 13/5	do.	13/5	13/5
" " 26 g. .... 14/5	do.	14/5	14/5
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. .... 11/15	do.	11/15	11/15
" " 22 g. and 24 g. .... 12/15	do.	12/15	12/15
" " 26 g. .... 13/5	do.	13/5	13/5
Cut nails, 3 in. (Under 1 in. usual trade extra.)	do.	9/15	9/15

## LEAD, &amp;c.

Per ton, in London. £ s. d. £ s. d.			
Lead—Sheet, English, 3 lbs. & up. Pipe in coils ..... 14/0	do.	14/0	14/0
Soil pipe ..... 17/0	do.	17/0	17/0
Compo Pipe ..... 17/0	do.	17/0	17/0
ZINC—Sheet Vielles Montagne ..... 28/0	do.	28/0	28/0
Silesian ..... 28/0	do.	28/0	28/0
COPPER— Strong Sheet ..... per lb. 0/10 1/2	do.	0/10 1/2	0/10 1/2
Thin ..... 0/11	do.	0/11	0/11
Copper nails ..... 0/11	do.	0/11	0/11
BRASS— Strong Sheet ..... 0/10 1/2	do.	0/10 1/2	0/10 1/2
Thin ..... 0/11	do.	0/11	0/11
TIN—English Ingots ..... 0/1 5/8	do.	0/1 5/8	0/1 5/8
SOLDER—Plumbers' ..... 0/6 1/2	do.	0/6 1/2	0/6 1/2
Timmer's ..... 0/8 1/2	do.	0/8 1/2	0/8 1/2
Blowpipe ..... 0/9 1/2	do.	0/9 1/2	0/9 1/2

## ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds ..... 24d.	per ft. delivered.		
" fourths ..... 14d.	do.		
21 oz. thirds ..... 34d.	do.		
" fourths ..... 24d.	do.		
26 oz. thirds ..... 4d.	do.		
" fourths ..... 34d.	do.		
32 oz. thirds ..... 5d.	do.		
" fourths ..... 44d.	do.		
Fluted sheet, 15 oz. .... 3d.	do.		
" 21 oz. .... 4d.	do.		
Harley's Rolled Plate ..... 14d.	do.		
" 21 oz. .... 14d.	do.		
" 26 oz. .... 24d.	do.		

## OILS, &amp;c.

Raw Linseed Oil in pipes or barrels, per gallon	£ s. d.		
" " in drums ..... 0/2 3/4	do.	0/2 3/4	0/2 3/4
Bolled " " in pipes or barrels ..... 0/2 7/8	do.	0/2 7/8	0/2 7/8
" " in drums ..... 0/2 9/8	do.	0/2 9/8	0/2 9/8
Turpentine, in barrels ..... 0/3 7/8	do.	0/3 7/8	0/3 7/8
" " in drums ..... 0/3 9/8	do.	0/3 9/8	0/3 9/8
Genuine Ground English White Lead Red Lead, Dry ..... 20/0	per ton	20/0	20/0
Best Linseed Oil Putty ..... per cwt. 0/8	do.	0/8	0/8
Stockholm Tar ..... per barrel 12/0	do.	12/0	12/0

## PAINTS, &amp;c.

Fine Pale Oak Varnish ..... 8/0	per gallon	8/0	8/0
Pale Copal Oak ..... 10/6	do.	10/6	10/6
Superfine Pale Elastic Oak ..... 12/6	do.	12/6	12/6
Fine Extra Hard Copal ..... 10/0	do.	10/0	10/0
Superfine Hard-drying Oak, for Seats of Churches ..... 0/24	do.	0/24	0/24
Fine Elastic Carriage ..... 0/12	do.	0/12	0/12
Superfine Pale Elastic Carriage ..... 0/16	do.	0/16	0/16
Fine Pale Maple ..... 0/16	do.	0/16	0/16
Fine Pale Durable Copal ..... 0/18	do.	0/18	0/18
Extra Pale French Oil ..... 2/1	do.	2/1	2/1
Eggshell Flattening Varnish ..... 0/18	do.	0/18	0/18
White Copal Enamel ..... 1/4	do.	1/4	1/4
Extra Pale Paper ..... 0/12	do.	0/12	0/12
Best Japan Gold Size ..... 0/16	do.	0/16	0/16
Best Black Japan ..... 0/16	do.	0/16	0/16
Oak and Mahogany Stain ..... 0/9	do.	0/9	0/9
Brunswick Black ..... 0/8	do.	0/8	0/8
Berlin Black ..... 0/16	do.	0/16	0/16
Knottling ..... 0/16	do.	0/16	0/16
French and Brush Polish ..... 0/10	do.	0/10	0/10

## TO CORRESPONDENTS.

J. B.—G. A. F. (Amounts should be sent stated.)  
NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.  
We cannot undertake to return rejected communications.  
Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.  
All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.  
We are compelled to decline pointing out books and printing addresses.  
Any commission to a contributor to write an article is given subject to the approval of articles, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.  
All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

## TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us not later than 2 a.m. on Thursday. N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is underlined, unless in some exceptional cases and for special reasons.]

\* Denotes accepted. † Denotes provisionally accepted.

BENTLEY (Yorks).—For rebuilding the Ray Horse Inn, for Messrs. Whitworth, Son, & Nephew, Ltd. Mr. John Athron, architect, Carr View, Doncaster:—  
Beaumont & Sons ..... £3,331 19 0  
Johnson & Son ..... 3,090 0 0  
F. Beattall ..... 1,974 0 0  
Gill & Son ..... 2,950 0 0  
Sprakes & Sons ..... 2,840 0 0  
Mullins & Richardson, Shotten-  
street, Doncaster\* ..... 2,829 13 9

BRIDPORT.—For the erection of an iron hospital, Bradpole, for the Rural District Council.—  
W. Harbow, South Bermondsey Station. .... £452

BUCKIE (N.B.).—For the erection of a corn mill, Buckie Highland Railway Station, for Mr. Alexander Gray, Mr. F. W. Gray, architect, 14, Viewforth-square, Edinburgh:—  
Masonry.—John Dawson, Buckie. .... £394 8 9  
Joinery.—Alex. Murray, Buckie ..... 172 0 0  
Slating.—John Barclay, Buckie ..... 67 9 0  
Plumbing.—J. & T. Campbell, Buckie ..... 31 10 0  
Machinery.—Wm. Brown, Keith ..... 0 0 0

BUDLEIGH SALTERN.—For the erection of a detached house in Station-road, for Mr. Basil E. Greenfield, Mr. Ernest E. Ellis, architect, Exmouth and Salterton. Quantities by the architect:—  
W. H. Perry ..... £1,314 0 0  
G. Bennett ..... 1,118 17 0  
N. Pratt ..... 1,113 0 0

CARDIFF.—For rebuilding premises, St. Mary-street, Cardiff, and making alterations to the existing *Wales Daily News* offices, for Messrs. D. Duncan & Sons, Mr. S. Rooney, architect, Cardiff:—  
Lattey & Co. .... £8,157 0 0  
Beavis & Ne-  
phew ..... 7,840 0 0  
Cavallieri ..... 7,700 0 0  
D. Davies ..... 7,700 0 0  
Evans Bros. .... 7,690 0 0  
Turner & Sons ..... 7,338 0 0  
Allan & Sons ..... £7,304 8 8  
Thomas & Co. .... 7,272 0 0  
W. T. Morgan ..... 7,177 0 0  
Simmonds ..... 7,100 0 0  
Co., Cardiff\* ..... 7,100 0 0  
J. Britton ..... 7,030 0 0

CARNARVON.—For additions to the Metropolitan Bank, Bangor-street, for the Metropolitan Bank (of England and Wales), Ltd., Birmingham, Mr. R. Lloyd Jones, architect, 14, Market-street, Carnarvon:—  
Evan Jones & Son ..... £1,700 0 0  
Richard Jones ..... 1,478 0 0  
beris Carnarvon\* ..... £1,384 0 0  
Roberts & Bro. .... 1,268 7 0

CARNO (Wales).—For the erection of a chapel for Calvinistic Methodists (Welsh). Messrs. Morris Roberts & Son, architects, Portmadoc:—  
Davies & Son ..... £2,453 0 0  
E. C. Phillips ..... 1,900 0 0  
H. Williams ..... 1,630 0 0  
J. J. Meredith, Llanidloes, Mont-  
gomeryshire\* ..... £1,617 10 0

EXMOUTH.—For the erection of two houses, Cranford-road, for Mr. H. Avery, Mr. Ernest E. Ellis, architect, Exmouth and Salterton. Quantities by the architect:—  
J. Tremlett ..... £3,461 2 6  
Westcott, Aus-  
tin, & White ..... 3,117 0 0  
H. Gould ..... 3,053 15 0  
T. Abell ..... 3,040 0 0  
N. Pratt ..... 2,932 0 0  
[Architect's estimate, £4,500.]

EXMOUTH.—For the erection of a detached house, Gussford-road, for Mr. J. J. Batin, Mr. Ernest E. Ellis, architect, Exmouth and Salterton:—  
W. H. Perry, Exmouth\* ..... £707 10 0

FRESHWATER.—For Freshwater and part of Tetland Main Sewerage, Isle of Wight, Messrs. W. B. G. Bennett, Son, & Berry, engineers, Midland Bank-clambers, Southampton:—  
Contract No. 1.—Supply and Delivery of Cast Iron Pipes and Special Castings.  
Green & Co. .... £6,117  
Middlesex Foundry  
Co. .... 5,091  
Biggs, Wall, & Co. .... 5,668  
Payfair & Toole ..... 4,043  
Cochrane & Co. .... 4,600  
Laidlaw & Son ..... 4,590  
[Engineers' estimate, £4,000.]

Contract No. 2.—Construction of Cast Iron Sea Outfall.  
Pedrette & Co. .... £3,233  
Farrell ..... 3,195  
Payfair & Toole ..... 2,300  
Cooke & Co. .... 2,808  
Valiance ..... 2,566  
[Engineers' estimate, £4,000.]

Contracts Nos. 2 and 3.—Cast Iron Pipe and Stanchions, Pipe Scurry, Ejectors, Chambers, Manholes, &c., with Sea Outfall.  
Trim ..... £28,988  
Dean ..... 24,594  
Binns ..... 23,941  
J. A. Ewart ..... £17,419  
W. & H. Simmons ..... 17,419  
Payfair & Toole ..... 17,419  
Placost & Co. .... 17,419  
Streeters & Tod-  
hunter ..... 16,614  
[Engineers' estimate, £17,000.]

[See also page 579]



## COMPETITIONS CONTRACTS AND PUBLIC APPOINTMENTS.

(For some Contracts, &amp;c., still open, but not included in this List, see previous issues)

## COMPETITIONS.

Nature of Work.	By whom Required.	Premiums.	Designs to be delivered
New Library, Taunton.	The Trustees	30l., 20l., and 10l.	July 30
Semi-Contained Terrace House for Working Classes	Borough of Swansea	10l. 10s.	No date.

## CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c., supplied by	Tenders to be delivered
College Buildings, Sheffield		Gibbs & Flockton, Architects, 15, St. James's-row, Sheffield.	May 31
Bricks, Kerbs, &c.	Epsom R.D.C.	T. E. Webb, Surveyor, Watlington-road, Epsom.	June 2
Two Houses and Shop, High-street, Narberth, Wales	Mr. T. Webb	J. P. James, Architect, Tenby	do.
Additions to Schools	Buckley-Mold (U.D.) School Board	J. H. Davies & Son, Architects, Newgate-street, Chester.	do.
House, near Tawton-road, Barnstaple		W. C. Oliver, Architect, Barnstaple	do.
Two Cottages, Walton-road, Brenton		G. J. E. Large, Architect, & Lion-street, Brecon	do.
Hotel, Swinton, near Rotherham		H. L. Tacon, Architect, 11, Westgate, Rotherham	June 3
House, Druldsfield, Aberdeen		A. Stronach & Son, 20, Belmont-street, Aberdeen	do.
Two Houses, Whitehead, Aberdeen		do.	do.
House, Wentworth-street, Huddersfield		J. Berry, Architect, 2, Market-place, Huddersfield	do.
Four Shops, Warehouse, &c., Horton-street, Halifax		Walsh & Nicholas, Architects, Halifax	do.
Council Offices, Cleethorpes, near Grimsby		H. C. Scapling, Architect, Grimsby	do.
Station Buildings, Offices, &c., Copandorpe, Yorks.	North-Eastern Railway Company	W. Bell, Architect, Station Offices, York	do.
Paving, Sewerage Works, &c.	Birkenhead Corporation	G. J. E. Large, Architect, 25, Church-street, Birkenhead	do.
Making Up Fairfield-road	Clacton U.D.C.	A. R. Robinson, Surveyor, Clacton-on-Sea	do.
Widening Main Road, Morriston and Ponty-lawe	Glanmorog County Council	T. M. Franklin, Westgate-street, Cardiff	do.
House, Main-street, out, Ton Pw.	Mr. D. Thomas	W. D. Morgan, Architect, Pentre, Wales	do.
Station Buildings, Gorseford	North-Eastern Railway Company	W. Bell, Central Station, Newcastle-on-Tyne	do.
Sewers, &c., Burnley road	Tadmore Town Council	Borough Surveyor, Town Hall, Tadmore	do.
Sewers, &c. (Contract 21)	Bredbury U.D.C.	J. W. Bain, Council Offices, Bredbury	do.
Station Buildings, Pandon Lane, Newcastle-on-Tyne	North-Eastern Railway Company	W. Bell, Central Station, Newcastle-on-Tyne	do.
Sixty-two Workmen's Dwellings, West Bowling	Bradford Corporation	F. E. Gale, 3, Sheet-street, Windsor	do.
Drainage Works, &c.	Achterwaten Town Council	W. A. Carter, Civil Engineer, 5, St. Andrews-place, Edinburgh	do.
Sewers, &c., Manor-terrace	Pelshaw U.D.C.	The Surveyor, Town Hall, Pelshaw	do.
Additions to Hospital, Merthyr		C. M. Davies, Architect, 113, High-street, Merthyr	June 4
House, Little Broughton, Cumberland		J. S. Moffat, Architect, 35, Church-street, Wigan	do.
Parish Hall, Risco-road, Newport, Mon.		Landowen & Griggs, Architects, Bank Chambers, Newport	do.
Rebuilding the Rising Sun Inn, Nether Green, Sheffield		Gibbs & Flockton, Architects, 15, St. James's-row, Sheffield	do.
Schoolroom at Zou Chapel, Merthyr	The Wesleyans	T. R. Barker, Architect, 1, St. Michael's-street, Merthyr	do.
House, Morley-lane, Mid-Surrey, &c.		J. Stew, Architect, Gower	do.
Alterations to Shop, Morley, Yorks		W. H. Smith, Church-street, Morley	do.
Road Works, Dalmatia, and other Roads	Southend Town Council	E. J. Elford, Civil Engineer, Town Hall, Southend	do.
Cast-iron Pipe (50 tons)	Winbor R.D.C.	J. S. Green, Borough Engineer, Town Hall, Cardiff	do.
Rebuilding Sea Wall, Clacton-on-Sea, Cheshire	Carlisle R.D.C.	J. W. Kinsop, Surveyor, 18, Hart-street, Carlisle	June 5
Buildings for Oil Gas Works, Swansea	Midland Railway Company	Company's Architect, Welsh House, Der.	do.
Hospital at Workhouse	Cock Guardians	J. Carter, Board Room, Workhouse, Cock	do.
Boundary Wall, &c., at Mortar's Cew	Walsingham U.D.C.	J. E. Gale, 3, Sheet-street, Windsor	do.
Ten Cottages, Salem place, New-on-Abbot	Mr. H. Snow	Sagar & Stooke, Architects, 25, Union-street, New-on-Abbot	June 6
External Paintings, &c., at Deepcut and Blackdown	War Department	Royal Engineer Office, North Adershot	do.
Laundry and 1 Workshop	Burnley Guardian	Keighley & Co., Architects, Nicholas-street, Burnley	do.
Pumping Station, &c., Baxton-lane	Basingstoke (Lancs.) Town Council	S. Knight, Council Offices, Basingstoke, near Vauxhall	do.
Road Works	Clayton-le-Moors (Lancs.) U.D.C.	J. Smith, Council Offices, Clayton-le-Moors	do.
Granite and Slab Road Metal (L231 545)		T. Yorke, Engineer, Ramsay	do.
Alterations to Police Station, Aberdeen	Glanmorog County Council	T. M. Franklin, Westgate-street, Cardiff	do.
Broken Granite (30 tons)	Walsingham U.D.C.	S. Knight, Council Offices, Basingstoke, near Vauxhall	do.
Alterations to 7, Victoria-place	Carlisle R.D.C.	J. Graham, Architect, Bank-street, Carlisle	June 8
Making-up Roads	Beckenham U.D.C.	Connell's Surveyor, Beckenham, S.E.	do.
Sewerage and Sewage Disposal Work	Tonbridge R.D.C.	Connell's Engineer, Br. 1-way, Southborough, Tonbridge Wells	do.
Decorative Painting, &c., Schools at Southall	St. Mary-lebone Guardians	Superintendent, St. Mary-lebone Schools, Southall	do.
New Public Baths and Washhouses	Sunderland Corporation	Brown & Spain, 11, John-street, Sunderland	do.
Schools, Williamstown	Ystradgynodwr School Board	J. Rees, Architect, Hillside Cottage, Pontre	do.
Additions to Schools, Mary, Wales	G.N.R. Co. (Ireland)	T. Morrison, Anlenn-street Terrace, Dublin	do.
Two Cottages, Beauparc, near Dublin		do.	do.
Three Cottages, Killester, near Ballyn		do.	do.
Surveyors' Materials	Ely U.D.C.	G. M. Hall, Market-square, Ely	do.
Sewage Disposal Works (Contract 1 and 2)	Great Harwood (Lancs.) T.C.	Brierley & Holt, Civil Engineers, 20, Richmond-terrace, Blackburn	do.
Street Works, &c.	Stockton-on-Tees Corporation	Stockton-on-Tees Surveyor, Town Hall, Stockton	do.
Board Room and Offices, Union-road, Sheffield	Eccelesham Guardians	Ellis Bros., Architects, Orchard-street, Sheffield	do.
Water Supply Works	Ackweld Union R.D.C.	A. Powell, Civil Engineer, 3, Unity-street, Bristol	do.
Filter Beds at Sanatorium (Bagby)	Washington U.D.C.	A. M. Dawson, Civil Engineer, Town Hall, Washington	do.
Road Works, New-ick and salt-roads	Stafford Corporation	J. Blackshaw, Borough Engineer, Stafford	do.
Road Works, Margaret-street	Warrington Corporation	T. Longley, Borough Engineer, Town Hall, Warrington	do.
Schools, Blaenau-Gwent, Abercromby	Abercromby School Board	R. L. Roberts, Architect, Abercromby, Mon.	do.
Stone Paving Carriage Ways and Footways	Corporation of London	The Engineer, Guildhall, E.C.	do.
Brick Paving Public Washhouse, Hornsey-road, Brixton	Islington Borough Council	Council's Engineer, Town Hall, Islington, N	June 9
Road Metal, &c., also Paving Works	Dover Town Council	H. E. Stigloe, Civil Engineer, Town Hall, Dover	do.
Supply of Broken Granite	Brentford U.D.C.	Council's Surveyor, Brentford	do.
New Branch Post Office, Burslem	Commissioners of H.M. Works, &c.	H.M. Office of Works, Storey's Gate, S.W.	do.
Workshops at New Savings Bank, Walsingham		do.	do.
New Sorting Office, Stockwell		do.	do.
Three Years Contract	H.M. Office of Works	do.	June 10
White-washing, Cleaning, &c., at Indus	Chelmsford Guardians	Guardians' Offices, 250, King's-road, Chelms	do.
Cast Cement Kerbs	Kent County Council	County Surveyor, 85, West-street, Maidstone	do.
Granite Paving, Tooting Bec Asylum	Metropolitan Asylum Board	A. & C. Harston, 15, Lendenhall-street, E.C.	do.
Repairing, &c., Mortuary, Wanless-road	Borough of Lambeth	Borough Engineer, Lambeth Town Hall, Kensington Green, S.E.	June 11
Foundations, &c., Extension of Gas Engine, &c.	Hackney Borough Council	R. Hammond, 64, Victoria-street, Westminster, S.W.	do.
Extension of Central Station Buildings	Maldenhead Town Council	Borough Surveyor, Guildhall, Maldenhead	June 12
Enlargement of Post Office, Ipswich	H.M. Works	H.M. Office of Works, Storey's Gate, Westminster, S.W.	do.
Four Shops, High-street, Barnes	Metropolitan Asylum Board	F. & W. Stocker, 90 and 91, Queen-street, Chesham, E.C.	do.
Cooking & Service Buildings, Cartwright Memorial Hall	Bradford Corporation	T. W. Stocker, Town Hall, Bradford	June 13
Electric Lighting, Cartwright Memorial Hall		do.	do.
Concrete Steel Bridge over River Boyne, Trim, Ireland	Meath County Council	H. J. Cullen, Meath County Office, Navan	do.
Cleaning, Repair, and Painting of Schools	West Ham Education Committee	W. Jaques, Architect, 2, Pan-court, E.C.	June 15
Erection of Schools, &c.	London School Board	J. J. Dawson, Architect, 6, Cranley-street, Tottenham	do.
Water Supply Works, Portlaine Asylum	Richmond (Ireland) Asylum Comm.	J. H. H. Twiney, Civil Engineer, Avenue Chambers, Belfast	June 16
Additions to Workhouse	Stonemarket Guardians	J. S. Corder, Architect, Ipswich	do.
Works & Repairs to Public Buildings, Kew, &c., Dist.	Commissioners of H.M. Works, &c.	H.M. Office of Works, Storey's Gate, S.W.	do.
Journey Fitting, to Alter the Asylum	Metropolitan Asylum Board	Office of the Board, Enbancment, E.C.	June 17
Repairing Tar-paving at Western Hospital		do.	do.
Isolation Hospital, &c., Street on Sugwas	Hereford R.D.C.	E. G. Davies, Architect, 7, Bridge-street, Hereford	June 18
Brick Sewers	Tottenham, &c., Joint Drainage Com.	Council's Engineer, 713, High-road, Tottenham	do.
Car Beds at Clapham, S.W.	London County Council	Architectural Department, 19, Charing Cross-road, W.C.	June 23
Cast-iron Pipe (2000 110)	Bedgworth R.D.C.	E. & H. Marten, Engineers, Kewham	do.
Widening and Enlargement of Victoria Station	L. B. & S. C. Railway Co.	The Engineer, London Bridge Station, S.E.	June 24
New Workhouse and Infirmary, Cottage Homes, &c.	Stonemarket Union	A. Marsden, Architect, 11, High-street, Nottingham	No date.
Cleaning, &c., Workhouse, St. Leonard's, Bromley, E.	Metropolitan Borough of Hackney	Master of Workhouse, St. Leonard's-street, Bromley-by-Bow, E.	do.
Wesleyan Church, Bodsworth, Yorks		G. Moxon, Architect, 23, Church-street, Barnsley	do.
House, Fygate, Sussex		K. D. S. Robinson, 7, Carter-street, S.W.	do.
Wesleyan Church, &c., Hely, York		D. & Simpson, Architects, 10, Park-row, Leeds	do.
Additions to Wesleyan Church, &c., Northway Bridge		Parker & Twiss, Architects, The Quadrant, Buxton	do.
Two Houses, Stabling, &c., Mill Shaw, Beeston		E. Hill, Architect, 23, Oxford-road, Leeds	do.
Shop and Stores, Main-street, Bangor, Ireland		J. Brice & Son, Auctioneers, Bangor	do.
Two Cottages, Glammann, Wales	Gallatin Colliery Co.	P. J. Michael, Architect, 6, Park-street, Swansea	do.
Waterworks, &c.	Asquith (N.B.) Water Board	J. Graham, Engineer, Bank-street, Carlisle	do.
Sewers, &c., Pont-y-n-Isaf, Penrhyn-Isaf	Mr. T. Evans	P. F. Hill, Surveyor, 23, St. Mary-street, Cardiff	do.

(See also next page.)



## PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
Clerks of Works (2).....	Tottenham, & Co., Jnt. Drainage Com.	14 1s.	June 1
Clerk of Works.....	Metropolitan Borough of Deptford	14 10s.	June 3
Building Instruction Teachers.....	Wandsworth Technical Institute	See Advertisement	June 10
Principal for Technical Institute.....	Local Technical Education Board	500l. per annum	June 27
Assistant Surveyors in H.M. Naval Establishments.....	Admiralty	250l.	No date.
Clark.....	Stepney Union	Not stated	do.

Those marked with an asterisk (\*) are advertised in this Number. Competitions, iv. Contracts, iv. vi. viii. & x. Public Appointments, xix xviii and xviii.

## TENDERS (Continued).—

HENGGOED (Wales).—For the erection of ten houses for the building club. Mr. P. V. Jones, architect, Henggoed.—

J. H. James, Cardiff ..... £195 per house

HYDE.—For pulling down and rebuilding the Queen's Hotel. Messrs. Eaton, Sons, & Cantrell, architects, Stamford-street, Ashton-under-Lyne.—

Robinson & Sons, Hyde ..... £3,297

Planning and Coaching.....

G. H. Coop, Ashton ..... £555

LLANBEDR.—For new residence at Hafod-y-bryn, Llanbedr, Merioneth, for Mr. Wm. Jones, Llynwydd, Cwilog, R.S.O. Mr. R. Lloyd Jones, architect, Carnarvon.—

J. T. Jones & Co., £1,993 0  
 Jones, Roberts, & ..... £1,654 0  
 Jones ..... 1,898 0  
 D. J. Pierce ..... 1,850 0  
 John Pierce, Pen- ..... 1,800 0  
 cnewydd ..... 1,800 0  
 Griffith Williams ..... 1,773 0  
 David Evans ..... 1,675 0  
 Jones & Davies ..... 1,650 12

LONDON.—For demolishing the old convenience and erecting a new convenience at Highbury Fields, for the London County Council:—

General Build- ..... T. Pearce ..... £699 5 0  
 ers, Ltd. .... £877 12 6  
 W. Hummings ..... 772 12 6  
 B. E. Nighting- ..... 626 0 0  
 gale ..... 748 0 0  
 Goodman & Sons ..... 742 15 0

LONDON.—For the execution of the roadway and tracklaying in connection with (a) the reconstruction, for electrical traction of short lengths of existing tramways, and (b) the construction of authorised new tramways, altogether about eight miles of single track principally in the borough of Southwark and radiating from the Elephant and Castle, in intimate connexion with the London County Council Tramways:—

With Hadfield ..... With Lorain  
 Special Work ..... Special Work  
 £ s. d. £ s. d.  
 Pethick Brothers ..... 134,363 13 3  
 Dick, Kerr, & Co., ..... 108,679 14 5  
 Ltd. .... 108,277 10 1  
 Wm. Kennedy ..... 107,543 17 2  
 White & Co., Ltd. .... 98,348 3 2  
 Nuttall & Co., Ltd. .... 95,036 14 3  
 Griffiths & Co., Ltd. ....

[Messrs. William Griffiths & Co., Ltd., will sub-let to the Hadfield Steel Foundry Co., Ltd., of Sheffield, the manufacture of the special work (namely, points and crossings), and to the Anderson Foundry Co. (for such other firm as may be approved by the Council's Chief Engineer), the manufacture of cast-iron yokes, road-boxes, and covers.]

LONDONDERRY.—For the erection of seven double cottages in seven different townlands for the Rural District Council. Mr. J. S. Barnhill, engineer, 18, Strand, Londonderry.—

Castleford Cottages.  
 D. Mooney, Burrow, Burt ..... £255  
 Mulhally Cottages.  
 D. Mooney, Burrow, Burt ..... 270  
 Monaghan Cottages.  
 T. Robb, Newcunningham ..... 259  
 Castlehill Cottage.  
 D. Stewart, Carrigan ..... 234  
 Aghaduff Cottage.  
 D. Stewart, Carrigan ..... 234  
 Inch Cottages.  
 J. Duffy, Inch ..... 261  
 Newcunningham Cottages.  
 P. Doherty, Kilcar ..... 249

SOUTHEAD.—For eight almshouses and two pairs of villa residences. Chelmsford-avenue, Southend-on-Sea. Messrs. Burles & Harris, architects, Southend.—

J. Dowsett ..... £3,500 0 0  
 F. E. Woodhams ..... 3,416 0 0  
 S. E. Moss ..... 3,400 0 0  
 J. Holding ..... 3,150 0 0  
 T. Whurr ..... 3,085 0 0  
 Dupont & Co. .... 2,950 0 0  
 Smith & Chambers ..... 2,753 11 8  
 H. R. Wilkinson ..... 2,543 10 0

TORKSEY.—For the construction of a chimney shaft, &c. Messrs. H. Walker & Son, engineers, King-street, Nottingham. Quantities by engineers:—

Wilson Bros. .... £1,449 6 3  
 T. Baylow ..... 1,431 10 0  
 Nevins & Co. .... 1,070 0 0  
 Ratford ..... 913 0 0  
 Greaves ..... 994 0 0

Ltd. .... 945 0 0  
 Hutchinson & Son, Nottingham ..... 905 0 0

TUNBRIDGE WELLS.—For alterations and additions to the Tunbridge Wells Homeopathic Hospital and Dispensary. Mr. C. H. Strange, architect:—

Mansfield & Son ..... £1,275 0 0  
 Crates & Son ..... 1,231 0 0  
 Jarvis & Son ..... 1,113 0 0

[All of Tunbridge Wells.]

WATFORD.—For destructor buildings and chimney-shaft for Watford Urban District Council. Mr. D. Waterhouse, Engineer and Surveyor, 14, High-street, Watford, Herts:—

	Destructor Buildings.	Chimney-shaft.
Neil & Co. ....	£ s. d.	£ s. d.
Gray & Co. ....	1,225 0 0	1,981 0 0
C. Brightman ....	1,220 0 0	2,500 0 0
Wilmott & Son ....	1,190 0 0	2,237 0 0
G. & J. Waterman ..	1,120 0 0	2,857 0 0
R. L. Tonge ....	1,175 14 4	2,754 12 9
Myall & Upton ....	1,100 15 0	2,411 5 0
Clifford Gough ....	1,017 0 0	2,170 0 0
Watford .....	969 0 0	1,839 0 0
Townsend & Coles ..	906 19 11	1,877 15 9
Custodis Chimney Co., London .....	—	1,260 0 0

[Messrs. Custodis tendered for their own type of shaft.]

YORK.—For the erection of engine and boiler house at electricity station, for the Corporation. Mr. A. Creer, C.E., Guildhall, York:—

Arnold & Son, Doncaster ..... £13,250

## LONDON SCHOOL BOARD TENDERS.

At the last meeting of the London School Board the Works Committee submitted the following lists of tenders. Mr. T. J. Bailey is the Board's Architect:—

BERESFORD-STREET SCHOOL (Waltham).—

For partitions, &c.:—  
 Maxwell Bros. .... £570 0 0  
 Ltd. .... 570 0 0  
 Bulled & Co. .... 567 0 0  
 G. Kemp ..... 550 0 0  
 Lathley Bros. .... 540 0 0  
 W. V. Goad ..... 539 0 0

BLAKESLEY-STREET SITE (Stepney).—For new graded school of three stories. Halls: boys, 50 ft. by 26 ft.; girls, 50 ft. by 26 ft.; infants, 50 ft. by 26 ft.

Classrooms: boys, 50, 48, 48, 48, 40, 40; girls, 50, 48, 48, 48, 40, 40; infants, 50, 50, 48, 48, 40, 40. Special rooms: drawing classroom and science room, separate building over covered playground, 1,200 ft. area. Heating by low-pressure hot-water apparatus. Area of site, 21,250 sq. ft. Playgrounds, area per child: boys, 33 ft.; girls and infants, 16 ft. 6 in.

J. & F. Wood ..... £21,060 0 0  
 W. Downs ..... 21,250 0 0  
 Walles & Son ..... 22,191 0 0  
 Williams & Son ..... 22,273 0 0  
 Munday & Son ..... 22,202 0 0  
 Perry & Co. .... 22,221 0 0  
 Grover & Son ..... 22,181 0 0

BOUNDARY-LANE SCHOOL, CAMBERWELL.—

For heating apparatus:—  
 Skinner, Board, & Co. .... £1,038 0 0  
 W. G. Cannon ..... 990 0 0  
 Vaughan & Brown ..... 890 0 0  
 J. & F. May ..... 881 10 0  
 Stevens & Sons ..... 881 10 0

Mather & Platt, Ltd. .... £880 0 0  
 Widdle Bros. & Row ..... 850 0 0  
 Eason & Son ..... 820 0 0  
 R. H. & J. Pearson, Ltd. .... 795 0 0

CHILDERLEY-STREET SITE (Fulham).—For Higher Grade School of three stories.—Accommodation: Boys 365; girls, 316; total, 681. Two halls, 44 ft. 6 in. by 25 ft. Classrooms—ground-floor—50, 50, 50, 48, 48; first floor—50, 50, 50, 48, 48. Drawing classroom, 750 square feet area. Science rooms, 1,580 square feet area. Heating by low-pressure hot-water apparatus.

Manual training centre for forty boys. Schoolkeeper's house. Area of site, 55,540 square feet. Playgrounds, area per child: Boys, 72 ft.; girls, 92 ft. 6 in.

C. Milten & Sons ..... £10,065 0 0  
 Kilby & Gayford ..... 18,910 0 0  
 Gough & Co. .... 18,771 0 0  
 Allen & Sons, Ltd. .... 18,616 0 0  
 Holloway Bros. Ltd. .... 18,410 0 0  
 Lawrence & Sons ..... 17,706 0 0  
 King & Son ..... 17,710 0 0  
 Lathley Bros. .... 17,644 0 0  
 Holloway Bros. Ltd. .... 17,584 0 4  
 Patman & Fotheringham, Ltd. .... 17,472 0 0  
 Treasure & Son ..... 17,419 0 0  
 Martin, Wells, & Co., Ltd. .... 17,393 0 0  
 Spencer, Santo, & Co., Ltd. .... 17,314 0 0  
 Stimpson & Co. .... 17,150 0 0  
 J. Carmichael ..... 16,884 0 0  
 W. Johnson & Co., Ltd. .... 16,593 0 0  
 J. & M. Patrick ..... 16,543 0 0

DUNCOMBE ROAD SCHOOL (Upper Holloway).—

For additional heating:—  
 Kite & Co. .... £475 0 0  
 Turner & Co. .... 461 0 0  
 Stevens & Sons ..... 390 0 0  
 J. & F. May ..... 395 0 0

Duffield & Sons ..... £350 0 0  
 Bates & Sons ..... 310 0 0  
 G. & E. Bradley ..... 285 10 0

FELLOWS-STREET TEMPORARY SCHOOL (Hackney-road).—Cleaning, repairs, &c.:—

Parrott & Iom ..... £149 0 0  
 Turner & Iom ..... 149 0 0  
 Gibb & Co. .... 355 0 0  
 Corfield & Co. .... 335 0 0

Johnson & Co. .... £299 0 0  
 A. J. Sheffield ..... 262 0 0  
 Stevens Bros. .... 246 0 0  
 Marchant & Hirst ..... 183 0 0

GREAT COLLEGE-STREET SCHOOL (Camden Town).—For works to offices, &c.:—

G. & S. .... £1,000 0 0  
 G. Neal ..... 1,004 0 0  
 Killingback & Co. .... 999 0 0  
 Marchant ..... 967 0 0  
 Hirst ..... 967 0 0

IVYDALE-ROAD SCHOOL (Nunhead).—For heating apparatus in new portion:—

Stevens & Sons ..... £323 0 0  
 Skinner & Co. .... 318 0 0  
 Gibb & Co. .... 300 0 0  
 G. & E. Bradley ..... 287 10 0

Brightside Foundry & Engineering Co., Ltd. .... £285 0 0  
 Bates & Sons ..... 273 0 0  
 Oldroyd & Co., Ltd. .... 260 0 0

MYRDLE-STREET SITE (Stepney).—(a) Graded school of three stories, and (b) higher grade school of three stories. (a) Graded school on three stories with playground on roof for boys. Accommodation: boys, 294; girls, 294; infants, 235; total, 923. Halls: boys, 40 ft. by 30 ft.; girls, 40 ft. by 30 ft.; infants, 40 ft. by 30 ft.

Classrooms: boys, 50, 50, 50, 48, 40; girls, 50, 50, 50, 48, 40; infants, 50, 50, 50, 48, 40. Special rooms: drawing classroom, 750 sq. ft. area; science room, 1,580 sq. ft. area. Heating by low-pressure hot-water apparatus. Open fires in babies' room. (b) Higher grade school on three stories with playground on roof for girls. Boys, 195; girls, 106; total, 301. Halls: boys, 54 ft. by 25 ft.; girls, 54 ft. by 25 ft. Classrooms: boys, 50, 50, 48, 48; girls, 50, 50, 48, 48. Special rooms: drawing classroom, 750 sq. ft. area; science room, 1,580 sq. ft. area. Heating by low-pressure hot-water apparatus. Area of site, 30,185 sq. ft. Playgrounds, area per child: Graded school—boys, 15 sq. ft.; girls and infants, 29 sq. ft.; Higher grade school—boys, 30 sq. ft.; girls, 18 sq. ft.

Lathley Bros. .... £32,100 0 0  
 W. Downs ..... 31,357 0 0  
 Clarke & Bracey ..... 31,255 0 0  
 Williams & Son ..... 31,185 0 0  
 McCormick & Son ..... 30,990 0 0  
 A. Potter ..... 30,931 0 0  
 Grover & Son ..... 30,928 0 0  
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[See also next page]



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# The Builder.

VOL. LXXXIV.—No. 3148.

JUNE 6, 1903.

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### The Architecture of Greece and Rome.



UCH a title as the above to a one-volume octavo book\* is a little startling, though followed by a modifying sub-title; so vast is the field of intellectual interest suggested by the words, which one might rather have expected to read on the backs of a series of formidable and exhaustive folios—could even folios exhaust so great a subject. For does not the phrase include the aesthetic parentage of all the architecture of the world? and from this point of view, that of development, one must admit that the Roman architecture, however inferior to the Greek in refinement of design and artistic feeling, is quite as important a factor. As far as its decorative features are concerned, certainly, it is only Greek architecture at second hand, and in somewhat coarsened and corrupted form. The Greek mind was the fount of Classic architecture; but the Roman was the aqueduct conveying its streams into all lands. Had there been no Rome, no great conquering power to carry this root-form of columnar architecture with it over the then known world, it is quite possible that Greek architecture would never have had the effect on the whole subsequent history of the art which it has actually had. Its productions were, comparatively speaking, too few and within too confined an area to have exercised so great an influence; and when Greece fell into political and social decline her architectural remains might have dropped out of recollection, until perhaps modern travel and modern education brought them again into notice and appreciation, had not the great conquering nation which took possession, for some centuries, of the known world, also adopted the Greek idea of column and entablature, and planted

it east, west, north, and south, wherever her eagles flew. Hence, when we come to speak of the historic development of architecture, Roman architecture becomes almost of more importance even than Greek. Without the Greek it would never have been; but without the Roman, Greek architecture might have become but a dream and a memory.

It is important to bear this in mind in considering the book before us, the joint production of the late Professor Anderson and of Mr. Spiers, because, in spite of the omnivorous character of its main title, its actual purpose is not to give all that should be known about Greek and Roman architecture, which would require almost a library to itself, but to give a review of their development; and though there may not be very much to be said on the subject that is actually new, it was worth while to have the subject revised from a new point of view, and to have a handbook which includes, as this does, the latest opinions based upon nearly the latest observations. The foundation of the book was laid by Professor Anderson, who in 1896-7 delivered a course of lectures to the Glasgow School of Art on the History and Development of Greek Architecture, a subject to which he had devoted his studies for three years. He added in 1897 three lectures on Roman architecture, which, together with those on Greek architecture, were to have been published as his second book (the first having been the excellent and now well-known book on the Architecture of the Renaissance in Italy). He had not, however, been able to go into the study of Roman architecture so fully as into that of Greek; and he had asked Mr. Spiers, who had been in frequent communication with him on the subjects of his lectures, to read and see through the press the chapters on Greek architecture, so as to leave him more time to devote to those on Roman architecture. Unhappily, soon after this arrangement had been come to, Professor Anderson's studies, to the great loss of the whole architectural world, were cut short by death, and the work was placed in Mr. Spiers's hands to complete, with the entire concurrence of

Professor Anderson's widow. That is the brief history of the book, of which the first four chapters, with some passages in others, are Professor Anderson's work; the fifth, sixth, and seventh chapters on Greek architecture, and the whole of those on Etruscan and Roman architecture, are due to Mr. Spiers, than whom no more competent and fitting person could have been found to carry on the work which Professor Anderson had begun.

The late author commences his first lecture by a criticism very much wanted just now, when there are so many clever people maintaining that architecture is nothing but building, by insisting on the importance of "the spiritual element" in architecture. "Building whose end and aim is the fulfilment of material wants remains building, and whatever be the nature of the material wants, differs in no essential from the work of the lower animals. . . . A style of architecture is one of the higher manifestations of nature reaching in through the human spirit." Instead of using the word "spiritual," we should have preferred to say that architecture is an intellectual symbolism; it may rise to spiritual feeling, as it did in the Mediæval cathedral; but when men who build, without rising to spirituality, make use of *ante* to express and fashion the ends of walls, of mouldings to mark off and emphasise the termination of a column or the boundary of a space—when, in short, they model their buildings in many other ways that might be mentioned, they are making use of a symbolism which is an appeal to the intellect, and a direct addition to mere building. There is no better example of this than the treatment of the *ante* in Doric architecture, with different mouldings from the capital to which it responds, so as to indicate that its function is different; a delicate distinction which is purely intellectual, and can only appeal to an educated race of men.

"It may be that the greatness of the Greeks is not demonstrated most of all in their architecture, but it is by their architecture, using the word in its widest sense, that we may now most readily comprehend their civilisation in all its bearings. An eminent student of Greek language and literature said lately that he would give up the work of one of the greatest of Greek writers for one peep into the

\* "The Architecture of Greece and Rome: a Sketch of its Historic Development." By the late W. J. Anderson and R. Phene Spiers, F.S.A. London: B. T. Batsford, 1902.



workshop where Phidias and Ictinus perfected their marvellous designs.

We can take leave to doubt if the sight of the workshop would reveal much that would be worth the knowing; but the perfected work which that workshop turned out, and which yet remains, is it not in itself a document, for those who have eyes to read, far more precious than any single work of Greek literature?"

In speaking of the Mycenaean age in Greece, Professor Anderson suggests that the class of work called Mycenaean need not all have emanated from Mycenae or its neighbourhood as a centre, and makes the remark (which comes oddly enough at the present moment), that "if we can accept, as having any foundation in fact, the legend of Minos, his maritime power would explain much that is obscure in the history of the development of this type of culture." We presume this portion of the book was printed off before the discoveries which have proved that Minos was anything but a mythical ruler; but we are rather surprised to find no reference to the point in Mr. Spiers's preface, which is dated September of last year. In giving the plan of Tiryns the author remarks with truth on its considerable resemblance to that of a fortified mediæval castle; and indeed the primitive and inconsiderate manner in which rooms and passages are huddled together both here and at Knossos is characteristic of an age when no plans of a dwelling were made, but the whole obviously arranged (if it can be called arrangement) as the work went on. We agree with the author that the portico *in antis* of the *megaron* is the precursor of the portico of the Greek temple, the house or principal apartment of the god, as the *megaron* was the living-room of the man\*; but when he observes that the baulks of timber placed against the rubble walls of the early structures were reproduced in the *antæ*, "when they had no longer a constructive purpose to fulfil," he is surely hardly doing justice to the æsthetic element in the Greek mind, which would have demanded an answer to the column if no *parastades* had ever existed; indeed, the *antæ* of the cella in a Doric temple are really only the architectural expression of the wall-projection, and hardly presuppose any origin in timber structure. We must protest too against the assumption, as if it were a proved fact, that the columns of the Heræum at Olympia "were all originally of timber and were gradually replaced by stone." That is one interpretation of Pausanias's mention of the wooden column, but it is only one conjecture out of others that are equally possible and to our thinking more probable. The fact is, people reason from such passages to a great extent as their preconceived theories incline them; those who have settled in their minds that the Doric order had a wooden origin clap their hands over Pausanias's wooden column and say—"Ah! there it is, you see!"; but that does not explain the thick proportions of the stone columns; nor, on the theory that the original wooden columns had been gradually replaced by stone ones, and this was the last remnant of the wooden architecture, is it explained how they came to last thirteen centuries, from the time of the assumed date of the temple till the day Pausanias made

\* It is a rather curious parallel to this, that we have quite recently come to regard the Christian temple in its early form—the basilica—as the development from the main apartment of the Roman house.

his visit and his memoranda. It is surely at least possible that the wooden columns he saw (supposing his note to be correct), were a cheap repair made in an unprosperous period, when they did not care to go to the expense of a couple of new stone columns. We are disposed to agree with the author in dismissing the Beni-Hasan columns from their time-honoured position as the *origines* of the Doric column; the non-projection of the abacus is a very strong point against that. The argument—if the Greeks imitated that form of Egyptian column, why did they not imitate others? is not so strong a one. The Temple of the Winds capital is an obvious imitation of an Egyptian capital; it is late in the day, to be sure, but we do not now know what fore-runners it may have had.

The chapter on the Archaic Period in Asia Minor is thoughtful and collects a good many interesting examples of archaic forms of the Ionic capital; but the historic outline is rather vaguely written; we come several times on the expression that such and such facts "seem to have been," but we are given no reason why they seem to have been, and in fact that is a kind of expression generally used when a writer has a theory for which there is no support in actual evidence. But in general the whole chapter is written in a broad and philosophic spirit; we notice especially the remark that it is really of more importance, in understanding an architectural development, to know the object with which the building was planned than the materials of which it was first made. "Temples were built of marble at Athens, and of limestone at Paestum and Corinth, the only effect upon the design being a greater refinement of detail at Athens: the type is one and the same." This is a point apt to be overlooked in these days, when people are so constantly asserting that material is at the bottom of everything in architectural style.

The author devotes a good deal of space to the archaic forms of the Ionic volute, but we can hardly see the grounds for his conclusion that the further we go back in its history the more do we find evidence of its wooden origin, "the spirals being painted or scratched on to the block which distributed the load." Painted spirals surely say nothing as to the original material, as they might equally have been painted on stone. On the other hand, when we come to carved spirals, it is obvious that these could be more easily carved in stone than in wood, in which latter material the more strongly developed and more fibrous grain of the material is at variance with the free carving of such a form as the spiral, which almost presupposes equally facile execution in every direction; and there are examples of carved Mycenaean stone spirals in evidence of this. Professor Anderson rightly draws attention, however, to the original function of the Ionic capital as one for a portico *in antis*, where there are no angle capitals; a position which it takes in some very early rock-cut façades in Asia Minor. But in its nature the volute is far more of a stone than a wood form, and the illustration of the carved slab from Orchomenos, at the close of this chapter, with its spiral ornaments carved "on a slab of green schist," is itself an example of this.

The impression produced by this portion of the book, in which the early history of Greek architecture is dealt with, is that the author was too much under the domina-

tion of previously adopted theories to take a perfectly impartial survey of facts. Of course it must be remembered that the earlier period of Greek architecture, with which he was dealing, is the one in regard to which there are fewer facts, fewer examples, and less positive information to go upon, and therefore more room for the play of theory. It is all interesting reading, thoughtful and suggestive, but a little fanciful, and we are inclined to think that the fancies are not all in the right direction. In his fourth chapter, in which he describes the culmination of Athenian architecture in the great period, he is naturally less troubled with theory, and gives an exceedingly good and well-illustrated summary on the subject, not forgetting the connexion of the art with the political and social conditions of Athens at the time, and with the period of development which had preceded it; the buildings of the Acropolis, as he puts it, "being not so much the works of their particular architects as the matured fruit of a succession of harvests. It was in fact a conservative adherence to the older type, and a traditional respect for previous result, which led them ultimately to such masterpieces as the Parthenon and the Erechtheum, the perfection of which would have been impossible but for the careful and logical progression of the two preceding centuries." Mr. Spiers, who takes up the subject of Greek architecture after this culminating point, is obviously more occupied with giving a summary and illustrations of the known buildings than in entering upon the ground of theory and speculation. Even in regard to the much-disputed question about the Greek stage he contents himself with simply mentioning Dr. Dörpfeld's theory that what had been called the stage—the high Greek stage, was only a background to the orchestra and not a "practicable" stage, without expressing any opinion one way or another. He compresses a great deal of information into the allotted space, and the illustrations are numerous and excellent.

To the portion of the book devoted to Roman architecture we must return in another article.

#### CEMENT TESTING.



N no department of work connected with construction is there greater need for standardisation than in tests of Portland cement. At present two main sources of difficulty stand between the manufacturer and the user, one being the occasional specification of tests that are unnecessary or inconclusive, or both, and the other arising from the fact that different results frequently follow the separate application of presumably identical tests. Considerable interest, therefore, attaches to a paper recently read before the Society of Engineers by Mr. David S. Butler on "Certain Vexatious and Fallacious Cement Tests." In ordinary building construction it is probably true that the adoption of any well-known brand of Portland cement, without any precaution other than the maker's guarantee, would lead to perfectly satisfactory results; but in important works it is always desirable, as well as necessary, to determine precisely the physical qualities of the material before use.

The trustworthy character of many cements now placed on the market, and the vigilant care exercised by the makers themselves in




testing every batch of cement produced, are most certainly due to the strict demands made in specifications within comparatively recent years. Hence, it is clearly desirable that the stringency of stipulations made by architects and engineers should be in no way relaxed. At the same time there should be a proper understanding as to what tests ought to be prescribed so that needless trouble and expense may be avoided. In the paper to which we refer, the author addresses himself chiefly to two familiar operations—(1) the simple test for fineness by sifting a weighed quantity of cement with a sieve having a certain number of holes per lineal inch, and ascertaining the percentage of residue; and (2) the temperature, or "marmalade pot," test brought forward some years ago by Mr. G. F. Deacon. At first sight it seems to be a foregone conclusion that very little difficulty should arise out of the sieve test, but the fact is that no recognised standard exists for the gauge of the wire used in the construction of sieves. Consequently, while the number of holes per inch can be definitely fixed, it is impossible to obtain uniform results unless the manufacturer and the engineer are each furnished with sieves of identical construction. On the Continent and in the United States the standard has been adopted that the thickness of wire shall be one-half the length of the opening. If engineers in this country could be persuaded to agree on this, or some similar standard, all future trouble would be prevented. As things stand, disputes are very apt to arise. Mr. Butler gives an example which recently came before his notice. In this case, the percentage of residue was in dispute, one sieve showing 3·6 per cent., and the other 6 per cent. As the specification only allowed 5 per cent., the acceptance or rejection of the cement depended entirely upon the decision as to which result ought to be accepted. Under such circumstances an engineer might easily think that the more rigid test should be adopted in the interests of his client; but if so, the manufacturer would suffer injustice and expense. It must further be remembered that the general tendency of unlooked-for expense and risk is to increase market prices, and so in the long run the client has to pay for misunderstandings. The duration of sieving is another point to which the author directs attention, and he shows that the percentage of residue is materially affected by the length of time during which the operation of sieving is continued. No doubt most engineers who understand their business are careful to avoid ambiguity on matters such as these, but the fact remains that there are others who lay the foundation for trouble by lack of precision when drawing specifications.

Much of Mr. Butler's paper is devoted to a demonstration of the erroneous character of the temperature test as propounded by Mr. Deacon. This test is as follows:—"A hand sample of cement, a small vessel of water, a marmalade pot and a thermometer, are left together for a short time to acquire a uniform temperature. The cement is then gauged in the pot as quickly as possible, with just sufficient water to render it plastic, and the thermometer being immediately pressed into it, the initial temperature is recorded. If within fifteen minutes the rise of the thermometer exceeds 2 deg. Fahr., or within sixty minutes 3 deg. Fahr., the

cement is further exposed before use." The idea of Mr. Deacon was that this test gave an indication of free lime in the cement, but we think it very probable that he has now ceased to entertain such an opinion. Unfortunately, a good many people still believe in the reliability of the temperature test, and by including it in specifications, cause much unnecessary trouble between themselves, contractors, and makers. In his paper, Mr. Butler gives particulars concerning cements evolving considerable heat when setting and yet passing every known test for soundness, and of other samples showing no rise of temperature, but being at the same time thoroughly unsound and worthless. The fact appears to be that increase of temperature is due to crystallisation during the hardening of the cement, and that temperature is proportionate to rapidity of hardening. Further, it is established that rise of temperature in setting is greater, with finely ground than with coarsely ground cements, and, taken in conjunction with the circumstance that the free lime contained within the coarser particles constitutes the most dangerous form of unsoundness, this is an additional indication of the inconclusive nature of the temperature test. From a letter read during the discussion of the paper, we gather that Mr. Deacon chiefly applies the test to determine the period of aeration necessary to bring a cement of good quality into proper condition for use in the works in which he employs it, and that he has never regarded the test as conclusive alone, or as one to be applied for the purpose of determining whether cement shall be rejected on delivery. Unfortunately, other engineers have so employed this test, and in one case cited by Mr. Butler, a corporation engineer rejected several deliveries as unsound purely on account of evolution of heat, or rise of temperature, during setting, involving the contractor in a law-suit and the loss of several thousand pounds. Therefore, it cannot be too widely known that this so-called test for soundness is nothing of the kind.

As our readers are well aware, there are several recognised tests for cement which may be relied upon for the purpose of affording a sufficient indication as to the suitability of the material for all the requirements of constructional work. It is true that even these tests are not wholly satisfactory, chiefly because the manipulation necessarily varies from case to case. Hitherto it has been found impossible to eliminate the personal factor from testing operations, but even with the disadvantages thereby entailed, there need be no real difficulty in determining with approximate accuracy the fineness, time of setting, soundness, and tensile strength of the material. These are the main features upon which information is required, and engineers will be wise in confining themselves to recognised methods of procedure, and, where necessary, in defining the manner in which results are to be interpreted.

#### COCKERELL'S DIARIES: 1810-17.

 R. S. P. COCKERELL, who edits his father's diaries, makes a kind of apology, in his preface, for publishing these memoranda\*, observing that Cockerell's beautiful sketches

\* "Travels in Southern Europe and the Levant, 1810-1817." The Journal of C. R. Cockerell, R.A. Edited by his Son, S. Pepys Cockerell. London: Longmans, Green, & Co. 1903.

form what may be called his real diary, and that "the letters and memoranda of a youth of twenty-two, who disliked and had no talent for writing, naturally require a great deal of editing." The discovery of the Ægina marbles and of the Phigaleian marbles, also, is already told in Cockerell's "Temples of Ægina and Bassæ"; and in fact it can hardly be said that the memoranda contain anything that is of particular architectural value. Yet we quite agree with the editor that they were worth publishing. Their interest is of another kind. They give a most lively and dramatic picture of the state of the countries visited, and the manners of the people, in the early years of the last century; and moreover they furnish, in a quite natural and unaffected manner, a good idea of the courage and pluck of the young architectural student and sketcher who underwent so many hardships and surmounted so many dangers and difficulties in the pursuit of his investigations. The diary leaves one with the impression that it was rather a piece of good luck (coupled perhaps with his own bold attitude in the face of danger) that its enterprising author was not murdered, on more than one occasion, in the course of his peregrinations. The ways are made much more smooth for the temple-digger now than they were a hundred years ago.

Constantinople was Cockerell's first goal, and one of the most curious points in the diary is the absence of evidence of any interest on the part of the young architect in the great architectural monument of St. Sophia, which would now be the main end and aim of any architectural visit to Constantinople. He only mentions the great building once in passing, in the remark that "to architecture in the highest sense viz.: elegant construction in stone, the Turks have no pretension. The mosques are always copies of Santa Sophia, with trifling variations, and have no claim to originality"; and that is the only allusion of any kind to Justinian's church. He describes the really ornamental buildings of Turkish architecture as being the kiosks or summer residences:—

"The rooms are all so contrived as to have windows on two sides at least, and sometimes on three, and the windows are so large that the effect is like that of a glass-house. The Turks seem to be the only people who properly appreciate broad sunshine and the pleasure of a fine view. Unfortunately the Turkish, which is something like the Persian style, only appears in the architecture. As to decoration, I was bitterly disappointed to find that now they have no manner peculiar to themselves of ornamenting these fanciful interiors. They are done in the old French crikum-crankum [? Louis XV.—Ed.] style, by rascally renegades, and very badly."

The snappish remark about the "rascally renegades" who had imported Louis Quinze into Turkey is amusing. But what about the buildings all window, "like glass-houses," for a hot climate? It seems difficult to believe that there is not some mistake or exaggeration. In the same chapter there follows an amusing description of a day with an acquaintance whom he characterises as "a real Turkish gentleman," who seems, however, to have bored him fearfully. Among other things he mentions that "I presented my visitor with one of those new phosphoric contrivances, and never was an effendi more delighted. 'If you had given me a casket of jewels,' said he, 'I should not have been better pleased.'" The editor suggests that the present thus described was



"a tinder-box"; it was probably what were called in those days "brimstone matches"; slips of dried wood dipped at both ends in sulphur, which were to supersede the less inflammable "tinder" of former days. Striking matches, which the words might seem to imply, were not invented till about fifteen years later. Cockerell sums up—"So passed an idle, odious day. I was worn out with trying to do the agreeable through an interpreter, but—I had seen a Turkish gentleman." And he goes on to admit that "there was something very fascinating about him." Instead of being wearied and flurried with business, here was a man "who calmly enjoyed what he had."

The next chapter describes the arrival at Athens, where Cockerell met with some kindred spirits in the shape of Baron Haller (the German archaeologist), Byron, and others (though the "noble poet" would have been no kindred spirit had he known that Cockerell was after the same kind of business as Lord Elgin), and made the acquaintance of the young Greek lady, one of three beautiful sisters, celebrated in what Cockerell calls the poet's "much over-rated lyric" on the "Maid of Athens." The verses were probably over-rated then and there; but on the other hand Cockerell does not show any evidence of literary interest or poetical feeling at all in his jottings. The glorious past of Greece, save in respect of architecture, does not seem to have moved his feelings, and he is much more occupied with satirising her inglorious present, as it then appeared. The Greek men in their slavery, he says, have become "utterly contemptible, bigoted, narrow-minded, lying, and treacherous. They have nothing to do but pull their neighbours' character to pieces." Byron implies much the same in the notes to "Childe Harold," but he recognises that political circumstances had pretty well made them what they were. It must be remembered, too, that even in ancient times the Greeks had a bad reputation for untruthfulness:—

"Quicquid Græcia mendax  
Audet in historiâ."

There is a characteristic conversation reported in one place between Cockerell and the local authority ("Waiwode"), who wanted to know what he and Lord Elgin came so far and took so much trouble for. "Did it give us a preference in obtaining public situations, or were we paid for it? It was useless to assure him that we considered it part of education to travel, and that Athens was a very ancient place and much revered by us. He only thought the more that our object must be one which we wished to conceal." In the Council of Greek Primates Cockerell saw the French proclamation of the birth of the King of Rome: "The immortal son of Buonaparte is born! Rejoice, ye people, our wishes are accomplished!" to which the Primates gravely objected that "none but God was 'abivaroç.'" We suspect, however, that there is an error in Cockerell's transcription, and that the real reading was, "the son of the immortal Buonaparte," which would put a different complexion on it.

Cockerell visited Crete, and appears to have actually penetrated into what was then called and believed to be "The Labyrinth," i.e. part of the palace lately excavated by Mr. Evans, then a subterranean winding cave entered by a hole in the ground. They brought

a string for a clue, and groped about among intricate passages and halls. "The clearly intentional intricacy and apparently endless number of galleries impressed me with a sense of horror and fascination I cannot describe"; so differently does a thing appear before and after excavation. A curious anecdote is told of how, on his return to Athens at a later date, Cockerell became possessed of a slab of the Parthenon frieze. The Commander of the Castle on the Acropolis had become attached to him, and told him one day that he knew he was very fond of old sculptured stones, and that if he would bring a cart to the base of the Acropolis at a certain hour of the night (for the Greeks had got it into their heads by that time that they did not like the removal of the ancient sculptures), he would give him something. Cockerell kept the appointment; there was a shout above to "look out," and what now forms the right-hand portion of Slab I. of the south frieze in the British Museum was tumbled down the cliff anyhow, not without damage. Of course Cockerell never anticipated receiving it in that fashion; but if Byron had got wind of the incident, there would have been a scathing "P.S." to the "Curse of Minerva!"

As we have said, there is little information in the book that is of special value to architects or archaeologists, except what has been given more fully elsewhere. The book is more one for the general reader; which is to say that, in a sense, its interest is wider than that of a professional record. It is a lively and picturesque impression of scenes and native character and habits as then existing, related by a spirited young man who had his eyes about him. Every one will probably find it interesting to read; and it constitutes, too, a testimony, in the mere facts as narrated, to the courage and resource of the young traveller who was destined to achieve such an honoured position in the roll of English architects.

#### NOTES.

The Fire  
at  
Eton.

THE fire at Eton College, with its lamentable result, is an example of the evils of procrastination in regard to guarding against danger from fire. The Master of the house in which the fire occurred admitted that he had condemned the bars to the windows, and resolved that they should be removed "before they began fires again"; as if conflagrations did not often take place quite independently of any lighted fires in the grates. The Headmaster stated that he had some time before written to all the House-masters calling their attention to the necessity of providing against danger from fire, but he does not appear either to have made any suggestions, or asked for any replies to his circular. Surely this is a very slack way of acting in such a matter. The effective course would have been to have had an examination and report made to him by an expert as to what was needed to make the houses safe, and then to have directed that the masters should report to him, by a certain date, what they had done to carry out the requirements. Over and over again we meet with the melancholy fact that nothing seems to warn people about danger from fire short of a fire with fatal results.

A Question of  
Light and Air.

A SOMEWHAT curious point was recently decided by the Court of Appeal in the case of *Quicke v. Chapman*, though how there could be any doubt upon the matter, and why the parties should have spent their money on litigation, it is difficult to imagine. However, they have had the satisfaction of removing any doubt from one point of law at least. By a building agreement between the Ecclesiastical Commissioners and the defendant, the right was given to him to enter upon a piece of land belonging to them for the purpose of erecting a number of houses upon it. As each house should be erected and completed to the satisfaction of the Commissioners, they agreed to grant a lease of it to the defendant for ninety-nine years. The lease was to be in a specified form, one of the clauses in which provided that the Commissioners should have power to erect on the land adjoining the demised land any buildings whatsoever, whether they should or should not affect or diminish the light enjoyed by the lessee. It was also provided by the agreement that nothing therein contained should be deemed to operate as an actual demise of the land to the defendant, or to create as between him and the Commissioners the relation of tenant and landlord. On one of the plots the defendant erected a house, and the Commissioners granted to him a lease of that house in the specified form. The defendant sold it to the plaintiffs, and transferred the lease of it to them. He afterwards erected on an adjoining plot another house, which, when completed, obstructed the access of light to some of the windows of the plaintiff's house. The absurdity of bringing an action under these circumstances is obvious for two reasons: first—that the defendant had at the most a kind of licence which could not ripen into ownership until he had actually completed the building—in other words, he could not acquire sufficient interest in the adjoining land to enable him to grant a right to light over it until he had himself created an obstruction to the passage of light over it; he was clearly, therefore, not within the terms of the Conveyancing Act of 1881. The second point was that the plaintiff knew that he was buying a house which was on a building estate on which other houses would be erected. People who buy houses or plots under such circumstances cannot expect to have uninterrupted views or air.

Electric Block-  
Signalling.

THE paper on "Railway Block-Signalling," by Mr. Pigg, which has been published in the "Journal of the Institution of Electrical Engineers," is valuable, as it discusses a system which is admittedly capable of considerable improvement. The object of block-telegraph signalling is to prevent more than one train being in the section between two block-signal cabins on the same line at the same time. The apparatus usually consists of outdoor mechanical signals and electrical signalling apparatus, the latter being merely auxiliary to the former. Recently, electrical power control of signals and points has been adopted in a few cases, as, for example, at Earl's Court Station, and there is no doubt that much larger use will be made of electric power when the railways begin to electrify their suburban lines to meet the competition of electric trams. The North-Eastern Railway Co. and the Lancashire



and Yorkshire Railway have already begun to do this. For this reason we think that the Westinghouse electro-pneumatic system, although a great improvement on the older systems, is not likely to be widely adopted. In America it has been tried in practice with successful results. The compressed air to work the signals is supplied by a 2-in. main pipe along the line, and there are compressors at distances of every eleven miles. The safety of this system was tested a year ago when all the telegraph wires were broken by a snow storm, and for thirty hours the running of the trains was governed by the automatic block signals. We think, however, that a purely electric system will be the one most widely adopted in the future. In the Bartelmus method, which has been favourably reported on in Germany, electric signals are given in the cab of the locomotive itself, the electric power to actuate them being conveyed by a third rail. When two trains get too near one another, first a green electric lamp glows on the locomotive, then an audible signal is made, next a red lamp glows, and, finally, the steam valve of the locomotive is automatically closed.

WE have received a letter from a manufacturing firm asking us if we can give them an opinion as to whether "Template" and "Rebate," or "Templet" and "Rabbet," are the correct forms for these two words, as they wish to use them correctly in a catalogue of their work about to be issued. It is a very sensible question to ask, but not an easy one to answer to every one's satisfaction, since authorities differ. Both Gwilt's "Encyclopædia" and the "Dictionary of Architecture" give "Templet," and the latter says of "Template"—"an incorrect form of *Templet*." Is it incorrect? *Templet* is a purely French word, and has a foreign look about it; "Template" is merely the French word altered into an English form; a very common process in our language in the adaptation of words from the French, and therefore we think justifiable. In regard to the other word, both Gwilt and the "Dictionary" give "rabate," the latter adding "sometimes, and perhaps more correctly, written *rabbet*." The excuse for this remark is that it is supposed to be derived from the French *rabbatre*—"to beat down," "to turn down"; though Annandale's English dictionary, which gives "rabbet," derives it from the French *raboter*, "to plane." Johnson's dictionary recognises "rabbet" as a carpenter's word, and gives the correct meaning, but also gives "*rebate*—groove or channel sunk off the edge of any piece of material;" the word also occurring in old English as a verb, in illustration of which Johnson quotes from Shakespeare—

"He doth rebate and blunt his natural edge  
With profits of the mind, study, and fast."

Our conclusion is that "rebate" is the original English word, and that "rabbet" is merely the uneducated joiner's corruption of it. We maintain therefore (as we have already written to our correspondents), that "Rebate" is certainly correct, and that "Template" is a better and more English form of word than "Templet," and therefore preferable.

THE White Lead Corroders' Trade Section of the London Chamber of Commerce has asked us to call the attention of our readers to the fact that a petition is about to be made to the Board of Trade with the object of inducing the Board to introduce into Parliament a Bill to render illegal the practice of selling adulterated white or red lead as "Best" white or red lead. It is proposed that it shall be made compulsory to mark all packages containing adulterated white or red lead with the word "Reduced," and that all such sophisticated material shall be invoiced as "Reduced white or red lead." We are entirely in sympathy with the object of the petition, for it is an open secret that white and red lead are very extensively adulterated with barium sulphate and other cheap pigments, and then sold as genuine materials. We do not consider the use of the word "Reduced" an altogether happy means of conveying the information that the article is adulterated, but in the course of time the true significance of the word would no doubt become generally understood. All grinders, dealers, or users of white or red lead who are willing to sign the petition are invited to communicate with the Secretary of the London Chamber of Commerce, 10, Eastcheap, London.

It is announced that the proprietors have under consideration various schemes for dealing with their property in Finsbury-circus with the object of increasing the present resources, which yield an income of about 3,000*l.* per annum, of the London Institution. The proposals before them comprise amalgamation with another similar foundation, the letting on building leases of some land owned by them in the near neighbourhood, and removal to a new and less costly site. The Institution was established in 1805-6 by a proprietary body "for the advancement of literature and the diffusion of useful knowledge," and had its first home at what had been Sir Robert Clayton's house, *temple*, Charles II., No. 8, Old Jewry, where Porson lived as librarian. In 1812 the library and offices were removed to King's Arms-yard, Coleman-street. Seven years afterwards the institution migrated to the buildings which had been erected by Cubitt in the then Moorfields, at a cost of 31,124*l.*, after plans and designs by William Brooks, upon a site which is now valued at some 350,000*l.* The Corinthian portico of the façade, in Portland stone, is an adaptation from the Temple of Vesta at Tivoli. The library measures 97 ft. by 42 ft., and is 28 ft. high; in the rear is the theatre or lecture-room, having a capacity for 700 persons. Adjoining are the apparatus-room and laboratory; of the latter, designed by W. H. Pepys, F.R.S., there is a view in Parke's "Chemical Catechism," twelfth edition, 1826. The collection of books, begun with a portion of the library of the first Marquis of Lansdowne, is uncommonly rich in English antiquities and specimens of early printing; it includes also a large collection of topographical works gathered by William Upcott, who in 1808 succeeded Porson as librarian. Another librarian, about fifty years ago, was Richard Thomson, author of the valuable book, "The Chronicles of London Bridge," 1827.

LORD MORLEY, Chairman of St. Philip's Chapel, Regent-street, S.W. Committees of the House of Lords, has found as proved the preamble of an unopposed Bill for the sale and disposal of St. Philip's Church, Regent-street, and the Bill is ordered to be reported to the House for third reading. The measure is promoted by the Bishop of London and the Rector of St. James's, Westminster, patron of the incumbency, as trustees; the proceeds will be paid to the Ecclesiastical Commissioners for application to other spiritual purposes and to extinguishment of all existing interests in the chapel, with its pews, vaults, and cellars now enjoyed by persons other than the trustees; the site and soil are to be vested in the trustees for purposes of sale or lease by them. The church was built in 1819-20 from plans and designs by G. Stanley Repton for his brother, the Rev. Edward Repton, at a cost of 15,000*l.* It has a spacious tetrastyle portico, after the Roman Doric order, with a deep angle-pediment and a boldly projecting cornice having widely spaced dentils. The square tower is surmounted with a copy of the Choric Monument of Lysikrates at Athens. A view of the building, after a drawing by T. H. Shepherd, 1827, will be found in Elmes's "Metropolitan Improvements."

A FINE old suburban house, with grounds extending over 34,000 ft. superficial, has been placed, as a freehold property, in the market. Known as "The Huguenots," it stands on East Hill, close to the junction of the two high roads from Vauxhall and Wandsworth Common, and opposite what used to be the Half-Moon and French-Horn fields, latterly covered with roads and streets. The house, which was for some while occupied by the Boyson family, and latterly as a private asylum, derives its name from the adjacent burial-ground known as "Mount Nod," in the angle of the two roads. Mount Nod was used as the cemetery of the French Huguenots, chiefly dyers and hat-makers, who found refuge in Wandsworth in 1685, and worshipped in the old French Chapel in the High-street, opposite the parish church, originally built in 1573 by a colony of Flemings, whom Aubrey describes as workers in brass. The chapel, since enlarged, was pulled down in 1882, when its site was taken for the Memorial Hall built by the Congregationalists.

THE present collection of works at Mr. Wisselingh's gallery in Brook-street is not, we must confess, a very attractive one. It largely consists of what we should call puzzle pictures—very dark and dingy and in which it is difficult, in some cases impossible, to make out the subject at all; Nos. 2 and 3, for instance. Mr. Watts exhibits another edition of his curious fancy of "The Horses of the Sea"; Mr. C. Ricketts three brown studies of which the less said the better; Mr. C. H. Shannon has four monochrome or nearly monochrome studies of mystical interest, interrupted in the centre by a half-length portrait of a lady by Mr. Whistler, also dingy in colour and with an arm drawn and painted anyhow; and Mr. Bauer shows some landscapes in Spain which look rather as if painted with mud as a medium; but there is a school of that kind of paint-



ing now. Mr. Legros exhibits a rather larger picture under the title "Les Bucharons," which of course has some of his quality in it in regard to feeling and composition, but is weak and conventional in texture, and looks rather as if it ought to have been an etching. The relieving points in the collection are a small flower painting by M. Fantin-Latour, and a very good landscape, "Blossom," by Mr. Conder, which reminds one rather of the style of Mr. Mark Fisher, though rather more finished in execution. But in the main it is what we call a very depressing exhibition; artistic intention cannot altogether atone for such masses of colourless gloom.

Paintings of  
Sicily and  
Venice.

At the Society of Fine Arts Gallery is to be seen a collection of oil paintings illustrating Venice and Sicily, by Mr. W. Logsdail, which is of exceptional interest and excellence. Architectural subjects predominate, and Mr. Logsdail paints architecture with remarkable force and truth. In his Sicilian subjects, too—mostly at or in the neighbourhood of Taormina, he gives us emphatically to realise the strong sunshine and heat of Sicily. Nothing could be better in this way than the "Entrance to the Palazzo Ciampoli, Taormina" (12), with all the details of stone and brickwork glaring in the sun; and he gives the texture and surface of masonry, and not merely its colour. A larger work, "Early Morning in June at the Greek Theatre, Taormina" (16), with the remains of the proscenium architecture yellow in the sunlight, and *Ætna* as a background, is one of the finest pictures we have seen of this often-painted locality. Another fine composition is "Naxos and the Sea and the Porta Catana" (21), with a heavy machicolated gate-tower in the foreground, standing out solid and vivid in front of the landscape. Among the Venetian pictures is a fine view of "the Campanile, the Palace, and the Prison" (10), the largest of the Venice scenes, with the water blue and bright in the sunshine and buildings glittering. "L'Abbazia della Miseracordia" (37) is an interesting little corner of architecture; still better is another small painting "The Eastern Angle of the Doge's Palace" (17). Among others we may mention "Sta. Fosca, Torcello" (59), with its grey stained columns, alternately round and octagonal, and their Byzantine-looking capitals; "A Summer Evening at the Naumachia, Taormina" (2); and "A Garden Seat at Sta. Catterina Taormina." Architects should see this exhibition, for it is not every day that one finds architecture so well treated in painting.

Sketches in  
and near Rome.

At the same Gallery is also to be seen a small collection of water-colour sketches by Mr. F. A. Rawlence, under the title "In and Near Rome." These are mostly rather slight broadly treated sketches, marked by freedom of style and good sense of colour and composition, but rather wanting in force in the architectural details. "A Stormy Day on the Terrace of Villa d'Este" (16) is a fine piece of landscape effect, with the dark cypresses standing upright against the sky; "Looking over the Campagna from the Villa d'Este" (12); "Desolate Ostia" (29) with its forlorn row of columns; "Winter Storms

over the Campagna near Rome" (36)—these are among the best of the sketches, which have both topographical and picturesque interest.

#### LETTER FROM PARIS.

THE thirty-first annual Congress of French Architects organised by the Société Centrale des Architectes will be held at Nantes from June 6 to 11. Visits will be made to Angers and to Mans, and the Congress will terminate its proceedings at Paris on June 13 at the Ecole des Beaux-Arts, when the distribution of awards will take place, and the usual banquet. The principal subjects to be discussed will be: The Responsibility of the Architect; Public Competitions; The "Series de Prix" or the Official Price-book; The Provincial Schools of Architecture; The Architect and the New Sanitary Regulations; The Right of Property in Artistic Designs and Photographic Reproduction; and a Notice on the Life and Works of the late Achille Hermant, by M. Charles Lucas.

M. Emile Rivière, sub-director of the laboratory of the Collège de France, has just discovered at Paris in the Rue Hameau, in the Saint Lambert quarter, an important Gallo-Roman necropolis for burials and incinerations. He has advised the Vieux Paris Committee of his discovery, and a sub-committee of its members will visit the excavations in order to decide what will be the best to be done with this interesting discovery.

The interior of the cathedral of Notre Dame is now lighted by electricity. The innovation is much criticised.

The Senate and Parliament have approved the loan to be made by the City of Paris to the Assistance Publique of the sum of 1,800,000*fr.*, necessary for the partial rearrangement of the service of hospitals at Paris. M. Mesureur, the Director of the Assistance Publique, has formed a committee for the purpose of advising on the various schemes now being prepared by the administration for the reconstruction of a certain number of the Parisian hospitals. This committee is composed of MM. Bouvard, Nénot, Pascal, Bunel, and Girault (architects), along with various leading doctors, and three municipal councillors. The above amount will be utilised as follows: a new hospital to replace that of La Pitié, 250,000*fr.*; hospital to replace that of Anber-villiers, 128,000*fr.*; a new hospital with a school for nurses, 400,000*fr.*; enlargement of the hospital of Berck-sur-Mer, 60,000*fr.*; reconstruction of the hospital of Cochin-Ricord, 380,000*fr.*; enlargement of the sanatorium of Hendaye, 20,000*fr.*; reconstruction of the hospital, Broca, 76,000*fr.*; and various important repairs to other hospitals, 480,000*fr.*

The Government has commissioned MM. Umbdenstock and Roger Bouvard with the construction of the official pavilion at the Exhibition of St. Louis in 1904. This building will be an exact reproduction of the Grand Trianon at Versailles. The sum to be spent is 17,000*fr.* M. Umbdenstock was the architect of the Palais des Armées de Mer et de Terre at the Paris Exposition of 1900, and M. Roger Bouvard is the son of the well-known director of the Service of architecture of the city of Paris.

The next excursion of the Amis des Monuments et des Arts, organised and guided by M. Charles Normand, will take place early in June. The main object will be the old Swiss Chalet in the Park of the Mineral Station of Passy. The visit has been allowed by special favour from the Baroness Bartholdi. The visit will comprise the Pavillon des Baigneurs of Abbé Le Ragois, of the style of the eighteenth century, with its interesting decorative woodwork of the same style; the curious vaults and gallery of games, the terraces, the magnificent park, and the old pavilions. The old and authentic "Chalet Suisse," almost entirely unknown to Parisians, with its interesting decorative and painting work, will also form portion of the visit. M. Marcel Leroy will conduct the party, and explain the buildings and other objects.

The Committee of the Hertford British Hospital at Levallois-Perret, Paris, has decided to put into hand at once the arrangement of a new operating theatre to replace the existing one which was installed some thirty years ago, and no longer answers to the requirements of modern surgery. The architect is Mr. Arthur Vys-Parminter, an English architect practising in Paris.

The Medal of Honour for Architecture at the Salon has been awarded to M. Chaussemiche for his restoration of the Acropolis of Auxue, which was referred to and described in our recent article on architecture at the Salon. M. Chaussemiche is a pupil of M. André and M. Laloux, and obtained the Grand Prix de Rome in 1893. In painting M. Gabriel Ferrier carried off the honours, and M. Hannaux in sculpture. In the Section of Architecture the jury awarded medals also to M. Munier and M. Nodet.

M. Clement Ganneau, who has been pursuing his investigation into the case of the disputed tiara of Sallapharnes, has now expressed himself fully convinced that it is really the production of the Jew artist of Odessa, Rouchanrousky, whose work has thus gained a fictitious importance and celebrity rather annoying to French artists, who confine themselves to producing their own work in an open manner, and do not indulge in the manufacture of imitation antiques. The production which has been the subject of so much controversy is now to be removed from the Louvre and find a more suitable place in the Musée des Arts Décoratifs. The clever fabricator has at all events gone off with flying colours.

M. Stanislaus Ferrand, the editor of the *Journal du Bâtiment*—one of the few architects with a seat in the Legislature—has been criticising rather strongly the doubtful methods of the Paris Municipality in honoring the memory of Charles Garnier. As it has been decided to give Garnier's name to a street, it was supposed that it would of course be a street in the vicinity of the Opera House; instead of which, the Municipality has fixed upon a new street recently opened across the site of the old prison of La Roquette, a place which was the last abode of those condemned to death, and where the guillotine stood for many years. To choose such a site for commemorating a distinguished artist, whose great work was not even anywhere near the neighbourhood, is regarded as a most singular and unfortunate blunder, especially in connexion with the indefinite postponement of the inauguration of the monument to him.

We referred in a former letter to the unsatisfactory manner in which the Grand Palais des Beaux-Arts is already showing signs of deficiencies in construction. The heavy rains of the early part of May gave unfortunate evidence also that the glass roofing is defective either in principle or in construction, for during one of the violent storms at that time the rain came through the roof to such an extent that the spectators in one of the larger picture-galleries were seen walking about with umbrellas over their heads. It is hardly creditable that this should be the case with a roof that has only been up three years.

The recent fête of the Villa Medici students is to be permanently commemorated in a work of art. M. Olivier Merson had produced, for the card of the official source, a design so good that it was thought a pity that it should be used only for an ephemeral occasion; and the Government accordingly commissioned the artist to develop it into a decorative picture, to be reproduced in tapestry at the Gobelins manufactory, and preserved at the Villa Medici as a souvenir of the Fêtes of 1903.

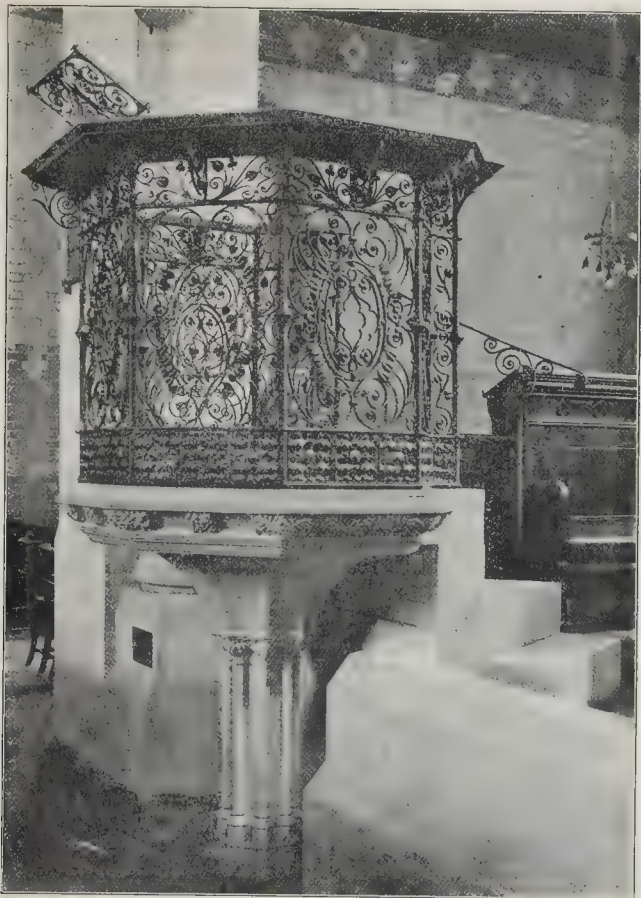
The site for the monument to Pasteur, after the model left complete by Falguière, has at length been settled on; it is not to be on the Place Médicis, as the subscription committee originally wished, but on the Place du Puits Artesien at Grenelle. The spring of warm water there is to be conveyed through pipes to supply a public bath; and M. Girault, who is to carry out the pedestal of the monument, will utilise for that purpose the foundation of the Colonne de Breteuil.

M. Girault has also been commissioned to rebuild the tribunes on the race-course at Longchamps, in the Bois de Boulogne; the Municipal Council are charmed with the designs made for this purpose by the gifted architect of the Petit Palais.

The whole of the vestiges of the last great exhibition have not yet disappeared, and yet there is already discussion in official circles, as to the exhibition which will possibly succeed it in 1904. We say "possibly," for Parliament as well as the Municipality has a part in the decision; and it is unquestionable that in the industrial world there has arisen a

\* We sincerely hope that nothing so foolish will be done. Exhibitions on this scale every ten years would be the ruin of Paris, in every sense; once in a quarter of a century is quite often enough.—Ed.





Pulpit, St. Stephen's, Portsea. Mr. R. A. Crowley, Architect.

decided feeling of hostility to these great shows, of which the last was larger than any of its predecessors, and in a practical sense was very disappointing to the exhibitors. It has been suggested that it would better, in future, to specialise these exhibitions more, devoting each one to a class of production instead of making it universal. M. Gervais, deputy for the Seine, has introduced a proposal, for instance, that in 1905 there should be an international exhibition of science and art applied to automobilism and to sports in general. It is not yet known what kind of reception this proposal will meet with from the Chamber.

One of the ablest official architects to the municipality of Paris, M. Charles André Duprez, has died, in his sixty-ninth year. He was a pupil of Questel, obtained an unusual number of prizes at the Ecole des Beaux-Arts, and was the first recipient of the architectural diploma instituted by the Government in 1869. Having entered, in 1864, into the employ of the Administration, he was Inspecteur des Travaux successively at the Tribunal de Commerce, the church of La Trinité, that of Notre Dame des Champs, and at the Ecole de Médecine. A number of buildings and restorations—some of them, as in the case of St. Sulpice and St. Germain des Prés, of a difficult and delicate nature, gave evidence of his talent and erudition. He was one of the founders of the Société Centrale, and one of the original members of the Caisse de Defense Mutuelle.

**HIPPONDROME, WIGAN.**—A new hippodrome is to be erected at Wigan from the plans of Messrs. Owen & Ward, architects, Birmingham. The building is to be erected in King-street, and will accommodate nearly 3,000 people.

#### MEMORIAL PULPIT, ST. STEPHEN'S CHURCH, PORTSEA.

THE pulpit of which we give an illustration has recently been erected in St. Stephen's Church, Buckland, Portsea, as a memorial. The superstructure is of wrought iron, the lower panels being filled in with repoussé copper, and stands upon a stone base. It was executed by Mr. W. Höfler from designs by Mr. Reginald A. Crowley, both of London.

#### THE LIVERPOOL CATHEDRAL COMPETITION.

WE have been asked to publish the following communication from the Cathedral Petition Committee:—

##### "Liverpool Cathedral.

The several contradictory decisions of the Cathedral Executive Committee regarding the proposed cathedral for Liverpool have been considered by the Liverpool Cathedral Petition Committee, and the following statement has been issued by them to the Press:—

With the present decision of the Cathedral Executive Committee to adopt the design of Mr. G. Gilbert Scott, and to endeavour to enlist sufficient funds to enable them to erect the building upon St. James' Mount site, the Liverpool Cathedral movement seems to have, for the moment, become a somewhat parochial effort to provide a large church for the more especial benefit of one district of the city of Liverpool, and that not a particularly central or populous one.

If this be considered a desirable attainment by those who may be found willing to subscribe to it, there is, perhaps, no great reason

why their desires should not be gratified; but, if subscriptions are to be sought for outside of the particular district affected, it should be clearly understood to what those who subscribe them are contributing; and the Petition Committee would therefore be glad, upon receipt of stamped and addressed envelope, to forward to intending subscribers copies of such of their publications as may afford light upon the subjects of the nature and relative position in the diocese of Liverpool of St. James' Mount site, the impossibility of orientating the intended building thereon, the probable cost of rendering the foundations sufficiently stable to support the fabric, and suchlike.

As regards Mr. G. Gilbert Scott's design for a cathedral, the Petition Committee have to say that if the religious needs of the present century can be perfectly met by a mediæval form of building, and the æsthetic demands of the twentieth century can be satisfied by lifeless copies of thirteenth-century craftsmanship, then there seems likelihood that the combined efforts of two such faithful disciples of the Gothic revivalists of the past century as Mr. G. Gilbert Scott and Mr. G. F. Bodley, R.A., will be capable of producing that result.

The Petition Committee are satisfied that in due time it will be fully realised by all that there are nobler and more complete ideals possible than these, and they are encouraged by the work and the designs of men like Professor Beresford Pite, Mr. Leonard Stokes, and others, to believe that there are living architects capable of fulfilling them.

That the man and the hour will be forthcoming for the fulfilment of these higher aims in Liverpool is the confident expectation of the Petition Committee.

Committee Room, 6, Dale-street, Liverpool,

May 28, 1903."

In respect of the opinions expressed in the above communication, we may here reprint the words which closed our article on the Cathedral designs last week: "What we regret is that, if this cathedral is built, the century will hardly be half out before it will be regarded as an anachronism."

#### ARCHÆOLOGICAL SOCIETIES.

##### NEWCASTLE SOCIETY OF ANTIQUARIES.

A meeting of the Newcastle Society of Antiquaries was held on the 22nd ult. in the Castle, Mr. Richard Welford presiding. The Secretary (Mr. Blair) read a letter from the Secretary to the Bede Memorial movement, intimating that a site had been granted for the memorial at Monkwearmouth. Mr. R. O. Heslop, F.S.A., Junior Secretary, read a note on a newly-discovered Roman altar from the bed of the River Tyne at Newcastle. He said that divers had been employed by the River Tyne Commissioners for some time past in clearing away obstructions from the north channel under the Swing Bridge. When thus engaged, the men found a Roman altar and detached base stone, embedded in the river bottom. Mr. James Walker, C.E., the River Engineer, had the objects removed to a place of safety. The altar was 4 ft. 3 in. high, and measured 19½ in. across its base, and an equal width across its capital. The base of the shaft and the capital united in a form of symmetrical, and it might be said even of graceful, proportions. The face of the shaft was decorated with a panel surrounding by an ogee moulding occupying almost its entire surface. The panel enclosed a representation of a ship's anchor, boldly sculptured, the surface being deeply sloped, to bring the carving into relief. The shank of the anchor was surmounted by a ring, swivelled on the head from the shank. The two arms of the anchor appeared to have been flattened towards their points, and, though the thinner edges were broken, enough was left to suggest that originally they terminated in flukes. The representation of an object so familiar, and so complete in all its details, appeared to be significant, not only of the early development of the typical form here shown, but of its long survival, for it could hardly yet be said to have been superseded. It was an example of forged ironwork, which could be produced only by handicraftsmen of great skill. Mr. C. J. Spence read a note on old anchors.

**BATHS, WEST HUMBERSTONE, LEICESTER.**—With reference to our notice of these baths last week, we are asked to state that the "recessed floors in mosaic" were supplied and laid by Arrolithic, Ltd., Berners-street, Oxford-street, W.



# GLASGOW ROYAL INFIRMARY RECONSTRUCTION:

## THE COMPETITION AND ITS RESULT.

WE have been asked to publish the following correspondence between the Glasgow Institute of Architects and the managers of the Royal Infirmary, in regard to the conduct of the competition for the new buildings. Our readers may remember that the committee threw over the recommendation of the assessor, Sir Rowand Anderson, and adopted a design which was not even among those selected by him for special consideration, and a great deal of dissatisfaction was expressed on the subject at the time. The Glasgow Institute now wish, and we think wisely, to put on record the whole facts and correspondence in regard to this Competition. We give accordingly their letter of the 20th ult. summing up the whole case, and followed by copies of the assessor's Report and of the subsequent correspondence between the Glasgow Institute and the officials of the Infirmary:—

"115, St. Vincent-street, Glasgow,  
May 20, 1903.

SIR—The Managers of the Royal Infirmary having finally rejected the criticisms of the Glasgow Institute of Architects regarding their rebuilding scheme, and refused the advice and assistance offered by that body, the Institute feels it to be its duty to set the whole facts before the general public, those on whose behalf it has acted and for whose benefit the Infirmary exists.

By way of preface to the correspondence, which must be read for adequate appreciation of the situation, a short *résumé* is here given of the salient facts:—

From 1897, when the scheme was first mooted, till the end of 1899 the managers were engaged in endeavouring to obtain, under their direction, satisfactory plans from an architect selected (despite outside and inside criticism) by themselves, but those were finally set aside and a competition instituted. This was undertaken in January, 1900, when ten selected architects were invited to send in designs, Dr. (now Sir) Rowand Anderson being appointed assessor. Undeterred by previous failure, however, the managers (together with the executive committee now acting with them) *first* proceeded to have a species of preliminary competition among themselves, and as the result produced and issued to the competitors two 'suggestive and illustrative' sketch plans. Of both of these the 'Jubilee block,' fronting Cathedral-square, was an essential feature. The general lines of the sketch plans thus produced, and especially the situation of the Jubilee block, were found so radically faulty by most of the competing architects that all of them who had a previous reputation as hospital experts found it necessary to depart more or less entirely from them in the designs they submitted. Of the ten designs the assessor made a short list of four, and a final selection of one, which he recommended for adoption. The Committee, influenced apparently by their own sketch plans and their own opinion as to style of architecture, set aside the award and chose a design, outside even of the short list, which was simply a more fully detailed copy of their 'suggestive' draft.

The Institute of Architects, in May, 1901, addressed to the Managers its first protest and appeal, criticising both the way in which the competition had been decided and the result arrived at, objecting to the whole arrangement of the selected plan as inadequate and out of date, and to the Jubilee block as shutting out the sun and air from the south, as well as at the same time vitally injuring the appearance of the Cathedral, and, finally, requesting that the whole of the plans should be submitted to one or more hospital experts before anything further should be done.

To this no reply was received beyond a formal acknowledgment and reference to an official statement to the public which appeared in the Press on May 18, 1901. In this the criticisms of the Institute were in no way answered, and its suggestion of expert assistance was ignored, but it included (with reference to points raised elsewhere) the important statement that the managers now recognised 'that the new hospital, and not a section of it (i.e. the "Jubilee block") should be regarded . . . as a fitting memorial to the sixty-three years' illustrious reign of the Queen.'

In June of the same year the Institute again addressed the managers, reaffirming its criticism, and offering to bear the expense of the course suggested should the managers not be borne out.

To this no reply was received.

On several occasions during the past winter, and especially at the annual general meeting of the Infirmary, it was stated that the original scheme was to be retained *in toto*, and the work pushed on with vigour. Accordingly, the Institute thought it necessary once more to draw the managers' attention to the fact that no adequate replies had been received to its previous communications, and to press for an answer, with the result only that it was assured by the managers that it was their intention, after the plans had been more fully developed, to

submit them to 'experts—surgical, medical, and mechanical.'

This the Institute, in reply, pointed out would in no way meet the difficulties raised, that expert guidance would then come too late, and might well be set aside as at the first stage of the proceedings. To this last appeal the secretary has replied, closing the correspondence.

It is only under a sense of duty to the public, and after repeated and careful consideration, that the Institute has felt itself warranted in criticising, and so far joining issue with the managers in their onerous and disinterested labours on behalf of a great public institution. In this instance, the Institute believes the managers' labours to have been misdirected in matters of procedure, and yet of the utmost importance, and the managers declining, as they do so far, to meet in any way the advice offered, it remains only to communicate to the public this belief.—In name and on behalf of the Glasgow Institute of Architects.

C. J. MACLEAN, Secretary.

## Assessor's Report.

16, Rutland-square, Edinburgh,

November 9, 1900.

GENTLEMEN,—In this competition ten architects have sent in plans—two of them have sent in alternative designs, making twelve in all, and drawings. I have gone over in detail each individual plan, and compared the accommodation given with the specification of requirements, and, generally speaking, all that has been asked for has been given, but, of course, in different ways. As the Committee have instructed competitors that a pathological institute need not necessarily be included in the plans, my observations will be limited to the Infirmary proper and the isolation wards. Each design is illustrated by the floor plans of the different buildings and elevations of the façades, all drawn to a uniform scale, as stipulated for in clause 8 of the terms and conditions of competition. Separate drawings, in accordance with clause 9, showing the method of heating and ventilating, have been submitted by all the competitors except the author of design marked H. Each competitor has submitted a descriptive memorandum and estimate of the probable cost. The competitors have, with the exception of B and D, complied with clause 18, asking that the façade of the south block should be, by the character of its architecture, commemorative of the Diamond Jubilee of her Majesty the Queen. B and D have no south block, but a large court. In design B the whole court is treated in an important architectural manner. In design D there is no distinctive part of the court treated in an important architectural manner, but there is shown in the centre of the court a statue of her Majesty. The plans submitted by the Committee have been more or less followed by some of the competitors, while others have entirely departed from them. Designs E and F may be taken as examples of closely following the Committee's plans, while designs B and D are an entire departure from them. After a careful and exhaustive study of each design, I placed on a short list designs A, F, H, and J. In bringing to a focus my opinion of the relative merits of these designs, I have kept specially in view:—

First: careful planning, with adaptation to site, and to the amount of sunlight the buildings would receive.

Second: the manner in which the plans lend themselves to the reconstruction of the new infirmary.

Third: The architectural treatment of the building, and especially of the south front, as a commemorative memorial of the Queen's Diamond Jubilee.

I conclude to place F first, H second, J third, and A fourth.—I am, yours faithfully,

R. ROWAND ANDERSON.

115, St. Vincent-street, Glasgow,  
January 21, 1901.

To the Chairman and Managers of the Glasgow Royal Infirmary.

GENTLEMEN,—Recognising it to be your earnest desire that the Infirmary, when reconstructed, should conform to the most modern standards of design in this class of buildings, and that the subscribers and the general public have a right to expect this, we, the Glasgow Institute of Architects, as a body of technical experts in such matters, feel it to be our duty to state that, in our opinion, this result will not be achieved if the reconstruction is proceeded with according to the plans selected by your Sub-Committee in the recent competition.

We attribute this failure not to any lack of zeal on the part of your Committee, or of ability on the part of the competing architects; but mainly to the manner in which the competition was initiated and carried through, and that in the following respects among others:—

I. That along with the printed conditions provided for the competition, there were issued two sets of sketch plans indicative of alternative arrangements which the Sub-Committee recommended, and which were stated in the accompanying report to be drawn by, or under the direction of, two members of the Sub-Committee respectively.

II. That a Jubilee block to be situated on a particular part of the site was insisted upon as an integral part of the scheme.

The results of these elements in the conditions were:—

(a) That the competitors and the assessor were hampered in the exercise of their individual judgment as to the main points of importance in such a building—viz., the distribution of the various buildings with respect to each other for convenience of working and of all for the freest access of sun and air.

(b) That the competitors were placed in the invidious position that, in the event of the schemes recommended by the Committee not proving themselves to be in accord with their judgment and experience, they were bound, in departing from them, to meet with disfavour from those influential members of the Committee who would enter upon the examination of all the plans with minds necessarily biased in favour of those which they themselves had put forward, while reserving their position as judges.

(c) That as the result, the proposal that Plan E be accepted, which became the finding of the meeting, was moved by the gentleman who was actually the author of the scheme which was adopted and worked out in detail by this competitor.

III. That neither of the sketch plans issued are in accord with the present-day principles of hospital design, as might indeed be expected, seeing that their authors have not enjoyed the training which would qualify them as surgical, medical, or architectural experts; that, in fact, the plans are in many vital particulars inadequate and out of date, and that these facts are naturally displayed equally in the selected design which is but an elaboration of one of them. A corroboration of this assertion with regard to the radical faultiness of the plans in question is furnished by the fact that six out of the ten competing architects found it necessary, in spite of risk of possible consequences already alluded to, to entirely throw over the schemes furnished to them, and that among these are found all the four architects from outside of Glasgow (two from London and two from Edinburgh), who were presumably invited specially on account of their knowledge of hospital design.

Such being the opinion of the Institute after a very mature and careful consideration of the whole subject, we would most earnestly urge the Managers, before committing themselves and the public to the erection of any portion of the building, as designed, to have the plans submitted to one or more independent hospital authorities of recognised and outstanding position, for consideration and report.

Apart from the all-important question of the erection with the public funds of an entirely adequate and modern hospital, we, the Institute of Architects, feel it necessary to lodge a protest against the setting aside by the Sub-Committee, without any reason given, of the award of the professional assessor, Dr. Rowand Anderson—the more so that a simple majority of one was considered sufficient to overturn his judgment—as liable to prejudice the success, alike for promoters and architects, of future competitions in Glasgow. And we have further to state, that the erection of a Jubilee block, such as is proposed, seven stories high, and in the position selected, will, if proceeded with, dwarf and irretrievably injure for all time the external appearance of the Cathedral. The foregoing statements represent the unanimous finding of the Glasgow Institute of Architects, as a meeting specially called to consider a report of the Council on the question, and as the matter is not only one of the greatest public importance, but of extreme urgency, owing to the proposal of your Sub-Committee to proceed at once with the erection of the northern block, it has been communicated to the public Press at the same time as it is submitted, with our earnest prayer for its consideration, to yourselves.—In name and on behalf of the Glasgow Institute of Architects, C. J. MACLEAN, Secretary.

## Royal Infirmary Competition.

115, St. Vincent-street, Glasgow,  
March 20, 1901.

DEAR SIR,—In acknowledging the letter of this Institute, dated January 21, the secretary of the Infirmary mentioned that the matters with which that letter deals belong to the Executive Committee on the Reconstruction of the Infirmary originally appointed, of which the Lord Provost is Convener, and you are Secretary, but beyond that formal acknowledgment this Institute has received no answer to the letter. I am now instructed to request a reply, and for your convenience, I enclose copy of the letter referred to.—Yours truly,

(Signed) C. J. MACLEAN.

J. Nicol, Esq., Secretary.

Executive Committee on Reconstruction of Royal Infirmary, City Chambers.

## Royal Infirmary Reconstruction.

Glasgow, May 18, 1901.

DEAR SIR,—With reference to your letter to me of March 20, I had the opportunity yesterday of submitting it to the Executive Committee. It so happened that the Committee at yesterday's meeting



approved of a statement for the information of the public on the whole subject of the Royal Infirmary Subscription Scheme, and as it deals also with the matter of your letter, I send you copy of the statement, which will serve as the Committee's answer to your letter. The statement also appears in this morning's paper.—Yours truly,  
J. NICOL.

C. J. MacLean, Esq., Secretary,  
Glasgow Institute of Architects,  
115, St. Vincent-street.

#### Excerpt from Official Statement.

While such questions were being discussed between the Managers and the Executive Committee of Contributors, and between the managers and the staff, other points were raised in the public Press and elsewhere, by which the plans for the reconstructed infirmary had been selected, as well as of the adopted plan itself. It is necessary, therefore, in order to the removal of misconceptions from the public mind, to refer to the various points which have been mentioned.

#### The Reconstruction Plans.

In regard to the plans, this must be said—The Executive Committee and the Managers bestowed on the subject lengthened and painstaking consideration. Authorities on hospital construction were consulted, and the Committee to be formed in Great Britain and America, and the views of the staff of the infirmary as to the general conditions and special requirements of the institution were carefully ascertained. As a result of all this, seven sketch plans were, under direction of the Managers, prepared by Mr. George Hill, comprehending the extent specified by the staff, and after due consideration agreed to by the Managers as necessary for an infirmary which was desired to be abreast of the foremost institutions of the kind. Of these sketch plans, two which were specially selected by the Managers, were submitted to ten selected architects, but were distinctly stated to be 'suggestive and illustrative only,' not binding. To assist the Executive Committee in deciding on the competing plans, Dr. Rowand Anderson was appointed as their assessor, his function being, as he himself frankly acknowledged, to guide and advise, not to select. When the final selection was made, the Executive Committee fixed on a plan which the assessor reported as being one of two which most closely conformed to the sketch plans. The other of these two plans the assessor had placed first of all, but he had not included in his short list that fixed on by the Executive Committee. Further interviews with the assessor satisfied the Executive Committee that its exclusion arose from no failure on the part of the selected plan in regard to vital or essential particulars, but chiefly from a difference of opinion in regard to the style of architecture and the general elevation—matters on which the Executive Committee ventured to think they were quite entitled to follow their own opinion, and the minority cordially acquiesced in the selection of the majority.

#### Internal Arrangements.

As regards internal arrangements, the plan selected by the Executive Committee is to be preferred, for the following reasons:—

1. That it provides on the main floor of through corridor communication from end to end of the building without passing through any of the wards.
2. On account of the superior lighting of the wards, by which every bed shall have share of a window for light and ventilation.
3. That the venereal ward shall be isolated from all other wards.
4. That small wards or side rooms are conveniently situated, so that they can be entered without passing through the main wards; and
5. It gives a promenade on the roof for convalescent patients.

Like most other plans of similar magnitude, the internal arrangements of this plan are in some respects no doubt open to modification and improvement, and every care will be taken by those responsible for the work to ensure that all the arrangements shall be as perfect as possible.

#### The Infirmary and the Cathedral.

It has been alleged that the buildings, being so lofty, will dwarf the Cathedral. The buildings must be lofty if the hospital requirements of the public are to be adequately met, and the Executive Committee believe that they have shown discretion in approving the architectural style of the adopted plan. It is distinctly Scottish—the national art of the fifteenth and sixteenth centuries, of which we have examples in Heriot's Hospital, Holyrood, Linlithgow, and Falkland palaces, and in our own old college lately in the High-street. It is, therefore, not only appropriate to the historical associations of the site upon which stood the castellated bishop's palace, but permitting, as it does, a limited use of Gothic forms—as in Heriot's Hospital, Edinburgh—it is more in harmony with the Cathedral itself than any classic or modern style. It was not, however, this consideration, but the superiority of the plans, which chiefly influenced the judgment of the Executive Committee.

115, St. Vincent-street, Glasgow,  
June 25, 1903.

To the Executive Committee of the Contributors to the Royal Infirmary Reconstruction Scheme.  
GENTLEMEN,—I duly received your letter of

18th ult., which has already been acknowledged, and I am instructed to state that the Glasgow Institute of Architects regrets that no more explicit reply has been vouchsafed to its protest and appeal, by the managers and the executive, than what is contained in the official statement issued to the public. Nothing in that statement in any way answers or refutes the objections previously raised by the Institute. The statement, indeed, rather confirms them; and the Institute therefore remains of the opinion that the plans as adopted 'are in many vital particulars inadequate and out of date'; that their distribution on the site, particularly with regard to the 'jubilee block,' facing Cathedral-square, is bad, and that in consequence, if the reconstruction is proceeded with according to those plans, the infirmary will not conform to the most modern standards of design in this class of building.

The criticisms of the Institute on the previous occasion were chiefly concerned with (1) the manner in which the competition was conducted, according to which solutions of the problem other than those put forward by the managers did not receive unbiased and adequate consideration; and (2) the insistence on the Jubilee block as an integral part of the scheme. Such a block the Institute considered to be objectionable, because (a) it would shut out from the rest of the buildings the sun and air from the southern and most open part of the surrounding area, and (b) it would dwarf and irretrievably injure the external appearance of the cathedral.

With regard to the first of these two points, while the Managers in their letter refer to the block plans, which they had prepared with much care and labour, as being 'suggestive and illustrative only,' and this is repeated in the statement and appeal of the Executive, one learns also from this letter that 'when the final selection was made the Executive Committee fixed on a plan which the Assessor reported as being one of two which most closely conformed to the sketch plans, i.e., those drawn up by the managers. As regards the objection to the adoption of this particular plan, the Executive give a list of special characteristics in respect to internal arrangements which they consider to be essential or desirable features; yet these were all contained in other designs submitted, which were at the same time free from the radical defects referred to.

As to the Jubilee block, the managers now state as their sixth conclusion—'That the new hospital, and not a section of it, should be regarded as alone worthy of the city of Glasgow, and as a fitting memorial to the sixty-three years' illustrious reign of the Queen.' This is exactly the position adopted by several of the competitors, and by the Institute, while objecting, from a practical reason, already stated, to its inclusion as part of the scheme. With reference to the cathedral, it is, therefore, quite beside the point for the executive to state that 'the buildings must be lofty if the hospital requirements of the public are to be adequately met,' for, while the buildings must be lofty, on other portions of the site (if that site is to be retained) there is no necessity for their being lofty in the direct alignment with the cathedral, nor, indeed, for there being any buildings at this point at all, as was shown in one or more of the plans submitted. The Institute does not admit that the injury to the cathedral is a question of architectural style; it is one of comparative height and scale. As regards these, the plan adopted by the Institute is one which is not only in the block itself seven stories high, but it has in addition a lofty spire which would further and quite unnecessarily assist to dominate and destroy the effect of the cathedral.

The Institute of Architects feel it to be their duty in the interests of the public (for whom they speak as a body of technical experts in such matters), to thus repeat and emphasise their protest, and to again most earnestly urge the Executive, before committing themselves and the public to the erection of any portion of the building, as designed, to have the plans submitted to one or more independent Hospital authorities of recognised and outstanding position, for consideration and report. Further, should the Executive object to the outlay involved in such a course, the Institute would be prepared to arrange for it and to meet the cost provided the Report did not bear out their contention, while submitting beforehand the name or names of the experts proposed, on obtaining the necessary facilities from the Executive.—Yours truly,  
C. J. MACLEAN, Secretary.

115, St. Vincent-street, Glasgow,  
February 10, 1903.

To the Chairman and Managers of the Royal Infirmary.

GENTLEMEN,—In the matter of the proposed rebuilding of the infirmary, I am instructed by my Council to remind you that in January, 1901, and again in June of the same year, a protest and appeal were put forth by this Institute addressed, in the first instance, to yourselves, and in the second to the then 'Executive Committee.' To neither was a direct or adequate reply received at the time, and it has been recently stated in the public Press that it is proposed to proceed shortly with the work on the original lines. In these circumstances, the Council of the Institute has again had the matter under consideration; it remains of the same opinions previously expressed and unanimously confirmed by the general body of

the Institute, as set forth in the memorials then submitted, and of which copies are enclosed. My Council would therefore again beg you, in the interests alike of the infirmary and the City of Glasgow, to give the proposals therein contained your earnest and favourable consideration.—Yours truly,  
C. J. MACLEAN, Secretary.

Glasgow Royal Infirmary, Secretary's Office,  
93, West Regent-street, Glasgow,  
February 26, 1903.

C. J. MacLean, Esq., Secretary, Glasgow Institute of Architects.

DEAR SIR,—I am instructed by the managers of the Royal Infirmary to acknowledge receipt of your letter dated 10th inst., and to say that they having accepted the plan adopted by the Executive Committee, believing it to be the best obtainable after a perfectly fair adjudication among ten architects of acknowledged standing, the Glasgow Institute of Architects may rest assured that the managers will spare no pains to make the new infirmary conform to the most recent advances in hospital construction. I am to add that it is their intention, as it always has been, to submit the internal arrangements, when further adjusted, to experts—surgical, medical, and mechanical—on whose knowledge and experience they can rely.—I am, yours truly,  
HENRY LAMOND, Secretary.

115, St. Vincent-street, Glasgow,  
March 27, 1903.

Henry Lamond, Esq., Secretary, Glasgow Royal Infirmary.

DEAR SIR,—I duly received your letter of 26th ult., which has been carefully considered by my Council, with the result that they cannot but hold it an unsatisfactory and inadequate reply to this Institute's previous memorials and letters to you on the subject.

The Institute's objections to the proposed scheme as previously expressed may, in the main, be summed up under three heads:—1. The setting aside of the assessor's award and other unsatisfactory features of the adjudication on the competition designs with the resultant injustice to the competitors. 2. The nature of the design thus selected, as regards its faulty distribution of the buildings on the site, and especially the seven-story 'jubilee block,' placed so as to shut out the sun and air from the surrounding area. 3. The irretrievable injury to the cathedral from the contiguity of this abnormally lofty building.

Your intimation that 'the internal arrangements will be submitted to experts—surgical, medical, and mechanical'—after the further development of the plans, is therefore not to the point, as not one of the Institute's objections above stated will be met or satisfied by the course thus indicated. Further, there is no indication that other points in connection with the internal and external treatment of the buildings, which the Institute objects to, but has hitherto refrained from specifying in detail, will be satisfactorily dealt with by such experts, or, if they are, that they will be given effect to after the plans have been developed, especially as the expert opinion previously engaged by the Board in the person of the assessor was disregarded, and that which the Institute now proposes is apparently refused.

The submission of the whole scheme in its present state to one or more experts of acknowledged position from a distance, which the Institute in 1901 offered to arrange for and, if needed, to itself pay for, still seems the only way in which the Board can meet the criticism of the Institute and set itself right with the public. My Council is therefore at a loss to understand why the managers have not seen their way to adopt this course in the past, and while giving no reasons to the contrary, from the tenor of your letter, apparently still refuse to do so.

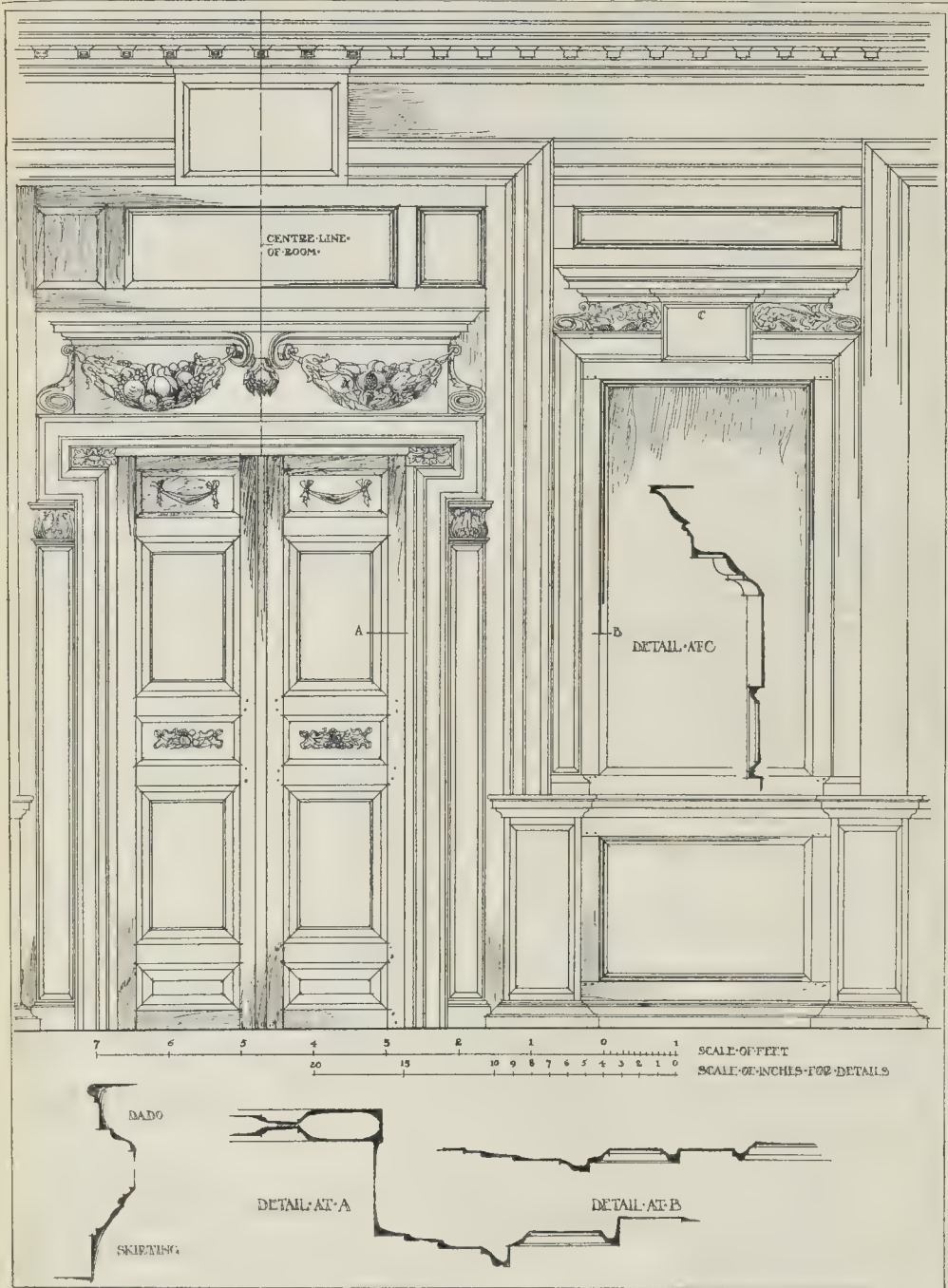
May I ask, before making this further correspondence public if found necessary, for a definite statement from you regarding the above policy.—In name and on behalf of the Glasgow Institute of Architects, yours truly,  
C. J. MACLEAN, Secretary.

Glasgow Royal Infirmary, Secretary's Office,  
93, West Regent-street, April 9, 1903.

C. J. MacLean, Esq., 115, St. Vincent-street.  
DEAR SIR,—I am instructed by the managers of the Royal Infirmary to acknowledge receipt of your letter to me of 27th ult., and to say, in reply, that, while they do not accept the criticisms of your Institute as accurate, they have given them further careful consideration, and are unable to see what good purpose can be served by a continuation of this correspondence.—I am, yours truly,  
HENRY LAMOND, Secretary."

WESLEYAN CHAPEL, HAWKSWORTH, NOTTINGHAMSHIRE.—The new Wesleyan chapel and Sunday school at Hawksworth were opened on the 27th ult. The new building, which has been designed by Messrs. Walker & Collinson, of Bradford, is in the Gothic style. The chapel provides seating accommodation for 120 persons. The schoolroom and the vestry (the latter may also be used as a classroom) both communicate with the chapel, the former having a separate outer porch and entrance. A movable partition divides the two rooms.





Details of Dining-Room, Thorpe Hall: Reduced from plate in H. Tanner's "English Interior Woodwork." (See page 502.)

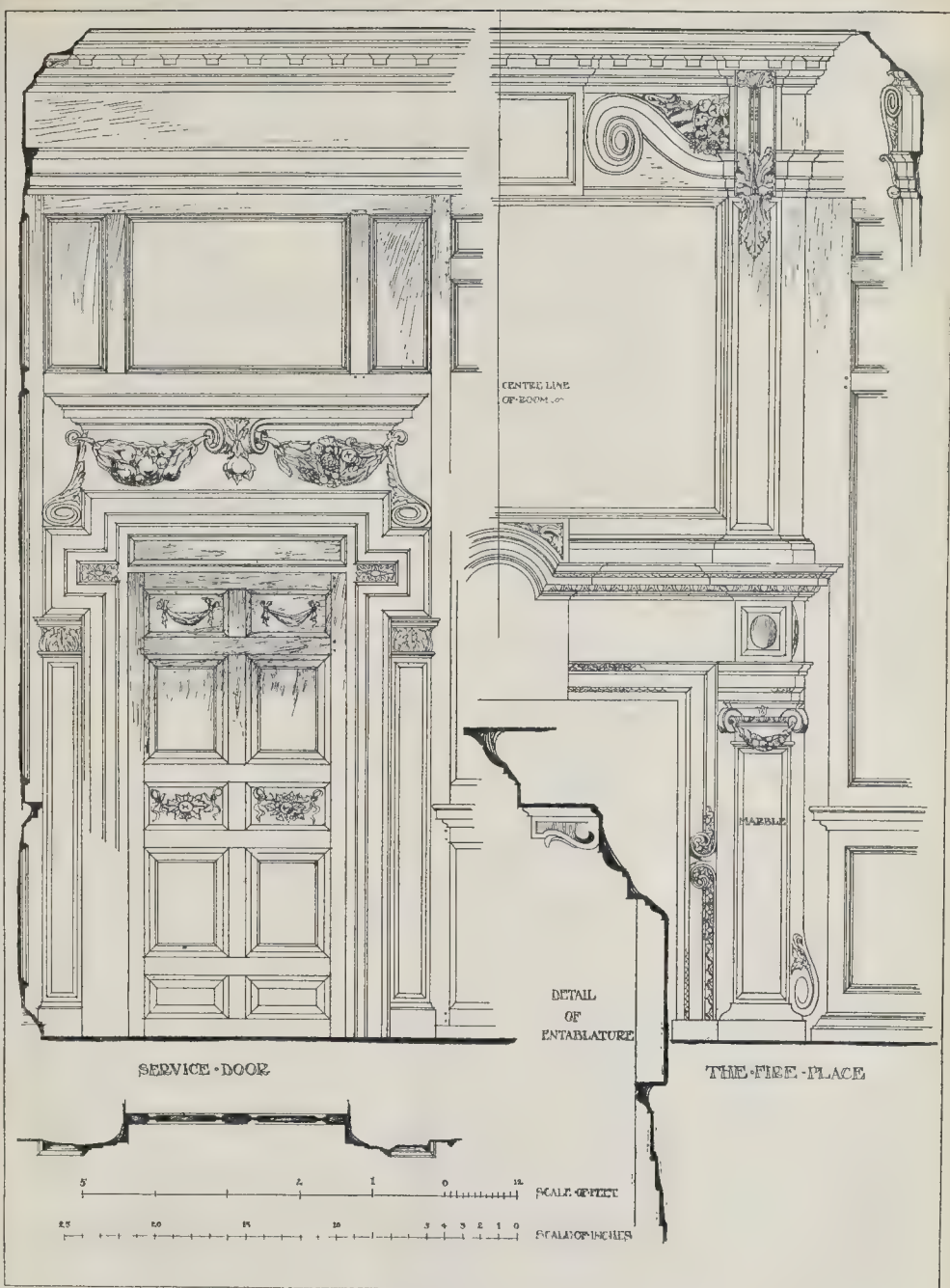
#### ENGINEERING SOCIETIES.

THE JUNIOR INSTITUTION OF ENGINEERS.—On Thursday, May 28, the members of this Institution, by permission and under the personal guidance of the Engineer, Mr. Joseph Francis, M.Inst.C.E., paid a visit to the Staines Reservoirs Communication Works of the New River Co., special arrangements for their reception having been made by the contractors, Messrs. John Aird & Sons, of whom

Mr. Basil P. Ellis was present. The intake is formed at the side of the Staines Reservoirs Aqueduct, and is furnished with an automatic gauge for measuring the quantity of water received. Thence the water will flow into a suction tank having a capacity of 1 million gallons, from which it will be pumped to a height of 24 ft. into two subsidiary reservoirs having a joint capacity of 300 million gallons and a total area of 62 acres, the depth of water in each being 20 ft. The embankment of the

reservoirs will be of earth, with clay puddle walls in the middle, carried down to the London clay that underlies the site. From the reservoirs the water will flow through lines of 42-in. pipe to the filter beds, first passing through tanks provided with float valves to retain the water surface in the beds at a fixed level. There will be twelve filter beds, each of an area of three-quarters of an acre. The filtered water will be pumped through a 42-in. main,  $13\frac{1}{2}$  miles in length, to





Details of Dining-Room, Thorpe Hall: Reduced from plate in H. Tanner's "English Interior Woodwork." (See page 592.)

Cricklewood, where it will be again pumped through a main 3½ miles in length to a service reservoir at Fortis Green, Finchley, at a level of 298 ft. above O.D. The engine-house will contain two first-lift engines, three second-lift engines, auxiliary engines, and eight boilers. There will be in connexion therewith an octagonal chimney shaft, 135 ft. in height. Six sandwashing apparatus will be provided, and settling tanks and coke filters for treating the

effluent water from the sandwashing, before its delivery through a line of pipe, two miles in length, into the River Thames. There will also be provided coal stores, offices, a fitting and other shops, stores, stabling, a residence for the manager, and cottages for workmen. From the adjoining railway a siding will be formed for the conveyance of coals, sand, castings, and other material required. The Act of Parliament authorising the construction of the

above-mentioned and other works at a cost of 1,000,000l. was obtained in the year 1897. Notable features of the inspection included the colossal engine-house; the processes in the formation of the puddle walls for the reservoirs; the ingenious gravel-washing apparatus; puddle-clay excavation by means of steam navy; puddle-mixing machine; locomotives, waggons, &c., on the contractor's railway, of which there are ten miles laid.



## Illustrations.

### DESIGN FOR LIVERPOOL CATHEDRAL.

WE complete our illustrations of the selected design for Liverpool Cathedral by Mr. G. G. Scott, by illustrations of the longitudinal section and the detail elevation of two bays of the nave. This drawing shows the treatment of the more lofty vaulted bays which alternate with the barrel-vaulted portion of the nave, as shown in the section, and the large two-light clearstory window here introduced. The details are in the true spirit of mediæval Gothic; indeed the drawing might almost pass for a measured drawing from a mediæval cathedral. This praise is thoroughly due to it; unfortunately we hardly think it is the kind of merit which a modern architect should aim at.

### CAPE UNIVERSITY COMPETITION: SECOND PREMIATED DESIGN.

WE give this week the perspective and geometrical drawings of the design by Mr. J. Edwin Forbes, of Birmingham, which obtained the second premium in the Cape University buildings competition. We commented on the main points of the design in the review of the competition in our issue of May 23 (pp. 532-3 ante). The plan is a simple and sensible one. As we pointed out before, the perspective view does not agree with the elevations, the projection of the cornice having been greatly increased; an alteration which adds very much to the effect of the building, and which might of course have been carried out, though in the present case it appears to have been only the result of an eye to scenic effect by a draughtsman who seems to have realised that an exceptionally projecting cornice would go far to give to a building with ordinary Classic details the appearance of having been specially designed for a hot climate. It has that result, at all events, and would have been architecturally a very suitable design for its position.

## Books.

*English Interior Woodwork of the XVI., XVII., and XVIII. Centuries.* Measured and Drawn by HENRY TANNER, JUN., A.R.I.B.A. London: B. T. Batsford. 1902.

THIS is one of the best books of illustrations of woodwork that has appeared for a long time. The author has endeavoured to turn as far as possible to examples not among the best known or most often illustrated; and they nearly all represent work which is of value and interest for its own sake, though in some cases crude in the sense of style and proportion. As the author remarks in his preface, the style prevalent in England in the later Renaissance period was one in which no general system of proportions prevailed. Consequently a great deal of the elaborate woodwork of the period presents the appearance of Renaissance forms treated or adapted by artists with no scholarly training, who produced a picturesque adaptation of Italian forms without the refinement of line and proportion of the original style. To our thinking this is a greater defect than is quite recognised but those who draw, illustrate, or copy old English woodwork; and though, as Mr. Tanner says, the mantel, &c., from the house at Ipswich shown in his plate II. "has an attraction" from its picturesque quality and originality, there is a clumsy appearance about some of its smaller details, and a kind of prim stiffness about the lines of the design, which take it out of the category of first-class art work; it is a charming sort of work to come across in an old house, and worth illustrating as an interesting and new example of the art of the time in England; but the value of the drawing is as an illustration and not as an example for study. To some extent we should say the same of Wadham screen, of which a fine illustration, reproduced from a pencil drawing, is given on Plate XVI.; the proportions of this are good, and the mouldings well profiled, but the little round-arched architectural features in the panels in the wainscot and above it are really not suitable to their

situation and a rather childish manner of filling a panel; they are interesting as examples of the taste and artistic habit of the period, but not for imitation. Most valuable suggestions, however, any one who is designing wooden screen-work or wainscot work could get from such a book as this, if he will use them as suggestions and not as copies.

The author has made it an object to show as far as possible the entire treatment of a room, with door, fireplaces, panelling, &c., rightly judging that the study of a complete scheme is of more value than details taken separately.

The drawings are more careful and finished than is sometimes the case in woodwork illustrations, and those done in pencil are particularly excellent and very well reproduced. Examples are taken from work at the Charterhouse, Ipswich, Hardwick Hall, Colleges at Oxford and Cambridge, Bolsover Castle, Thorpe Hall, St. Stephens, Walbrook, and other places noted for their woodwork of the period included.

As an example of the manner in which the illustrations are carried out we give in the present issue (see pp. 590, 591) a reduced copy of Plates XXXVII. and XXXVIII., the Dining-room at Thorpe Hall, Peterborough, reproduced from the original drawing. Some of the carved details in other plates are of more richness and effect than anything shown in this one, but it is a good illustration of the author's method of showing the whole disposition of the work, and the treatment of the architraves and panelling is effective and of value as suggestion, and we prefer this more severe architectural stamp of work to the fine frenzy of the door from St. Lawrence Jewry in an adjoining plate, with its luxuriant swags and festoons; fine carving but bad art.

*A Beautiful World: Journal of the Society for Checking the Abuses of Public Advertising.* London: John Bale & Sons & Danielsson. 1903.

THIS issue of the Journal of "SCAPA" forms a kind of summary of what has been done and said on the subject of the advertisement nuisance during the last three years. Part of the matter consists of revised issues of papers that have been some time in circulation; but a considerable proportion of the volume consists of reports of meetings and discussions, which are of interest as throwing light on the state of public feeling in regard to advertisements. We have also information as to discussion and legislation on the subject in foreign countries. The Prussian Parliament, we learn, has passed a Bill to prevent the disfigurement of the Rhine by large advertisements on the banks. A very drastic Report of the "Société pour la Protection des Paysages de France" is included. On the question of the taxation of advertisements the Chancellor of the Exchequer seems to have very inadequate ideas. He was asked to consider the taxing of advertisements, and replied that he could see no grounds for a tax on advertisements unless newspaper advertisements were included. As the secretary of "SCAPA" pointed out, the two classes of advertisements are under totally different conditions; no one is obliged to look at newspaper advertisements, and they do not spoil any public effect, whereas the posters on walls are thrust upon the sight and one cannot escape from them. We wish, however, that some move could be made against the increasing habit of inserting large flyleaf pictorial advertisements into the middle of magazines. One gets some magazines in which the reading of every article is interrupted by the reader coming on a "monkey brand" or other similar advertisement inserted between the pages. The report of the discussion at the London County Council on the subject of the advertisements in the L.C.C. tramcars is amusing reading. Mr. John Burns spoke up vigorously against the advertisements, but was not successful. We expect, however, that public opinion will demand their suppression before long. Any one who has travelled in tramcars in cities where (as in Glasgow) no sort of advertisement is permitted, must have been struck with the superior appearance of the cars under such conditions. It is a positive annoyance to be confronted with the multifarious and gaudily-coloured advertisements to be seen in London omnibuses and tramcars.

"SCAPA" has done much already in arousing public opinion on the advertisement nuisance; we hope it will go on and prosper.

*A Word about Fans.* Electrical Booklet No. 3. Manchester: R. J. Nicholson & Co.

MESSRS. NICHOLSON point out the advantages of electric fans and give descriptions of desk, bracket, and ceiling fans (punkahs). We agree with them in thinking that fans might often be employed advantageously in summer in offices, workshops, &c. The initial cost of an electric fan is only three or four pounds, and its running cost is no greater than the cost of keeping a 16 c.-p. glow lamp burning. Fan motors can now be supplied that will work with any kind of electrical supply, and, when properly fixed, they are practically noiseless.

## TRADE CATALOGUES.

WE have received from the General Electric Co., of Queen Victoria-street, their new catalogue of accessories and glass for electric light fittings, together with their May progress leaflet. The latter shows that considerable reductions have been made in the prices of high voltage fittings. This takes away one of the arguments from the consumer's point of view against the supply companies increasing their pressure. We are glad that the revised wiring rules (1903) of the Institution of Electrical Engineers insist on suitable fittings in high pressure circuits. A new ball fitting with a very simple locking joint, entirely avoiding the danger of twisting the wire, will be appreciated by wiremen. The glassware is highly decorative, and many novel designs are shown in flint, frosted, iced, etched, opalescent, and satin finished shades for electric lamps. A great variety of shop window reflectors are described, and the fitting for use in orchestras ought to prove useful.

The General Foundry Co. send us their illustrated catalogue of wrought-steel windows and cast-iron windows. The wrought-steel windows are excellent in sections of bars and in make, but we do not like the "ornamental" bosses at the meeting of the rails. Their practical object is to avoid difficulties in mitring, but something simpler would be better than the commonplace flower design adopted. The catalogue also includes designs for exterior fire-escape staircases. The same firm also send an illustrated catalogue of their cast-iron casement windows, with sections showing the fitting of the sash and frame.

Messrs. Stanley Bros. (Nuneaton) send their catalogue of red roofing tiles cut to different patterns and slopes. A diagram of slopes is added for ordering hip and valley tiles.

Messrs. D. T. Bostel & Sons send a pamphlet describing and illustrating the Bostel grate, of which we have a very good opinion. The following is part of the description:—

"The Bostel Patent Combined Sunk and Lifting Fireplace is made so that the fire burns either sunk in the hearth or it can be tilted up to burn with the bars raised. The advantages of this combination are great. No air duct has to be provided through the hearth, yet there is no difficulty in getting the fire to light or to burn up when required. The grate when tilted up induces a quick draught, and the fire soon becomes a glowing mass of smokeless fuel; the bars are then lowered to the sunk position, bringing the fire well forward so that practically the whole of the heat generated is given out into the room, and the gases as they pass into the chimney are quite cool. Combustion is slow; the fire will burn for hours without any attention or additional fuel, and the coal burns away to a powder, which falls into the pan below the bars and is easily removed.

The action of the grate is perfectly simple and safe; there is nothing to get out of order, and should repairs be necessary at any time they can be made without dismantling and with ease."

One of the advantages of this grate is that it only necessitates a very narrow fireplace opening (about 13 in.); and where it is necessary to provide for a great many flues in one stack this is a great convenience.

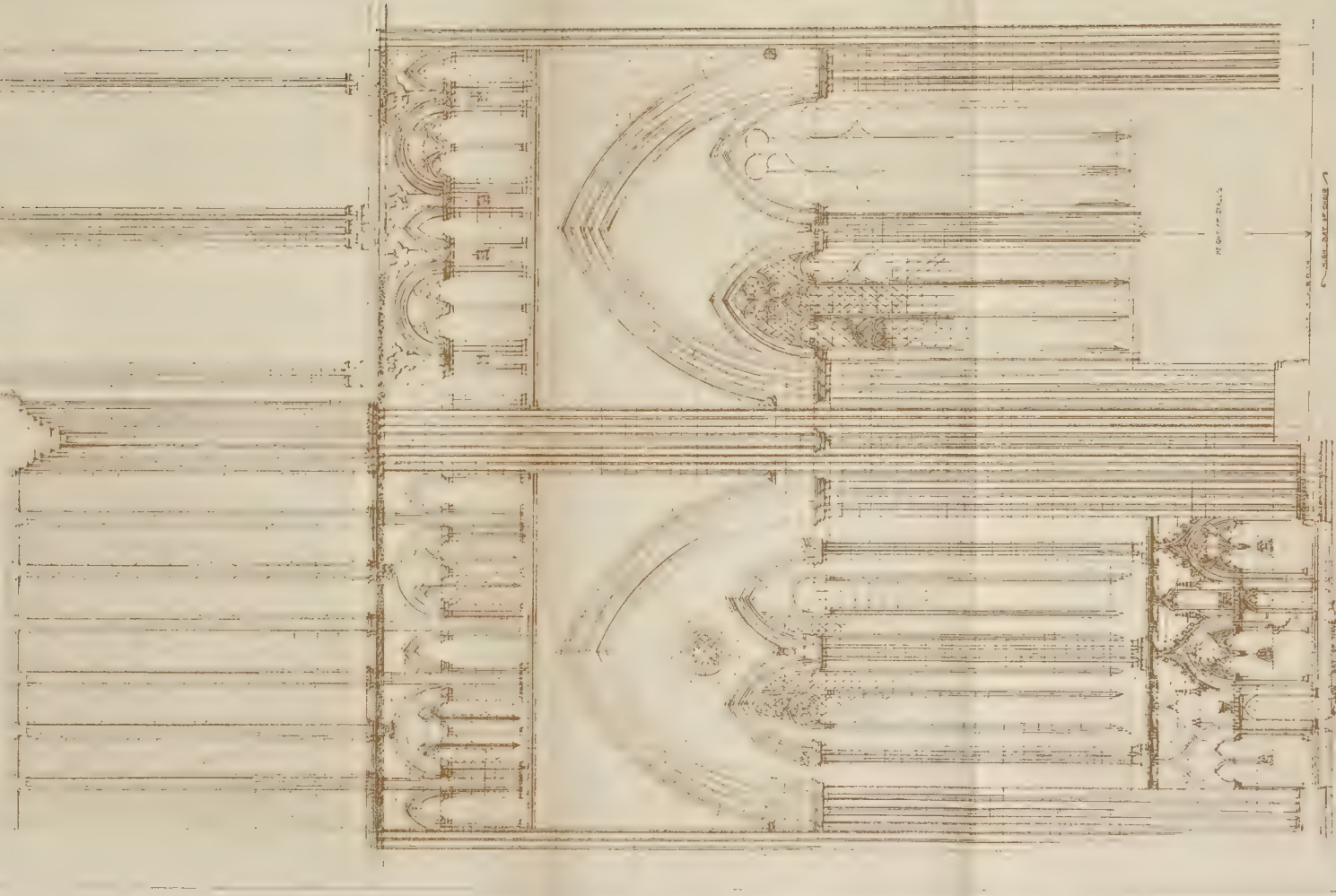
Messrs. Samuel Elliott & Sons (Reading) send us their Moulding Catalogue No. 10, with an immense number of full-size sections of machine-made wood mouldings for architraves, skirting, hand-rails, cornices, and various smaller mouldings. The sections are not only well illustrated, giving both the geometrical section and its shaded-up effect, but they are very well designed, and architects could find from among these illustration sheets well-designed and refined sections for most purposes to which wood moulding is applied. Messrs. Elliott also send, with this catalogue, sections and description of their simple but effective "simplex weather bar" for doors and



SECTION, PLAN

DESIGN FOR LIVERPOOL CATHEDRAL

DESIGN BY MR. GILBERT SCOTT









LIVERPOOL CATHEDRAL

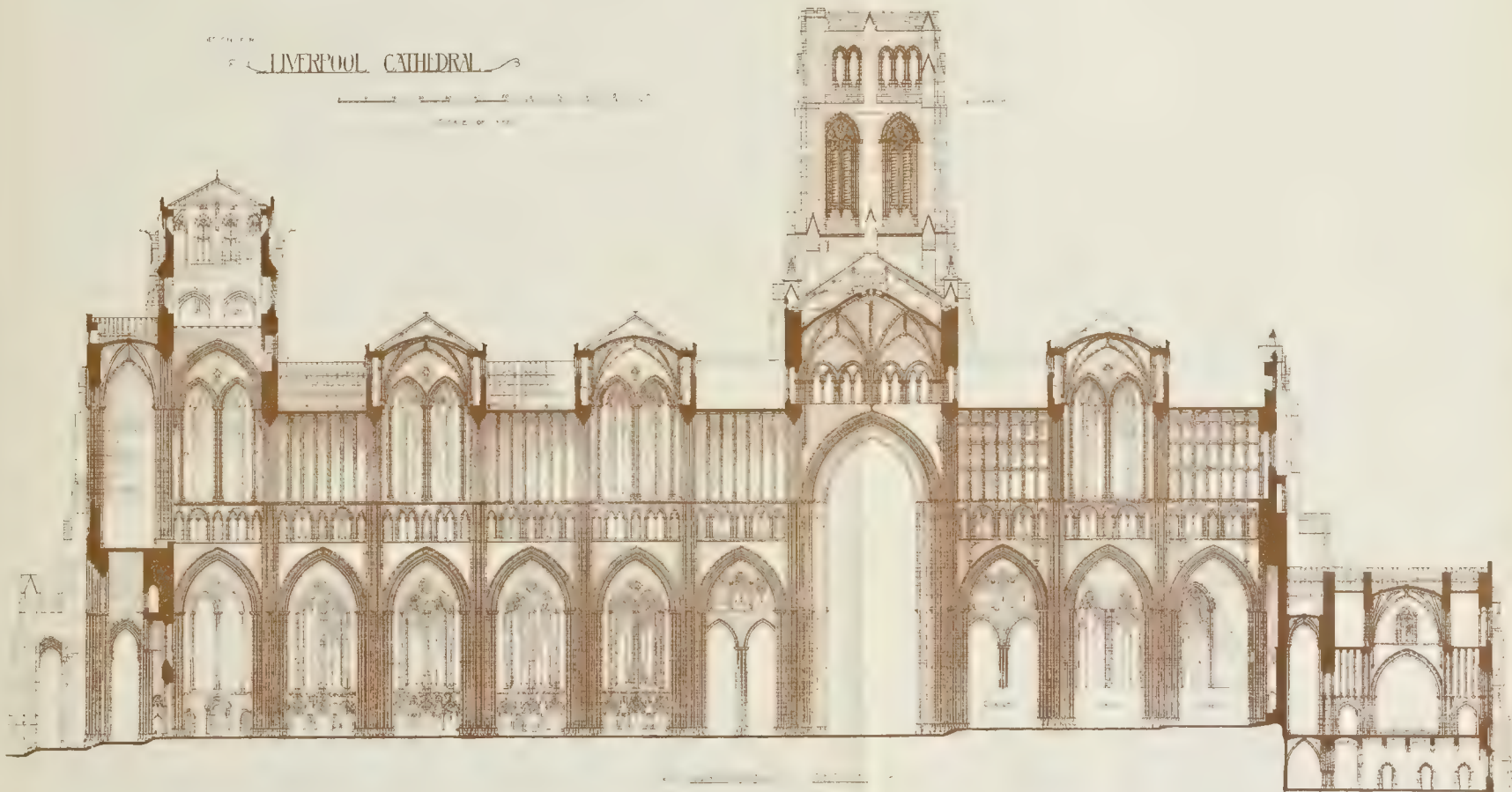


PHOTO. THO. SPRADUE & CO. LTD. HAS EAST HAVING NO STREET PETER LANE E.C.

LIVERPOOL CATHEDRAL COMPETITION DESIGN RECOMMENDED BY THE ASSESSORS MR G. GILBERT SCOTT ARCHITECT









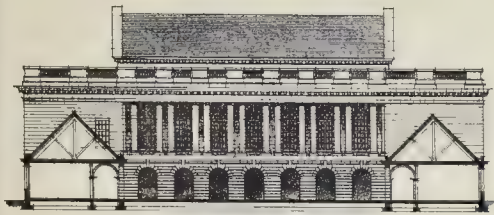
PHOTOGRAPH BY A. F. STANLEY STREET PHOTOGRAPHY CO.

CAPE UNIVERSITY COMPETITION SECOND PREMIATED DESIGN—By Mr. J. EDWIN FORDES

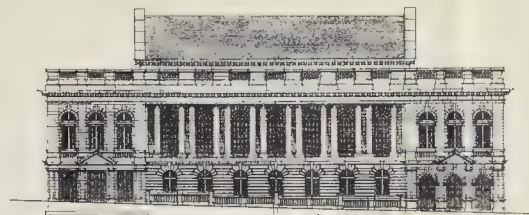




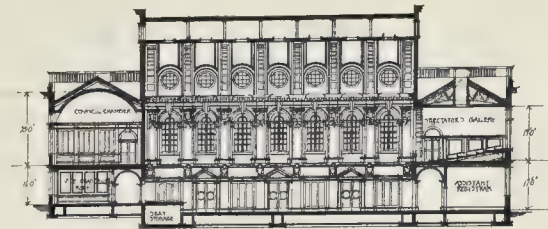




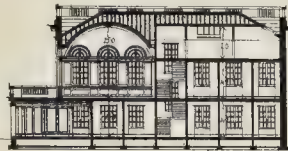
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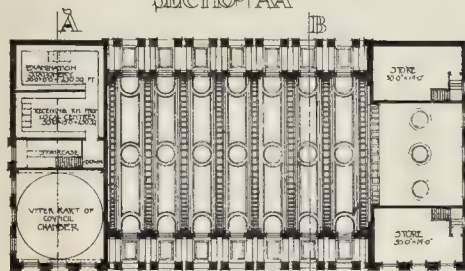
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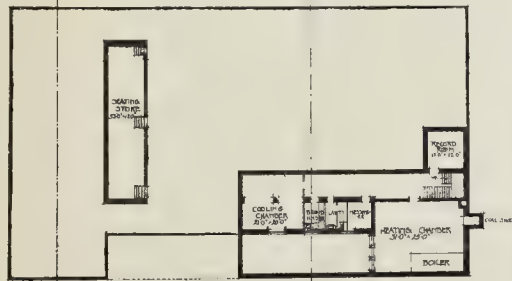
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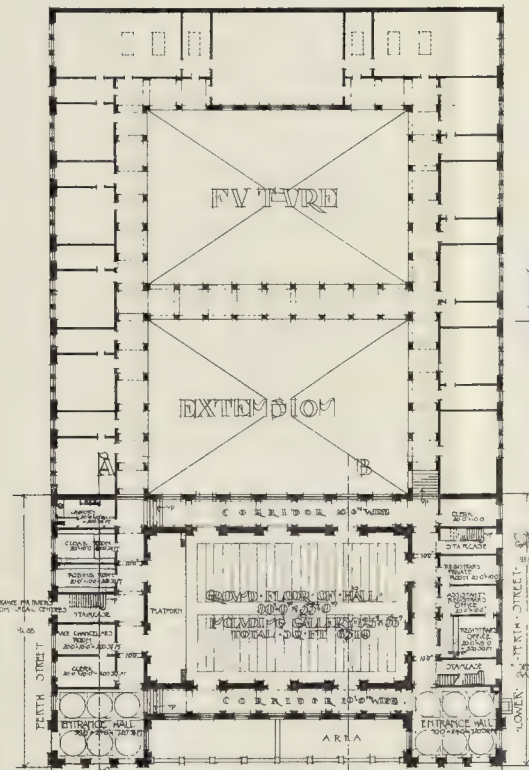
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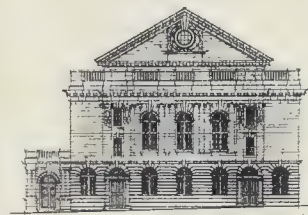
SECOND FLOOR



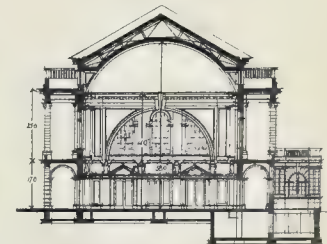
BASEMENT FLOOR



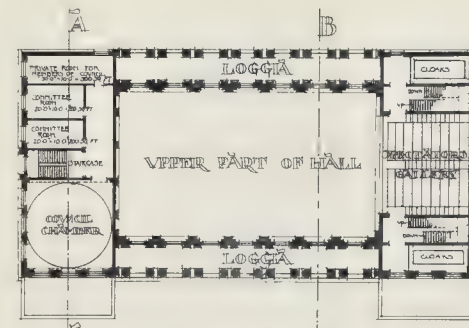
GROUND FLOOR



LOWER PORTION OF

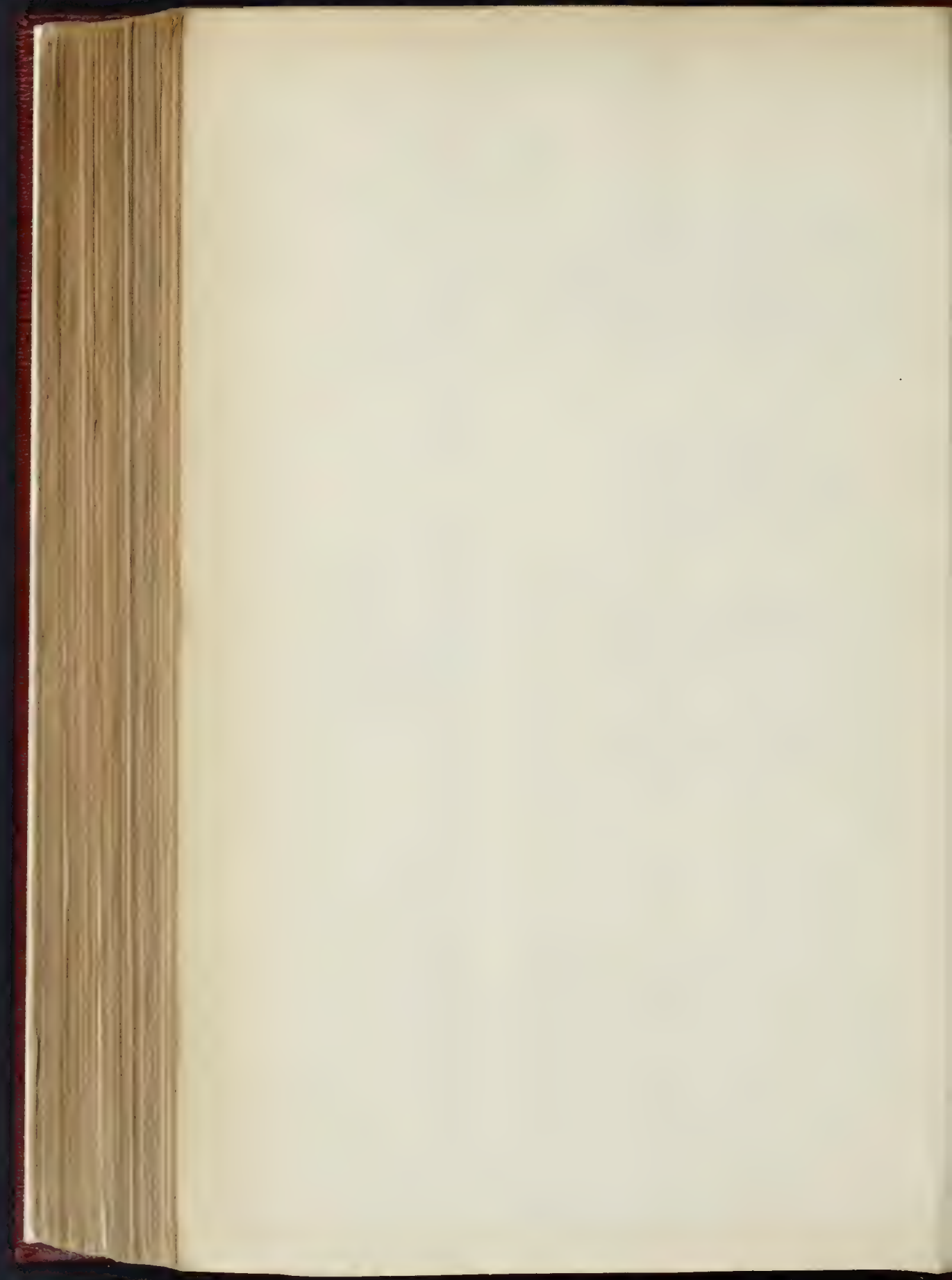


SECTION BB



FIRST FLOOR







casement windows opening inwards, which is stated to be, and from its design ought to be, perfectly efficacious in keeping out even driving rain. In regard to the mouldings, the firm state that they make every effort, with the best machinery, to produce perfectly sharp and clean-cut mouldings, so as to obviate any necessity for hand finish afterwards.

#### SEWER VENTILATION.\*

IF there is one subject more than another which the Association is entitled to an apology for having imposed upon it, it is that of sewer ventilation. So much has been said and written about it, and so often, that the author is afraid the subject must have become almost as nauseous as the odours which give rise to it, but that our district secretary assured the author that a paper upon it would be acceptable to the Association, he would have hesitated before submitting it. At the same time, it can scarcely be said that the problem, which has sorely vexed sanitary engineers for the past forty years, is as yet satisfactorily solved. No more conclusive evidence of this could be needed than the paper on the subject recently read by Dr. Dearden at the Manchester Congress of the Sanitary Institute. The author is not quite sure what conclusion was intended to be drawn from that paper, but it seemed to him that the view held by the doctor was, that sewer ventilation by the old method of surface gratings was bad enough, but that every improvement upon it was worse. If that is so, then certainly we have not reached the end of the controversy.

The purpose of the author is to submit to the Association for discussion a certain direct issue, viz., whether, having regard to all the circumstances, the object sought to be attained in the ventilation of sewers is best secured by the ingress and egress of as great or as little a volume of air as possible, consistently, in both cases, with avoiding any appreciable pressure being put upon the water-seals of the private drains. Before, however, discussing that point there is the preliminary question to consider, viz., whether it is necessary to ventilate sewers at all.

We all know there are towns where no special provision at all is made for the ventilation of the sewers, yet the inhabitants of those towns survive and apparently present as clean a bill of health as towns in which the ventilation of the sewers is amply provided for. Still it is obvious that the foul air of the sewers, to say nothing of the gases which arise from the decomposition of the sewage, must be displaced and driven somewhere by every increase of volume of the liquid flowing therein, apart from other causes; and to say the least, it does not seem satisfactory not to know where such air is driven. If the sewer is constructed with watertight joints and impervious materials, it must be sent through the water-seals of the drains connected therewith, which are provided for the express purpose of preventing the passage of such air. A modern well-made water-proof needs ventilating, and it is poor consolation to the man who wears a badly made or a too well worn coat, to point out to him the advantage it possesses of needing no other kind of ventilation.

As the author assumes that it is the effort of every engineer to construct his sewers with impervious material and watertight joints, he will, therefore, also assume that provision for the ventilation of sewers is necessary. The author was first troubled with this question some twenty years ago when he took charge of a district in which an entirely new system of sewers had just been laid. A loan had been sanctioned by the Local Government Board for the scheme, which was designed upon the lines advocated and insisted upon by the Board. For a number of years previously, the question had been a burning one, owing to the frequent complaints received by local authorities all over the country of the foul odours arising from the surface gratings which were then almost universally adopted. The late Sir R. Rawlinson was at that time Chief Engineering Adviser to the Local Government Board, and he advised that the remedy was to

be found in increasing the number of ventilators, provided the sewers were properly constructed, with sufficient fall, and were periodically flushed so as to prevent the accumulation of deposit in them. The scheme to which the author has referred was designed by the late Mr. Pritchard, a Past President of the Association, and well fulfilled all the conditions laid down by Sir R. Rawlinson as necessary to ensure freedom from foul odours issuing from the ventilating gratings. The sewers were all constructed of stoneware pipes with good gradients, and were flushed weekly.

The work of construction was superintended by a present member of the Association, whose name would be a sufficient guarantee that it was thoroughly well executed. Indeed, the author can scarcely conceive a scheme better adapted to put the method advocated by the Local Government Board upon its trial than the one alluded to, and that is his reason for alluding to it. In less than twelve months complaints of the foul smells from some of the ventilators came in. They were staved off for a time in one way or another, but the more persistent persons insisted upon something being done. It was in vain they were told that if the foul air did not escape outside the house they might be poisoned by it inside. The only alternative was to close the ventilators complained of and erect tall shafts instead. There was a general unwillingness amongst the residents to allow ventilating shafts to be fixed against their own houses, but an equally general approval to their being placed against somebody else's. The difficulty was usually got over by refusing to close the surface gratings complained of, and so coercing the person who suffered most from the nuisance into consenting to the erection of a shaft somewhere upon his premises. This course always seemed to the author one of doubtful morality for a public body to follow. A public authority creates a nuisance and refuses to abate it unless the person who suffers consents to what he believes, and what will generally be admitted, is an injury to his property. The proceeding is all the more curious as being taken by a Sanitary Authority. It seemed evident that this system of erecting shafts in place of surface gratings in the road was inapplicable as a general system, because not only were they costly, having in some instances to carry the drain considerable distances from the sewer to the shaft, but they had practically all so been erected upon private property, for which the Authority was given no statutory powers. But upon these objections came the fatal one that they failed in their purpose to put an end to the complaints. One lady against whose house a shaft had, with her consent, been erected, complained that the foul odours which had previously pervaded her drawing-room now invaded her bedroom. The author ascertained that the complaint was well founded. Some of the chimneys were subject to down draughts, which carried the sewer air from the ventilators into the rooms. The ventilating shaft had consequently to be removed to another spot. It has been the author's unfortunate experience to have to remove others for similar reasons. In recent years the adoption of tall shafts has greatly increased, and as the difficulty of obtaining consents to erect them on private property became felt, shafts were introduced, designed to stand in streets independently of support other than that secured at their bases. To ventilate a system of sewers throughout a town by means of such shafts—which to be free from nuisance and danger, if indeed that be possible, must be carried a very considerable height above the highest windows in the neighbourhood—would indicate on the part of the engineer a state of despair of finding any other solution of the difficulty. The obstruction already caused by gas and electric lamp columns, and still worse by tramway trolley wire poles, feeder boxes, and numerous other things is bad enough, but the intrusion of these tall shafts constantly proclaiming the discharge of foul air—notwithstanding the mask of decoration sometimes worn by them—even though the proclamation may not always be true, is a thing which no person would desire to see. The failure of the ventilating shafts to stop the complaints led the author to investigate the conditions under which the surface gratings became offensive, the sewerage system of the district in question lending itself admirably for the purpose. Sometimes a grating would be offensive one minute, and the next would not

give forth a trace of smell. He rigged up a small anemometer, or rather anemoscope, constructed of cardboard, and took a large number of observations. The instrument did not measure the currents flowing, but merely indicated the direction and comparative velocity of flow. It soon became apparent from the observations that the air currents in the sewers were extremely erratic. A violent current would be rushing out of a ventilator one minute, the next it would be perfectly still, and the next the air would be passing as rapidly in the opposite direction into the sewer. No variations of temperature, barometric pressure, or change of volume of sewage could account for these extraordinary evolutions, and the author concluded that by far the most important factor in producing and determining these air movements was the wind. There seemed no difficulty in attributing to the wind these rapid changes. The wind blowing in a certain direction over the surface of the road might (depending upon the inclination of the road) be acting exhaustively upon a ventilator, inducing a current outwards; the wind passing over the same ventilator in another direction might press inwards, and therefore reverse the direction of the current. This change of current in a single ventilator would in all probability affect a dozen others in its neighbourhood.

In pursuing his investigations with the anemoscope one fact strongly impressed the author. Of course, when the air was flowing inwards there was an entire absence of smell: when the air was still there was no smell; when the instrument indicated a rapid current outwards then there was inevitably accompanying it a most unpleasant odour; but the one fact which was particularly noticed was, that if the air were moving outwards from the ventilator at a slow rate no smell was observed, diffusion with the external air apparently rendering it quite imperceptible. It seemed possible that this circumstance might be taken advantage of to solve this very vexed question.

Not long after the author's appointment as chief engineering assistant at Worcester, the sewer ventilation question became acute owing to the number and strength of complaints in various parts of the city. Sewer gas destructors—with which doubtless all present are familiar—were tried. They were of course very costly, but the first consideration was the health of the citizens. The gas furnaces consumed from 8l. to 10l. worth of gas per annum, so that the cost capitalised amounted to something like 300l. for each destructor; and as the sectional area of the air passage was comparatively small, it was evident that there would have to be erected at relatively short distances apart to afford a proper relief to the sewer when any rapid increase of volume occurred. The apparent object of this appliance was to set up a rapid circulation of air in the sewer towards itself, and then destroy by heat any dangerous germs and offensive particles of matter the sewer air might contain. The current of air induced, however, was found to be so feeble that when the gas was burning it failed to ensure an inward current of air at the next surface ventilator, which was situated within 70 yds. of the sewer gas destructor. Possibly it had the effect of destroying any germs in the air when the gas was burning, but it so frequently blew out by the superior draught downwards into the sewer, that the inhabitants of the neighbourhood had to consider which was the less objectionable, coal gas or sewer gas. I need scarcely say that the number of these sewer gas destructors was not multiplied.

The most popular practice at present in vogue in seeking to prevent the foul odours is that of endeavouring to obtain as great and as rapid a circulation of air in the sewers as possible; and endless methods of extracting the air from sewers or forcing air into them have been devised for the purpose, and an immense amount of time and labour spent in elaborate observations for ascertaining which invention most successfully accomplishes that object. This has always struck the author as an extraordinary practice ever since he ascertained (what might naturally have been expected) that the more rapid the current issuing from the ventilator the more foul the smell. It seemed to him about as reasonable to pump the foul liquid from the sewer for the purpose of watering the streets, as to send forth at certain points into the atmosphere on which our lives and health depend, as much as possible of the

\* A paper read by Mr. T. Caink, A.M.Inst.C.E., City Engineer, Worcester, before the Incorporated Association of Municipal and County Engineers, at the Midland District Meeting, held at Birmingham, January 31.



foul and poisonous air of the sewers. Such a practice requires a good deal of justifying.

It will be gathered from the foregoing remarks that the author believes that the solution of this problem lies, so far as the prevention of nuisance is concerned, in checking the rapid discharge of sewer air from the ventilators, or in other words, in transmitting as little air as possible from the sewers, consistently with affording such relief as will prevent the pressure therein rising appreciably above that of the atmosphere.

In describing the appliance by which he has endeavoured to attain this object, the author desires to state that he has no pecuniary interest in it—nothing more than a paternal affection. He did patent the arrangement some years ago, but as he was unsuccessful in persuading anybody that it was of any use, he allowed the patent to lapse. However, he was not one of those who think that a meeting of this Association is not the place to introduce methods or appliances which are subject to patent rights. If a thing is useful to members of the Association, the fact of its being patented cannot make it less useful, and that members should be deprived of the benefit which information about it may impart, because an individual may derive special benefit, does not seem to him either reasonable or desirable. The object sought to be attained in the author's invention was to prevent any appreciable rise in the air-pressure of the sewer, and yet maintain a very slow movement of the sewer air in its exit from the ventilator. To do this it was obviously necessary to distribute the outflow as evenly as possible over all the ventilators in the neighbourhood, and exclude any active interference on the part of the wind. This was accomplished by causing the air to pass through a layer of cotton-wool. It allowed a gentle ingress and gentle egress to the air as the conditions within the sewer required. The effect of the wind was practically excluded. This material also possessed the property of filtering the air in its passage through it. Hence, if any injurious micro-organisms were present in the sewer air, it is certainly reasonable to assume that the chance of their being transmitted into the atmosphere would be immensely diminished by the layer of cotton-wool, and rendered still less probable by the checking of the rapid air currents along the sewers, which carry away from their sides the dry particles of matter to which the micro-organisms in all probability attach themselves. The arrangement first consisted of a diaphragm of the material, about 3 in. thick, contained in a zinc cylinder and supported by a wire netting. A number of them were placed in a length of 18-in. sewer which had been specially complained of.

In order to ascertain whether these ventilators afforded a proper relief to the sewer, during rapid increase in the volume of liquid therein, observations were taken by means of a King's gas-pressure gauge, which was capable of measuring pressures down to  $\frac{1}{16}$  of an inch of water. A flushing tank containing about 1,000 gallons was repeatedly discharged into the sewer, and in no instance did the gauge indicate a pressure exceeding  $\frac{1}{16}$  of an inch of water, and that only momentarily. These ventilators remained in that length of sewer throughout the summer months, and so far as curing the cause of complaints was concerned, were perfectly successful. The author was then anxious to see how they would behave in the winter, when the external temperature was much below that of the sewer. When winter came he was not much surprised to find that the discs of cotton-wool became literally soddened and useless. They either shrank so small as to allow the air to pass freely round them, or they filled up the space with a practically air-tight plug. Such a condition would often be produced in a single night if the air were cold and frosty. The problem was then reduced to finding a means whereby the wool might be kept in a dry condition. It was not difficult to protect it from rain or surface water; the difficulty lay in preventing the condensation upon it of the moisture, with which the sewer air was often saturated, and that again resolved itself into devising a means whereby the temperature of the cotton wool could always be kept above that of the sewer air, because, it is scarcely needful to add, that condensation only takes place when the temperature of the object in contact with the moist air is lower than that of the air itself.

This object might have been attained by placing a gas jet beneath the disc burning a

small flame of about 1 cubic foot per hour. The cost of the gas would have amounted to about 1*l.* per annum for each ventilator. But the author met the difficulty by designing a ventilator—which could take the place of the ordinary street surface grating—whereby the heat contained in the sewer air was made to raise the temperature of the cotton-wool above that of the air which warmed it. It consists of a cylindrical casting having ribs projecting inwards for the purpose of increasing the surface of contact for absorption of heat; the lower part of this casting rests upon the ventilating shaft which rises from the sewer. The top of the casting carries the surface grating. There is a separate casting which is kept thermally insulated from the outer one. The lower part of this casting is also ribbed for the purpose of securing the maximum abstraction of heat; the upper part of it consists of a cylinder enclosing the layer of cotton-wool, which is supported by a grid under which is an arrangement of gills forming part of the casting. In the centre of the gills a cup is formed which if desired can be used to contain a disinfectant or germicide. The author has never made use of it, not believing it necessary. Upon the top of the inner cylinder rests a conical glass cover to protect the wool from water getting in from the surface. When air passes outwards from the sewer to the external atmosphere, it first comes into contact with the inner casting which extends a short distance down the shaft, and when the temperature of the atmosphere is below that of the sewer air, the cold metal lowers the temperature of the latter, causing it to part with some of its moisture, which condenses upon the metal. The heat abstracted from the air is conducted upwards by the metal, raising the temperature of the cylinder surrounding the cotton-wool, and consequently by radiation from the inner surface of the cylinder, raising the temperature of the cotton wool also, the outer surface of the cylinder being surrounded by non-conducting material. The air, after playing round the lower part of the inner casting, passes into the annular space between it and the outer ribbed casting which is in contact with the cold earth, and at the surface of the ground with the external atmosphere; this cold metal lowers still further the temperature of the sewer air, depriving it still more of its moisture, which trickles down into the sewer. The air now, although containing much less moisture than before, is still saturated owing to its temperature being correspondingly lowered. It then leaves the outer casting and returns to the upper part of the inner one, passing through the openings between, and coming into contact with the gills before mentioned, whereby its temperature is somewhat raised and consequently rendered dry; it then passes through the cotton-wool which has been warmed by conduction and radiation above the dew-point of the sewer air passing through it, and escapes under the glass cover to the grating at the surface.

The question is sometimes asked, "How can you tell that any air at all from the sewer passes through the cotton wool?" The question would not be put by a person who had experimented with the material in that way, but the evidence of it is afforded by the deposit of moisture which often takes place upon the underside of the glass cover, while the upper side remains perfectly dry. In the early apparatus the author made this cover was constructed of zinc, and the deposited moisture used to fall upon the layer of cotton wool. He was aware that glass possesses a large capillary attraction for water: he therefore designed a cover of that material, having such an angle of slope as would cause the water to trickle down its under surface into the annular cup forming the seal. This seal has generally been made with sand, and this answers where much top-water is not allowed to rush in, but in some instances it may be necessary to deepen the annular cup and provide a water or glycerine seal. The practice of the author is to change the filtering material every three months. The cost, both of the material and man's time, is trifling. The cotton wool is seldom any the worse for being in, except from dust, spiders' webs, and the like. It is sometimes damp, never wet, and slight dampness does not interfere with the transmission of air: but it would undoubtedly add to its efficiency as a filter of the organisms, the microscopic globules of water more effectively arresting and retaining any minute particles of solid matter, whether dead or living, than perfectly dry fibres. The

apparatus altogether is quite successful in attaining the object desired; at the same time it may not be the best possible arrangement that can be devised, neither may cotton wool be the best material to use, and other members of the Association will probably improve on both; nevertheless, as it is, the author is persuaded that it renders unnecessary the many costly and ugly devices adopted for getting rid of the nuisance and danger to health arising from the ventilation of sewers, whether they be tall shafts, water sprays, gas furnaces, chemical deodorants, air fans, or the numerous other arrangements that have been employed.

Sir Charles Cameron, the Medical Officer of Health for Dublin, has designed a ventilator in which the principles above advocated have been applied, but in lieu of cotton-wool he employs cylinders made of a porous material, consisting of a mixture of plaster-of-Paris and clay. He has stated that they succeed in their purpose, and that the pressure of the air in the sewers never rises appreciably above that of the atmosphere. The author has had no experience of them, and cannot therefore speak from any personal knowledge of their working. Objections to the principle of preventing a free circulation of air within the sewers have been raised upon the ground that men have sometimes to enter the sewers for cleansing, and that, therefore, a certain degree of purity of the air is needful. But special conditions should be met by special provisions. It is an easy matter to give a free circulation for a few hours to a particular length of sewer for the purpose mentioned. When boiler flues need cleaning it is first necessary to cool them, but nobody thinks that a reason why flues should not be used for conveying air at a temperature which a man could not live in. It will probably be suggested, and, the author thinks, rightly, that the principle which he has advocated takes us back to the idea which originally underlay the ventilation of sewers, *viz.* merely the providing of safety-valves for preventing pressure upon the water traps of the connected drains, rather than the purification, by dilution and circulation, of the air within the sewers; a process which seems to have been suggested in the hope of being able to render the sewer air sufficiently innocuous to allow it to escape freely into the atmosphere, even in densely populated streets, without being offensive. That hope has not been realised, and the question appears to the author to resolve itself into whether, if the former principle can be successfully adopted, it is any longer necessary to continue what appears to be a hopeless search for a method of successfully accomplishing the latter.

To refer very briefly to the subject of the ventilation of house drains. There has been of late years a manifest disposition to mix this question with that of the ventilation of sewers, and consider them together as a single problem. The author regards them as entirely distinct. He would separate the house drain from the sewer in the most absolute manner practicable, and, having regard to the different conditions to which they are subject, would not necessarily apply the same principle of ventilation to both. There are engineers who advocate the employment of private drains as ducts for the ventilation of the public sewers. That principle is opposed to the maxim pronounced by medical officers, "make each house drain perfect, and let the public authority deal with the public sewers." It is generally admitted that the maxim is good in theory, but it has been objected that it shifts the responsibility from the medical officer to the surveyor. Supposing that were the case. "Is the surveyor unequal to the responsibility?" Is he prepared to suggest that the medical officer is better fitted to solve the sewer ventilation problem than he? But the responsibility of the public sewers already rests upon the surveyor, and has, therefore, no need to be shifted upon him, and the author is convinced he has no desire to transfer it in any respect either to the medical officer or the private individual. A potent reason why private drains should not be used to ventilate public sewers is, that it is almost universally recognised that the most successful known method of preventing the spread of infectious diseases is by isolation. While that doctrine is held, the necessity for the disconnection of house drains from the sewers must be admitted also. The author can scarcely conceive a stronger case for isolation than the separation of the dwelling-house



**SCHOOLS, DUDLEY.**—At Dudley on the 20th ult. the foundation-stone was laid of an upper standard school, which is to cost over 16,300*l.* There will be separate departments for boys and girls, and the school will provide accommodation for nearly 500



children. The building will be arranged on the central hall principle, and will be of two stories, the ground floor being allocated to the boys, and the first floor to the girls. The central hall will extend the whole height of the building, and will be capable of enlargement by the removal of the partitions of the classrooms, which on the first floor will open out on to a balcony. There will be rooms for manual training, cookery, and laundry work, and for the instruction of deaf mutes. The architect is Mr. Allcock (Messrs. Barrowcliff & Allcock, Loughborough).

**NEW KURSAAL, HARROGATE.**—The new Harrogate Kursaal, which we illustrated and described in our issue for September 16, 1899, was opened on the 27th ult. The following are the contractors for the respective works:—Mason, Messrs. Abraham Graham & Son, Huddersfield; joiners, Messrs. Raworth & Allen, Harrogate; slater, Mr. W. Atkinson; plasterers, Messrs. Calverley & Fortune, Harrogate; plumber, Mr. C. Foster, Harrogate; painters, Messrs. Noddings & Sons, Harrogate; ironfounders, Messrs. Schofield & Hancock, Manchester; decorators, Messrs. Sparrow & Son, Nottingham; draperies, desks, and furniture, Messrs. A. Morrison & Co., James-street; settees, Mr. Slater, West Park. Mr. R. J. Beale, of Westminster, was the architect, his plans being accepted in competition. The consulting architect was Mr. Frank Matcham, London; and the clerk of works, Mr. A. E. Marsh, Wakefield.

**WORKING-CLASS DWELLINGS, DULWICH.**—On the 27th ult., Mr. Goddard Clarke, L.C.C., Mayor of Camberwell, laid the foundation-stone of the new workmen's houses which are situated in Grove-vale, East Dulwich, and have been built from the plans of Mr. W. Oxboby, the Borough Engineer. Of the eighty-five houses which are being built, eighty-one will be divided into two tenements on the maisonette principle, and four will be single tenement houses. Accommodation will be provided for 166 families.

**HOTEL, DOVERCOURT.**—A new hotel has been erected at Dovercourt upon a site on the Marine Parade. The hotel, which was designed by Mr. G. S. Sherrin, of London, is in the Queen Anne style, and is situated at the corner of the Marine Parade and Kingsway, which leads to Dovercourt Railway Station. It stands on about three-quarters of an acre of ground, and is surrounded by terraces and gardens. The entrance for guests is from the Marine Parade into a lounge, which leads into the chief apartment on the ground floor, and out of which a staircase gives access to the bedrooms, forty in number. A feature of the building is the Alexandra Hall, which is a bijou theatre, capable of seating over 500 people, whilst, in addition to the dining, drawing, and billiard-rooms on the ground floor, there is a restaurant, which can be entered both from within the hotel and from the street entrance to the hall.

**CLUB, BLACKBURN.**—Bishop Thornton, D.D., opened the Parish Church Men's Club, Freckleton-street, Blackburn, recently. The premises were formerly known as the Vicarage coach-house and stables, but the building has been transformed into club quarters, from plans prepared by Messrs. Simpson & Duckworth, by Mr. Sharples, the contractor.

**INFIRMARY, WEST CORNWALL.**—A special general meeting of the subscribers to the West Cornwall Infirmary and Dispensary was held recently to consider the Report of the Committee as regards the new building scheme. Plans were submitted which had been prepared by Mr. O. Caldwell, after consultation with the medical officers, for the extension of the present building, and after discussion it was decided to accept these, subject to modification, and to purchase a quarter of an acre of land to the north of the infirmary from Mr. T. R. Bolitho for 200*l.* for this purpose. The total cost of the additions and alterations was estimated at about 4,000*l.*

**PAVILION, MAGDALEN COLLEGE, OXFORD.**—A pavilion has just been erected on the new ground on the Marston-road, for the consolidated clubs of Magdalen College. On the ground floor is a room 40 ft. in length, and accommodation for a man and his staff, and on the first floor there are a dining-room, a couple of dressing-rooms, and a similar number of bathrooms, one for the use of members of the college and the other for visitors. The dining-room leads out on to a verandah, supported by four pillars, which adorn the entrance to the pavilion. Mr. R. F. Jones, M.A., of Magdalen College, was the architect, the builder was Mr. J. A. Hunt, of Hertfordshire.

**HOUSING SCHEME, STEPNEY.**—The Housing Committee of the Stepney Borough Council reported on the 26th ult. that the Edward Mann-buildings are practically ready for opening. These tenements have been built by the Stepney Council on the Queen Catherine-court area, Limehouse, from plans by the Borough Engineer, Mr. Jameson, at a cost of some 6,000*l.* The Council have now in hand the erection of tenements on the King John-court area.

**BUILDING IN NEWCASTLE.**—The Newcastle Journal states that the contract has been signed for one of the largest building enterprises in Newcastle. The premises in question will extend from the Empress Hotel, at the head of the Side, to the corner of Dean-street, and will be continued up Dean-street, and make another turn facing St. Nicholas' Churchyard. The building will thus be

triangular in shape, and the total frontage will be about 660 ft., made up of 300 ft. frontage in the Side, 160 ft. in Dean-street, and nearly 200 ft. in St. Nicholas' Churchyard. The cost of the structure will be about 120,000*l.*, and the contract has been secured by Mr. Stephen Easton. The joint architects are Messrs. Oliver, Leeson, & Wood, and Messrs. Marshall & Tweedy, Newcastle.

**ADDITIONS TO WORKHOUSE, SCULCOATES.**—The St. Hilda-street extension to Sculcoates Workhouse has just been opened. The extension, which contains accommodation for 150 beds, has been erected at a cost of 5,593*l.* 12*s.* 6*d.* The architect of the building was Councillor T. B. Atkinson, the following being the contractors: Messrs. John Carr, bricklayer; F. Singleton, joiner; Williamson & Co., slaters; Atkinson & Son, plumbers; Quibell & Son, stonemasons; Stephenson & Christopher, painters; A. Reame & Co., electricians; Christie & Co., artificial stone.

**PARISH CHURCH, ISLINGTON.**—The Chancellor of the Diocese of London has agreed to issue a faculty to authorise the carrying out of extensive alterations and improvements of the parish church of St. Mary, Islington, which was erected in 1751-4 after Launcelot Dowbigg's design. The new work, estimated to cost 12,000*l.*, will include an enlargement of the church at the east and west ends, a new chancel, two new doorways, a reseating of the galleries, and the construction of new staircases to the galleries. The faculty will provide for the removal, and the interment elsewhere, of the human remains beneath the floor of the extended chancel.

**INDUSTRIAL SCHOOL, HARBOURNE, STAFFORDSHIRE.**—The new Industrial School at Balden-road, Harborne, which has been erected to take the place of the old institution in Gem-street, was opened on the 22nd ult. The buildings have been erected from plans by Mr. Arthur Edwards, of Birmingham. Messrs. J. Harley & Son, also of Birmingham, were the contractors. There is accommodation for 150 lads, and the building is in the form of a square enclosing a large quadrangle. The front building, approached from Balden-road, faces due north, and consists of entrance-hall, committee-room, waiting-room, schoolroom, dining-hall, and governor's house, surmounted by a clock turret. On the left side are the workshops, lavatory, and spray-baths, gymnasium, swimming-bath, and manual instruction room, while opposite are the scullery, kitchen, stores, surgery, &c. Above are the dormitories and officers' bedrooms and other storerooms. The walls are built of Oldbury brindle bricks, with facings of granolithic, and the roofs are covered with Broseley tiles.

**WORKHOUSE INFIRMARY, ST. ASAPH.**—On the 22nd ult. the foundation-stone of the new workhouse infirmary at St. Asaph was laid. The new building is situated on the site of the old garden, and at the rear of the present workhouse. In the centre of the building, which will be three stories high, is the administrative block, and on either side two wards, each containing twelve beds, for males and females. There will be verandahs on the ground floor, and a balcony on the first floor, and fire-escape staircases will be fixed. The contract price was over 5,000*l.*, and the buildings are being erected by Messrs. Robert Evans & Son, Old Colwyn, from plans drawn by Mr. James Hughes, architect, Denbigh.

**JUBILEE HALL EXTENSION, BRADFORD.**—The memorial stones in connexion with the extension of the Jubilee Hall in Farfield-street, Manningham, Bradford, were laid recently. The extension comprises a hall facing Farfield-street, with an infants' room and three large classrooms, two of which will be on the upper floor. Direct communication will be opened between the present structure and the new portion by means of passages. There will be an open roof to the hall of pitch-pine. The total outlay is estimated at about 13,000*l.* Messrs. W. J. Morley & Son, of Bradford, are the architects.

**BOARD SCHOOL, TIPTON.**—The foundation-stone has just been laid at Tipton of a new Board School, which is to be erected from plans prepared by Mr. A. Long, architect. The building contract has been placed in the hands of Mr. T. Hardy, West Bromwich. The site, construction, and furnishing are estimated to cost 12,000*l.* The total length of the building will be 280 ft., and its greatest width 110 ft. It will include departments for boys, girls, and infants. The boys' and girls' departments will each contain three large classrooms and one large hall, the partitions being removable, so that each department may be made into a large hall, 83 ft. long by 22 ft. wide. The infants' department will consist of a room, 25 ft. by 22 ft., and three classrooms. The front will be of red bricks, with terra-cotta facings, and an ornamental tower will rise over the central portion of the building.

**LIBRARY, HARTLEPOOL.**—A new public library is being erected at Hartlepool on a triangular site at the junction of Northgate and Warren-street, having a frontage to the former of about 135 ft. and to the latter of about 125 ft. The entrance is from Northgate, approached on the ground floor by an open vestibule fitted with Bostwick iron gates, and provided on each side with recesses for cycles. Immediately inside the entrance is an inner vestibule leading to the central hall, 18 ft. by 13 ft. 6 in. from which access is obtained to the borrowers' hall, 18 ft. by 12 ft. 6 in., the ladies' room, 20 ft. by 18 ft., the newsroom, 60 ft. by 25 ft., and the lending

library, 52 ft. by 20 ft. 6 in. There is also a private pass door to the caretakers' quarters, which are placed at the west end of the building.

On the upper floor, approached by a staircase leading from the entrance-hall, is provided a reference-room, 60 ft. by 26 ft., and a committee and record room, 21 ft. by 18 ft. The building is to be constructed of brick and stone, with the roof slated. It will be faced externally with Huncote red plastic bricks, with patent Victoria stone dressings and enrichments. The floors will be of concrete and laid with wood-block flooring, but the entrance-hall, borrowers' hall, and landings will be laid with mosaic. The building has been designed by the Borough Engineer, Mr. H. C. Crummack, and is being erected under his supervision by Mr. R. J. Marshall, of Hartlepool, who was successful in securing the contract.

**ASYLUM, NEWPORT.**—The foundation-stone of the Newport County Asylum at Caerleon was laid by the Mayor of Newport recently. The asylum is in the first instance to provide accommodation for 368 patients, 184 of each sex, and with the administrative offices will accommodate 500. There will be six blocks for patients, three on either side, for sick and infirm, epileptic, and recent acute. The whole of the blocks are to have a southerly aspect, and all the wards are to be thoroughly cross-ventilated, and the blocks so arranged as to allow of easy supervision. There will be a second means of exit in case of emergency. There will be a dining and recreation hall, 70 ft. by 40 ft., with a stage 40 ft. by 21 ft. The whole of the parts occupied by patients will be heated by open fireplaces, and also by the low-pressure hot-water system. Electric plant will be installed, and water supplied from Corporation mains. In addition to the main buildings it is proposed to erect a chapel, mortuary, cottages, and two entrance lodges. The Committee have already acquired houses for medical superintendent and steward. The builders are Messrs. John Linton & Co., architect, Mr. A. I. Wood, London; and clerk of the works, Mr. W. B. Partington.

#### MISCELLANEOUS.

**PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.**—Mr. Robert Walker, architect, Windermere, has taken into partnership his son, Mr. Frank H. Walker, and Mr. James Carter, of Windermere (late of Darwen). The practice will be continued at Windermere under the style of "Walker, Carter, & Walker."—Messrs. Chas. Heathcote & Sons, architects (Manchester), have removed their offices from 6, Princess-street to 64, Cross-street, Manchester.

**MEMORIAL TABLETS, ALDGATE, CITY.**—The Lord Mayor recently unveiled tablets erected in St. Botolph's, Aldgate, to the memory of Dr. J. S. E. Colman and William Symington, the inventor of steam navigation. The mural tablets, which are made of alabaster, were prepared by Messrs. John Raymond & Son, Vauxhall.

**THE REMOVAL OF FIXED DUST RECEPTACLES.**—The Public Health Committee of the London County Council reported as follows at the last meeting of the Council:—"One of the resolutions passed by the conference of representatives of the City Corporation and the Vestries and District Boards which met at the County Hall on June 29 and November 7, 1900, on the subject of streets and street traffic, was as follows: 'That in the opinion of the committee, it is desirable that fixed ashpits should be abolished, and movable receptacles provided in their place.' This resolution was referred to us by the Council on February 19, 1901. By-law 16, made by the Council under Section 39 (1) of the Public Health (London) Act, 1891, requires any person providing an ashpit to cause the same to consist of one or more movable receptacles. This by-law came into force on June 28, 1893, but it is not retrospective, and it does not enable the sanitary authorities to require the removal of an old brick or other fixed ashpit when a movable receptacle has been provided. These old fixed receptacles in such circumstances often become filled with refuse and give rise to recurring nuisances, and we think that the Council should endeavour to obtain power for the sanitary authorities to require their demolition in all cases in which movable receptacles have been provided."

**THE BRICKLAYER'S HOUR.**—In Westminster County Court recently, a bricklayer claimed 18*s.* 4*d.* an hour's pay for work done, from Messrs. Mowlem, builders. On the morning he went to the timekeeper and gave notice that he was going to leave. The defence was that plaintiff could not claim for the hour, as he should have given notice overnight. Judge Woodfall said that defendants claimed the right to give notice to their men in the morning, while the workmen must give notice overnight, but that was unfair. He gave judgment for the plaintiff. *See Chronicle.*

**ELECTRIC LIGHTING AT HOLYHEAD.**—On the 26th ult. Colonel W. R. Slacke, R.E., Local Government Board Inspector, held an inquiry at the Town Hall, Holyhead, into the application of the Holyhead Urban District Council for powers to borrow 16,000*l.* in order to carry out the electric lighting of the town, and also to erect a refuse destructor. The result of the inquiry was 12,700*l.* for electric lighting, and 3,300*l.* for the refuse destructor.







the remnant of frontage of the two Henley-street cottages, that the Stratford Corporation did a wise thing in deciding to retain what is known as Thomas Greene's house (date 1865), now used as a china shop. The demolition of the adjoining front wall has revealed the interesting fact that the house formerly possessed an overhanging upper story. The end principal or story-post contains the original oak bracket which supported the upper floor, and both were marked by heavy modern brickwork. The principal and bracket are exactly the same style as those at the ancient Guild alm-house in Church-street, which, however are of much older date, and it is quite probable that portions of Greene's house are of the same period. It is proved to have formed part of the property that originally belonged to the Guild of the Holy Cross, and at the Dissolution it was vested in the Corporation under a new charter. Another interesting discovery has been brought about by the taking down of the comparatively modern cottages—the site of the fire which occurred towards the close of the sixteenth century has been located. The charred timbers are visible, and all doubt is set at rest as to which end of the building was partially destroyed. We understand that Mr. J. A. Casins has made a careful examination of the building—though the discoveries on the 25th ult. have not yet come under his observation—and an exhaustive report will in due course be presented to the Corporation. The gable end of the two cottages adjoining Shakespeare's garden, which has also been brought to light, contains some massive oak framings, and at a lower level are traces of the steep-pitched and thatched roof of the cottages that adjoined, and which in after years gave place to the commonplace houses now happily demolished.—*Birmingham Post.*

**INTERNATIONAL FIRE PREVENTION CONGRESS.**—The International Fire Prevention Congress, convened by the British Fire Prevention Committee, will be attended by six special delegates from our leading Government departments, as also by six representatives of the City of London, three from the Metropolitan Asylums Board, four from the London Chamber of Commerce, and quite a number from the other Local Authorities and institutions. Nearly all the leading provincial municipalities have also decided to be officially represented on this occasion, including cities such as Edinburgh, Glasgow, Aberdeen, Liverpool, Birmingham, &c., to the number of over eighty corporations. The German, French, Italian, Hungarian, Belgian, and other continental Governments have already intimated their intention of sending official delegates, as have also a number of leading foreign municipalities. The more distant colonies of Australia and Canada, as also India, will be sending representatives of the various institutions interested, and a large deputation of engineers is coming over from the United States. The Congress being essentially a technical one, dealing with the "prevention" of fire by better construction and equipment, by legislation and other precautionary measures, the membership comprises mainly public officials, architects, engineers, and fire brigade officers, but the insurance interests will also be represented, as also the universities and other teaching bodies. Owing to the great demand for participation in the Congress, it has been decided to close the application lists, excepting in the case of the accredited representatives of Public Authorities, Institutions, and Societies, as from June 5.

**DISCOVERIES AT BENI HASAN.**—Mr. John Garstang, writing to the *Times* from University College, Liverpool, gives an account of the discovery of a number of hitherto unopened tombs at Beni Hasan. Among the objects found were a number of painted coffins giving illustrations of ships, and models in wood representing operations of farming and cultivation. Among the objects found in the tombs were musical instruments—a lyre, two flutes, and a wooden drum with parchment ends; also baske' work, vases, beads, and jewellery. A wooden capital in the form of a lily appears to have been the only object of specially architectural character. It is hoped that an exhibition of the objects found will be arranged for at the rooms of the Society of Antiquaries in the month of July.

**BAVARIAN TIMBER TRADE.**—According to a report forwarded to the British Foreign Office from Nuremberg by Mr. Vice-Consul Ehrenbacher the general crisis and the decline in the timber industry in 1901 had interfered considerably with the Bavarian trade, and prices had fallen nearly 20 per cent. The Government being the largest owners of woods and forests in Bavaria is almost able to regulate the quotations in the timber trade, and, owing to the reduction in falling in 1902, the situation has become better and prices are hardening. Timber for planing works profited, whereas building timber, on account of the standstill in the building trades, could not obtain an increase, and remains unprofitable. The Nuremberg land Companies say in their annual reports for 1901-2 that the general depression naturally greatly influenced building in their locality. Hence, not being able to dispose of building plots advantageously, properties have in very few instances changed hands.

**APPOINTMENTS TO THE IMPERIAL SERVICE ORDER.**—On May 28 the following gentlemen were appointed Companions of the Order:—Kivas Tully, Consulting Architect and Engineer, Public

Works Department, Province of Ontario; John Deane Tilney, M.Inst.C.E., Locomotive Superintendent of the Eastern System of the Colony of the Cape of Good Hope; Walter Henry Cobley, M.Inst.C.E., Superintendent Engineer, Streets and Construction, Government Railways of the Colony of Natal; John Hope Callcott, A.M.Inst.C.E., late Deputy Colonial Engineer and Surveyor-General, Penang; Leonard Wray, Curator of the State Museum and State Geologist, Perak; Charles Rastrick Hanson, M.Inst.C.E., Resident Engineer for Railways, Perak, Federated Malay States; and C. E. Owen Smith, Superintendent of Public Buildings of the State of South Australia.

#### LEGAL.

##### MASTER PLASTERER'S ACTION AGAINST CEMENT MERCHANTS SETTLED.

THE hearing was resumed on the 28th inst. before Mr. Justice Grantham, sitting without a jury in the King's Bench Division, on the case of Reece v. Chas Nelson & Co., Ltd.,—an action by the plaintiff, a master plasterer, against the defendants, cement merchants and manufacturers, for damages for the alleged breach of warranty with reference to the supply by the defendants to the plaintiff of a quantity of silicious blue lime cement for use in some plastering work in a new medical ward at the Poplar Hospital. The plaintiff's case was that he, as the sub-contractor for the plastering work, was bound under the specification to use the defendants' cement; and that the cement after it had been put on the walls blistered, and that defendants were responsible for the expense incurred in remedying the defect. The case was fully reported in the *Builder* of May 23 last.

Mr. Horace Avory, K.C., and Mr. Hudson appeared for the plaintiff; and Mr. McCall, K.C., and Mr. Cranston for the defendants.

When the case was called on a consultation took place between counsel engaged, and in the result Mr. Avory and Mr. McCall asked his Lordship to see them privately in order to have his assistance in putting an end to the case. His Lordship assented to the proposal.

After the learned counsel and his Lordship returned into Court, Mr. McCall said it would not be necessary, owing to his Lordship's assistance, that the case should be tried out. His clients represented by Mr. Blythe (whom his Lordship saw in the witness-box) were quite prepared to meet the plaintiff in this case because it was probable—although the evidence that had already been given made no imputation upon the excellence of the manufacture of this silicious cement—in this particular instance that during the carriage of the stuff—for which the defendants under the contract were responsible—something might have happened to this particular parcel which caused the damage of which the plaintiff complained, and on that ground he was prepared to assent to the terms agreed upon, and he did so the more readily after the way Mr. Blythe stated that defendants carried on their business, viz., that defendants carried on their business upon the terms of always meeting, and trying to meet, any claim made against them for any accident which occurred in the manufacture of the stuff.

Mr. Avory said he had nothing to add, except to say that plaintiff accepted the sum the defendants were willing to pay in this matter. The plaintiff's only object in bringing the action was to reimburse himself the loss he had undoubtedly suffered.

His Lordship said he thought the parties had come to a very honourable settlement. It was a settlement honourable to both sides. He thought the evidence given by Mr. Blythe was the evidence of an honourable man, and showed conclusively that the defendants' carried on their business in an honourable way.

The terms of the settlement were not stated in court.

##### UNNECESSARY NOTICE ASKED FOR BY SANITARY AUTHORITIES.

At the Worship-street Police-court on the 20th ult., before Mr. Haden Cosser, the case of Cook v. Borough Council was brought on by the Borough Council of Stepney against a builder for penalties for fixing a new water-closet basin and trap without previously giving notice to the Clerk to the Borough Council. Mr. Young appeared for the Borough Council, and stated the summons was for neglecting to give notice as required by By-law 14, which he read.

Mr. Alfred Cook, one of the Sanitary Inspectors, gave evidence that he visited No. 35, Lamb-street, Spitalfields, on May 6 last, and found a new water-closet basin and trap had been fixed. He saw Mr. Fulford, the builder, who, in reply, stated that under the circumstances he had no idea any notice was required.

Cross-examined by Mr. Brewster, solicitor for Mr. Fulford, the Sanitary Inspector said the Borough Council had had the drainage at Lamb-street under their notice since March, but he was not aware that the sewer into which the house drained was choked. He admitted serving the notice dated April 29 last. That notice required a choked and defective water-closet to be put right. He contended

that, though Mr. Fulford had put in the new water-closet in consequence of notice from the Borough Council, it was necessary for him to give notice to the Clerk to the Borough Council before doing the work, although the defect could only be remedied in one way. The basin and trap were properly fixed.

At this point Mr. Brewster submitted that the by-law did not apply to a matter of this kind, and that it only provided for notice being given when an owner intended to do work on his own initiative. In the present case the owner was served with an order to put in a new water-closet. The by-law was obviously intended to prevent work being done without the knowledge of the Sanitary Authorities, and in the present case the Sanitary Authorities must, if they did their duty, inspect, and after inspection they had admitted everything was properly done.

The magistrate dismissed the summons.

##### CASE UNDER THE LONDON BUILDING ACT.

At the Mansion House on the 27th ult., the Charing Cross and Strand Electricity Supply Corporation, Ltd., were summoned for that they on or before July 12, 1901, at the corner of Mincing-lane and Fenchurch-street, did begin to execute a work respecting which they ought to serve a building notice under the London Building Act, 1894, before serving such notice. The work referred to in the summons was the construction of an underground chamber in connection with electric light wires. There were six other similar summonses in respect to the construction of such underground chambers in other parts of the City. The summonses were issued at the instance of the District Surveyor under the London Building Act, 1894, for the eastern division of the City, and they had been adjourned from time to time pending a decision of the High Court as to whether or not the underground chambers were "buildings" within the meaning of the Act. Mr. Bale, solicitor, appeared in support of the summonses; Mr. F. F. Daldy appeared for the defendants. Mr. Bale said that the Building Act provided that where any building, or structure, or work was about to be begun a building notice respecting it must be served on the District Surveyor. The buildings in this case were underground chambers in connection with electric light wires. The chambers were 7 ft. or 8 ft. square. The question arose as to whether they were "buildings" within the meaning of the Act; and, although there was a decision of the High Court, the defendants wanted to have the matter decided again. Some other similar summonses had been issued from the Guildhall, and the magistrate at the Guildhall convicted. The case was thereupon taken to the High Court. The present summonses were issued in December, 1901, and had been adjourned from time to time by arrangement. The case in the High Court had been decided against the defendants. The matter now merely resolved itself into a question of penalties and costs. He should only ask for a nominal penalty and an order for a substantial amount of costs. Mr. Daldy, for the defendants, said that this was not a case of an offence. People were justified in doubting whether an electric light box in the street, which was really nothing more than a local enlargement of the electric conduit, was a building coming within the Act. Sir Joseph Savory asked what penalty was imposed by the magistrate at the Guildhall. Mr. Daldy replied that the penalty was 1s. on each summons. Sir Joseph Savory said he thought that a nominal penalty of 1s. on each summons would suffice. He should make an order for 10l. 10s. costs on the first summons.—*Times.*

##### PAVING A FOOTWAY.

At West London, Mr. J. B. Mulholland, the proprietor of the King's Theatre, Hammersmith, was summoned by the Hammersmith Borough Council in respect of a claim for 250l. 7s. 1d., the cost of paving the footway outside his theatre in the Hammersmith-road. Mr. Bodkin supported the summons, and the defendant was represented by Mr. Courthope-Munroe. It appeared that when the London County Council granted permission to the defendant to erect the theatre they imposed one condition—that part of the land required by him should be thrown into the public highway. The Borough Council subsequently resolved to pave the portion thus dedicated, and the defendant was charged with the cost. Mr. Bodkin set up two contentions:—That a new street did not necessarily consist of a street with pavements on either side and bounded by houses, but might consist of a mere strip of land, which was bounded on one side by an ancient highway, such as the Hammersmith-road, and by property on the other side; and, secondly, that a new street might consist of a strip which was thrown into an old highway, such as Rowan-road, the street at the side of the theatre, which had been repaired for years by the Local Authority. Mr. Courthope-Munroe submitted that Mr. Mulholland had a distinct grievance. After vainly obtaining the right of the London County Council to make him hand over part of his land—worth 1,000l.—to the public, he was now called upon by the Borough



Council to pay for the expense of paving that land. He argued that a strip of land thus dedicated must be a substantial strip before it could be termed a new street. Forty yards out of a length of three-quarters of a mile, which was the length of Hammer-smith-road, could not be deemed a substantial strip, and if this case was successful 500 new streets might thus be created in one road. The fact was that the general widening of Hammer-smith-road was contemplated by the Council, and no doubt the Council hoped to make the owners of the property adjoining the road, instead of the ratepayers, pay for the public improvement. In giving a considered judgment, Mr. Rose said that there was no doubt that in 1855, when the Metropolitan Management Act was passed, the popular meaning of a street was a road flanked by houses. By a recent decision, houses on one side would suffice, but how many houses had not yet become a decided point. He was, however, confident that there could be houses on one side. In this case there was only one building—the King's Theatre—so he held that the apportionment was bad and the resolution of the Borough Council invalid. He therefore dismissed the summons with three guineas costs. Mr. Bodkin intimated that he would apply for a case to be stated.—*Times*.

#### WOODTHORPE V. THE CHARING CROSS AND STRAND ELECTRICITY SUPPLY CORPORATION, LTD.

The Charing Cross and Strand Electricity Supply Corporation, of 15, Maiden-lane, were summoned, at the instance of Mr. Edmund Woodthorpe, District Surveyor for the Northern Division of the City of London, for having failed to give notice, in accordance with the London Building Act, 1894, before they commenced certain works, namely, "the construction of a certain inspection chamber under the street, at the corner of Wormwood-street and Bishopsgate-street Within."

This case was heard at the Guildhall Justice Room by Mr. Alderman Crosby on January 3, 1902, who gave his decision on January 15, 1902, as follows:— "I find as a fact that the company were the persons causing or directing the work in question to be executed in the street. That the work was a street box necessary for purposes in connexion with the supply of electric energy by the company, and that no notice was given to the District Surveyor in accordance with Section 145 of the London Building Act, 1894. I hold that this is a building structure or work within the meaning of the said Act, and I am unable to distinguish this case from the case of *Crow v. Whitechapel Board of Works*, and therefore convict the company and fine them the sum of 21. and 2s. costs."

Mr. Shiers Will, K.C., counsel appearing for the company, asked the Alderman to state a case. This he refused to do. The Electric Light Co. then applied to the High Court and obtained a *rule nisi* which was made absolute. The appeal was heard on May 15, 1903, in the High Court of Justice, King's Bench Division, Divisional Court, before the Lord Chief Justice, Mr. Justice Wills and Mr. Justice Channell. The company were represented by Mr. Shiers Will, K.C., and Mr. Daldy, instructed by Messrs. Fladgate & Co. (solicitors). Mr. Woodthorpe was represented by Mr. Horace Avory, K.C. and Mr. Rowell, instructed by the solicitor to the London County Council.

After hearing the arguments in the case all three judges delivered separate judgments in Mr. Woodthorpe's favour as follows:—

#### Judgment.

The Lord Chief Justice: The consideration of the arguments in this case has satisfied me that there is no substantial distinction between this case and "*The Whitechapel Board of Works v. Crow*," reported in 84 *Law Journal* (New series) and 65 *Justice of the Peace*, and it has also satisfied me, speaking for myself, that the decision in the Whitechapel case was right. It is perfectly true that the Provisional Order provides for a number of safeguards in the interest of the public, if I may use that expression, and in the public interest, and, as Mr. Wills has pointed out, it does provide, before street boxes can be constructed, notice is to be given to the Road Authority, and a notice given to the Postmaster-General. He is also perfectly correct in saying that so far as notice has to be given to the Road Authority, it is another instance of the kind of protection which accompanies statutory powers to interfere with public rights of passage, public roads, and public interests, because, at the time of the Gas Works Clauses Act, as he has truly said, you could not lay mains in the street without consulting with the public authority, and those powers have been given to the Electric Lighting Companies; but he says that because you find that the street boxes, I will put it, as far as the argument is concerned, must be practically constructed in accordance with a plan approved of by the Postmaster-General and the Local Authority, that by implication it excludes the application of the sections of the Building Act. Upon the broad argument that they must be excluded because you have to obey the directions of those two people, that seems to me an argument which, to a certain extent, defeats itself, because it might be said that if the two Authorities which

were contemplated distinctly, namely, the Local Authority and the Postmaster-General, differed, you would have to obey either of them, or if you possibly could, to obey both of them; but it seems to me that kind of argument loses sight of the real ground for the insertion of these sections. These sections are not inserted because you are to obey one or to obey the other, but that the persons who have to protect the public interests will have an opportunity to exercise their judgment so far as their interests are concerned, or, in other words, as I ventured to put it in the course of the case, the Postmaster-General was to have notice to see that the telegraph cable and other Post Office rights were not interfered with, and the Road Authority was to have notice in order that it might see that the surface of the road was not interfered with, and not, in their view, rendered dangerous.

That leaves the remaining consideration whether or not the sections of the London Building Act apply to this case? With regard to the structure itself, it is found by the magistrate that it was a building, structure, or work within the meaning of Section 145 and Section 72, and I think we are bound by that. But I wish to say that there was ample evidence on which the magistrate could come to the conclusion that the work was a street box, a chamber underneath the street in which people can stand. I think it is some 7 ft. or 8 ft., or even greater depth, in which there are pipes and mains, so that there is a sort of cellar, or chamber, in which this work is carried on, so I have no doubt that is a construction under a public way. That being so, why should not the interest of the person whose duty it is, the District Surveyor, to safeguard those, be protected by notice being given to him? As was pointed out, questions of footings at a considerable depth, and questions of walls which will support the earth at the sides are matters which the District Surveyor would have special knowledge of, and which he would have to consider in connection with an ordinary cellar under the footway. To say there is no need for him to consider it because the Postmaster-General will have looked at it from the point of view of the telegraph cables, and the Road Authority will have looked at it from the point of view of the surveyor of the road, only seems to me to lose sight of the reason for the argument that the notice should be given. I think the case is identical, in all material points, with the *Whitechapel* case. I see no reason for giving effect to the argument that this Provisional Order terminated the matter; upon this Order itself I see no reason why notice should not be given to the District Surveyor in order that he might have the opportunity of safeguarding the interest which it is his duty to safeguard. I give this decision with regard to the structure in this case, and I do not deal with those cases which Mr. Wills says have not yet been brought within the Act, which, for ought I know may not be structures at all, which may be mere boxes and holes, which have quite a different construction from this. I therefore come to the conclusion that the decision of the magistrate is right, and that this appeal should be dismissed.

Mr. Justice Wills: I am of the same opinion upon both heads which have been disposed of. As to this being a structure within the meaning of the Act, I cannot see how it is possible to come to any other conclusion, whether you regard it as a question of fact, or a question of law.

As to the remaining question, which is the more important one, at first sight the argument of Mr. Wills is taking that inasmuch as under the Provisional Order, which has been confirmed and made an Act of Parliament, no work of this kind can be executed, except in accordance with the plan which has been approved of by the Postmaster-General and the Local Authority, if the District Surveyor came to a different conclusion with regard to what was necessary, and to a conclusion which clashed with that of the Postmaster-General and the Local Authority, there would be a deadlock, and, therefore, it is to be presumed that that is not intended as a possibility contemplated by the Act of Parliament; but, legislation of this kind is practical, and practically I should think there would be no sort of difficulty. It may very well be that, from the Postmaster-General's point of view, something which the District Surveyor would be indifferent about may be insisted upon and rightly insisted upon, and it might be that that would clash with the plan which was approved by the District Surveyor. Then what would be the result? The result would be simply that those who were interested would put their heads together and would hit upon some device which would satisfy all the three Authorities, and it is to be observed precisely the same difficulty might be met within the area of the 13th Section, Sub-Section 2, of the Provisional Order Confirmation Act, because there the one approval which is necessary is not the approval of the Postmaster-General nor the approval of the Local Authority, but it is the joint approval of both. That implies that before the joint approval can be given, these two Authorities must agree upon something in common which will protect both the interests they have to look after. It does not seem to me it introduces any practical difficulty that a third Authority has to be satisfied also. I can see no reason whatever for distinguishing this case from the case which has already

been decided. I am bound to say that, after having carefully considered it, I come to the conclusion that the judgment which was given in the other case was right, and that it was the decision I should have given myself if I had had the same question before me.

Mr. Justice Channell: I am of the same opinion. It is clear, beyond any possible doubt, that this was a structure to which the provisions of Section 72 of the London Building Act would apply if there were nothing to alter them, or take them away. Then you have a subsequent Provisional Order, that is the effect of an Act of Parliament, dealing with the special matter of these boxes. If the provisions of that Order had been inconsistent with the provisions of the other Act, being, in substance, in relation to a special matter, that would have had the effect of supplying *pro tanto*, as far as regards this subject matter, the provisions of the general Act. But I do not think they are necessarily inconsistent. It has been said that each of these different approving Authorities is entitled to have those things put into this box which are necessary for the protection of those interests which it has got to look after. It is not to be supposed that the other people would object to the provisions for the protection of the other Authority, although they may not happen to be required for their own purposes, and be things that otherwise would not require to be done. There is no evidence that there would be any difficulty at all.

Mr. Horace Avory: The appeal is dismissed with costs, my lord?

The Lord Chief Justice: Yes.

#### PATENTS OF THE WEEK: APPLICATIONS PUBLISHED.\*

2,315 of 1902.—J. HARDING: *Automatic Ventilator*. An automatically controlled ventilator, having a capillary tube balanced horizontally on trunnions, the tube being closed at one end and having a bulb at the other end containing a fluid contracting or expanding by changes of temperature, and so balanced that upon a rise of temperature beyond the normal for which the apparatus is set, the tube will rock on its trunnions by reason of the change of position of the centre of gravity of the tube; in combination with a balanced valve governing a passage communicating with the outer atmosphere, and mechanical connections between the capillary tube and the balanced valve, whereby the valve is opened by the motion of the tube upon an increase in temperature, and closed upon a decrease in temperature.

10,131 of 1902.—W. R. HOLBROOK: *Locks and Latches*.

A rim lock with an adjustable keyhole consisting of a tumbler attached to the frame and not to the parts which slide within the frame, and projections on which rests the keyhole plate instead of on the mechanism.

10,360 of 1902.—A. RILEY: *Guards for Wood Planing and Moulding Machines*.

A guard for the cutters of wood planing and moulding machines of such a form and construction as to permit of the cutters being visible when covered by the guard, and means for supporting the same in such manner as to permit of its being raised, slid endwise, and rotated.

10,430 of 1902.—W. P. BONWICK: *Devices for Preventing Access of Coal, Cinders, and the Like to the Archways or Flues of Kitchener Boilers*.

For preventing access of coal, cinders, and the like to the archways or other flues of kitchener boilers, whilst allowing flame and hot gases to enter freely, a refractory block furnished at its back with projections of such shape and so disposed that when the block is placed within the fireplace of a kitchener and centrally in front of the flue with its rear projections against the boiler, ways are formed between the block and the boiler at the top and the sides of the block for the free passage of flame and hot gases from the fire to the flue, the block being also formed with a hole or holes that will allow of flame and hot gases passing directly through the block to the back thereof, whether or not such block be also provided with knobs or projections at its sides.

11,315 of 1902.—R. BOWES: *Kitchen Grates or Furnaces and other Fireplaces where there are Domestic Heating Boilers or Boilers for Heating Purposes*.

In kitchen grates or fireplaces having boilers in which a trough is used and the products of the combustion escape from above the fire in the trough and circulate round the oven or ovens or boiler to be heated.

11,025 of 1902.—J. PARKER and PARKER & SON, Ltd.: *Construction of Wooden Shelves, Plinths, and Gables for use in Combination with all Kinds of Structural Woodwork*.

A shelf or plinth consisting of a face piece, over the inner surface of which is secured a number of battens, the edges and ends of the face piece receiving ornamental or plain strips, and the outer faces of the battens receiving a layer of wood or other suitable material so secured to the battens that the completed structure presents to view a shelf or

\* All these applications are in the stage in which opposition to the grants of Patent upon them can be made.



plinth suitable for use as part of any structural woodwork.

13,257 of 1902.—E. BAUMANN: *Construction of Building Blocks, Stones, or Bricks Employed in the Construction of Bridges, Archways, Fireplaces, or the Like.*

A building or vault block provided of stone or brick, corresponding in taper with the radius of the arch or vault to be built upon the upper end of which block is formed a suitable recess; this recess is preferably upon the side nearest the key stone, whether upon its right or left hand; the other side of the block at this part projects in a corresponding degree for fitting within the recess in the block next adjoining the keystone. Projections are formed upon both sides by this part, as also upon the upper end of each block, and in the centre a suitable rib is provided. This rib in building a vault or archway is immediately opposite a joint in the next or adjoining arch, causing the block to assist to bind together its adjoining two blocks upon both sides. By this construction no binding material is necessary. The recesses and projections make it impossible for the blocks to shift their positions when once laid, and the projecting upper rib provides for their being placed quickly and accurately in position.

13,270 of 1902.—J. TERRY: *Machines for Cutting Pockets in the Pulley Stiles of Sash Frames.*

A machine for cutting pockets in the pulley stiles of sash frames, consisting in the combination of a standard provided with a stationary work receiving table having an adjustable sliding fence, a treadle operated swing frame carrying two circular saws, a clamping plate and hand mechanism for operating the same, two sets of cross saws and mechanism for reciprocating the same, together with hand mechanism for raising and lowering the saws.

14,217 of 1902.—H. H. LEE: *Boilers Chiefly Designed for Kitchen Ranges.*

A boiler composed of a series of superposed connected sections adapted to lie alternately on opposite sides of a flue so that the gases passing through the said flue are caused to travel in a zigzag direction.

14,431 of 1902.—G. COUZENS: *Means and Appliances for Hinging Window Casements.*

The object of this invention is to hinge casements so that they will open in such way as to allow the outside of the glass to be cleaned from the inside of the room. Where casements are hinged as at present by ordinary butt hinges it is impossible to clean the outside of the glass from the inside of the room; thus necessitating the use of ladders. This invention is designed to obviate this difficulty, and consists of a special hinge made to fix on the frame and a sash with projecting arms pivoted at the ends. The hinge is fixed to frame and sash on top and bottom and projects upwards, and the action of opening the sash throws it into such a position that an opening is formed between the frame and sash about double the distance of the pivoted end of the hinge from the frame, allowing sufficient space for the hand and arm to be put through, and thus to enable any one to clean the outside of the glass from inside the room.

1,084 of 1903.—H. H. PRETTYMAN: *Window Sashes.*

A reversible window sash, consisting in the combination with a window sash, the same having longitudinal openings in the outer vertical sides thereof, metallic tongues within the said openings, means for maintaining said metallic tongues yieldingly within said openings, a metallic channel bar having a longitudinal groove therein into which said metallic tongues project, a plate secured to the outer vertical side of said window-sash, said plate enclosing the adjacent ends of the metallic tongues, a bolt passing through said plate, and to which the channel bar and sash have pivotal connexions.

1,096 of 1903.—J. C. RUCK: *Adjustable Rail or Rod Holders for Mantel Shelves and the Like.*

In adjustable rail or rod holders for mantel shelves and the like, clamps carrying pivoted arms or brackets, said brackets having a pivot attachment with a ring for rigidly holding a rail or rod.

1,479 of 1903.—A. KOENIG: *Manufacture of Material known as Compo-board, for Use in Covering Walls and Ceilings as a Substitute for Plaster.*

In the manufacture of compo-board, the construction and use of sheets made of thin plates of wood connected together by interlocked joints of compo-board, having the wood slats thereof made in sections rebated, dovetailed, matched, tongued, and grooved, or grooved and tongued and rebated either vertically, laterally, or longitudinally, or in two or more of these directions to form interlocked joints.

14,107 of 1902.—W. KIMBERLEY AND DAVID KIMBERLEY & SONS: *Planes.*

A multipiece for a plane, in which the essential internal parts of the throat of the plane are cast, stamped, or otherwise formed, and placed in the suitable cavity made to receive the same in the wood body of the plane.

24,257 of 1902.—J. W. MACKENZIE (J. G. LODGE): *Window Sash Support to Facilitate the Ready Removal of Sliding Sashes from their Frames.*

In window sash supports adapted to facilitate the displacement and removal of sliding sashes, a bar or rod with armatures fixed or movable, the said bar or rod sliding and rotating in supporting brackets when the armatures are attached thereto.

2,451 of 1903.—J. BATCHELOR, H. TURNER, and THE VAPOUR PREVENTION, LTD.: *Apparatus for the Prevention of Steamy Windows.*

An apparatus for the prevention of steamy windows consisting in the use of an inner chamber formed of iron or any suitable material, becoming entirely heated by gas or electricity, in combination with an outer chamber having a constant supply of cold air which is converted into hot dry air.

2,458 of 1903.—C. KRAUSE: *Methods of Producing Artificial Stone.*

A method of producing artificial stone characterised by adding pieces of corrugated cardboard to the mass intended for forming the artificial stone.

3,301 of 1903.—E. F. W. U. GRABAU: *Production of Washable Wall-paper.*

In producing washable wall-paper with ordinary wall-paper printing rollers, mixing aniline or transparent colours with a paste vehicle prepared with an addition of spirit or alcohol before use. The vehicle consists of about 1 part of caustic soda, 21 parts of water, 2 parts of potato flour, and 0.05 parts of borax; the different parts being mixed in a certain order, and the vehicle thus obtained diluted by means of glycerine, spirit, or alcohol.

4,807 of 1903.—A. B. WOOD: *Decorating or Ornamenting Articles of Porcelain, China, Earthenware, and the Like.*

A method of decorating or ornamenting articles of porcelain, china, earthenware, and the like, which consists of forming a recess, channel, or groove of appropriate shape in cross section in the desired part of the article, then inserting therein a metallic ornament, preferably of openwork design, and finally applying pressure to said ornament to cause its edges to spread and to be retained in the said recess or the like.

4,831 of 1903.—J. A. O. WEX: *Drawers for Furniture and the Like.*

A draw for furniture and the like having a removable front side or closing flap so arranged that the movement of the said flap is effected by the impingement of a pin or button carried by the draw against a horizontal lever provided with a coupling-horn, the said lever having its fulcrum on a cross-piece of the casing and communicating by means of a hinged plate with a sliding plate hinged to the closing flap.

7,371 of 1903.—E. A. RAWLENCE: *Water and Other Closets.*

A closet pan having the rear part of greater height than the forward part, said pan being of approximate pear shape in plan, and having its upper side horizontal at the forward end, and upwardly inclined from said horizontal part to the rear.

6,189 of 1903.—H. MARTIN: *Roofing Tiles.*

The method of securing roofing tiles in position by means of a device formed as a hook at one end for engaging the tile, and at the other end as a nail for attachment to the roof, a loop being provided thereon for the more convenient handling thereof during insertion and tightening.

3,845 of 1903.—G. BODMER: *Ceramic Cover for Electric Cables.*

Cover for electric cables consisting of a plate of ceramic material, curved at a span higher than the diameter of the cable to be protected, enlargements at the ends of the plate and hollow spaces in the wall.

26,572 of 1902.—M. W. PHILLIPS: *Apparatus for Separating the Coarse and Fine Particles of an Insoluble Material such as Clay.*

In a device for separating particles of insoluble material, a screen of fibrous material, of finest mesh, and means for feeding said insoluble material thereto suspended in water, whereby the size of the mesh is reduced by absorption of water.

10,808 of 1902.—C. LANDALE: *Apparatus for Cutting and Saving Slate, Stone, Metal, Wood, or Other Materials.*

A machine for cutting or saving slate, stone, metal, wood, and other materials having a table for supporting the material, a reciprocating saw-frame suspended between uprights and provided with cutters or saws, and means for operating the said frame so that while one portion of the cutter is cutting, the other portion is removed out of the cut.

10,825 of 1902.—E. L. PEAKE: *Construction of Roofing and Walling.*

This invention consists in the combination with slotted tubes of panels interlocked therewith by inset edges, and with or without stiffeners between the said slotted tubes, and of channel-irons extending along the eave of the roof and adapted to serve as stiffeners to the said eaves and as a means for draining water into tubular rafters.

## MEETINGS.

SATURDAY, JUNE 6.

Royal Institution.—Professor Silvanus P. Thompson on "The De Magistrate and its Action." 11 p.m.  
Incorporated British Institute of Certified Carpenters.—Visit to the headquarters of the London Fire Brigade, Southwark-street, S.E. 3 p.m.

MONDAY, JUNE 8.

Royal Institute of British Architects.—(1) Special general meeting, when the Chairman will move the following resolution:—"That, subject to the sanction of the Lords of the Privy Council, the words 'during the five

years from the date of approval of this provision by the Privy Council' be omitted from the proviso of By-law 9"; (2) Business meeting (a) to receive the Report of the scrutineers appointed to direct the election of Council, Standing Committee, &c.; (b) a statement to be made as to the schedule of the conditions of contract. 8 p.m.  
Society of Engineers.—Mr. E. R. Matthews on "Electric Light Stations: their Design and Arrangement." Illustrated by drawings of the Brixton Electric Light Station. 7.30 p.m.  
Incorporated Clerks of Works Association (Carpenters' Hall).—Paper by Mr. C. S. Freeman, "Decorative Electric Lighting." 8 p.m.

TUESDAY, JUNE 9.

Institution of Gas Engineers (At Institution of Mechanical Engineers).—Annual general meeting. 10.30 a.m.

WEDNESDAY, JUNE 10.

Institute of Builders (At Society of Arts).—Dr. Hubert Higgins on "The Seasoning and Preservation of Wood." Illustrated by lantern slides (Mr. W. F. King, Chairman). 8 p.m.

Institution of Gas Engineers.—Annual general meeting (Continued). 10 a.m.

Institute of Sanitary Engineers.—General Purposes and Finance Committee. 4.15 p.m. Election Committee. 5.15 p.m. Half-yearly general meeting. 7 p.m.

THURSDAY, JUNE 11.

Institution of Gas Engineers.—Annual general meeting (continued). 10 a.m.

South-Eastern Union of Scientific Societies (eighth annual congress, Town Hall, Dover).—Annual address by Sir H. H. Howorth, President-elect. 8 p.m.

FRIDAY, JUNE 12.

South-Eastern Union of Scientific Societies (annual congress continued).—Morning, afternoon, and evening meetings. Paper by the Rev. R. Ashington Bullen on "A Late Celtic Cemetery at Hailton Bay."

SATURDAY, JUNE 13.

Architectural Association.—First summer visit, to Heathfield Park, Sussex. Train leaves Victoria Station at 11.15 a.m.

Building Trades' Exhibition, Royal Agricultural Hall.—Opening of the Exhibition. 1.30 p.m.

Incorporated Association of Municipal and County Engineers.—Eastern District meeting, Sudbury.

Edinburgh Architectural Association.—Annual excursion to Bamberough.

South-Eastern Union of Scientific Societies (annual congress, Dover, concluded).—Mr. A. T. Wainisley, Engineer, Dover Harbour Board, on "International Communication." 12 noon.

## SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

May 13.—By BELCHER, ADKIN, & BELCHER

Goosey, Berks.—Nelson's Mead, part freehold and part leasehold (with rights of sheep pasture) ..... £600  
Charlton, Berks.—A freehold and a leasehold ..... 370  
Two freehold paddocks, 8 a. 1 r. 37 p. f. .... 398  
Four freehold building sites ..... 300  
Various enclosures, 18 a. 0 r. 39 p. f. .... 1,931  
May 20.—By FOLEY, SON & MUNDY (at Trowbridge).

Keovil, Wilts.—Pinckney Farm, 8 a. 3 r. 15 p., 11, y.r. 1884-85 ..... 4,000  
Wick Farm, 75 a. 3 r. 38 p. f. 11, y.r. 1884-85 ..... 4,000  
Wick Farm, 80 a. 1 r. 39 p. f. 11, y.r. 225 ..... 4,000

Steeple Ashton, Wilts.—New House Farm, 43 a. 0 r. 11 p. f. 11, y.r. 864-78 ..... 1,725  
Three enclosures, 2 a. 2 r. 20 p. f. .... 250  
May 21.—By VINTEN & SON (at Ramsgate).

Ramsgate, Kent.—9 to 15 (odd), Thane-st., f. 11, y.r. 72 ..... 1,050  
8, 11, and 12, Montefiore-cottages, f. .... 440  
41, 125, ..... 690

Trinity-pl., Montefiore Villa, with carrier's yard, stabling, &c., f. p. .... 370  
21, Trinity-pl., ..... 1,725  
10 1/2 a. Francis-ter, also Francis Villa, f. .... 540  
1 and 2, Canham-cottages, also Hockley, Luton, and Wolcott Cottages, f. .... 320  
16, Vale-rd., f. y.r. 194-108 ..... 885  
90, High-st. (S.), f. .... 150

St. Peters, Isle of Thanet.—Dane Court Lodge, beneficial lease for 9 yrs. y.r. 654 ..... 150  
May 22.—By BRADY & SON (at Manchester).

Haughton Dale, Lancs.—Two freehold cottages, 11, y.r. 841 ..... 200  
A freehold field, 4 a. 0 r. 38 p. f. .... 300

By SPELMAN (at Diss).  
Rushall, &c., Norfolk.—Norton's Farm, 236 a. 0 r. 3 p. f. .... 2,000  
By J. W. GASE & SON (at Diss).

Rushall, Norfolk.—The Lodge Farm, 104 a. 3 r. 2 p. f. .... 2,050  
Johnson's Farm, 61 a. 0 r. 6 p. f. .... 600  
Moulton St. Michael, Norfolk.—A freehold occupation, 16 a. 1 r. 17 p. .... 300  
Four enclosures, 10 a. 1 r. 23 p. f. .... 145

By FORTESCUE & CO.  
Wandswoth—196, Merton-rd., u.t. 483 yrs., g.r. 31, y.r. 381 ..... 845  
1, Eilsenham-st., f. e.r. 391 ..... 390  
Battersea—62 and 64, Epsom-rd., u.t. 594 yrs., g.r. 81, w.r. 621. 8s. .... 400

By HIGGINS & SON.  
Hampstead.—118, Adelaide-rd., u.t. 421 yrs., g.r. 1, y.r. 371 ..... 300  
25, Rosslyn Hill, u.t. 438 yrs., g.r. 121, y.r. 1001 ..... 1,010  
Haverstock Hill—No. 166, u.t. 473 yrs., g.r. 154, e.r. 861 ..... 615

By A. J. SHARPLEY.  
Clapton—19 and 21, Chatsworth-rd. (S.), f. y.r. 80f. .... 1,615  
30, 32, and 34, Lockhurst-st., f. w.r. 1671. 14s. .... 2,300

Whitechapel.—187 (The Pavilion Stores) and 191, Whitechape-rd. (S.); also 12, 13, 14, 2, 3, and 4, Pavilion-yard, in rear, u.t. 34 yrs., g.r. 296f., y.r. 361. 12s. .... 400  
Manor Park.—59, Morris-st., f. y.r. 311. 4s. .... 290







## COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

(For some Contracts, &amp;c., still open, but not included in this List, see previous issues.)

## COMPETITIONS.

Nature of Work.	By whom Required.	Premia.	Designs to be delivered.
*Grammar School Buildings, Head-Masters' Residence...	Governors Maglins Grammar Sch.	22d, 1st, and 10th.	July 10

## CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c., supplied by	Tenders to be delivered.
Eleven Houses, Cwmaman	Aberneil Building Club	Llewellyn & Co., Architects, Aberdare	June 9
Chimney Shafts, Duff's-court	Bridgewater Town Council	Borough Surveyor, Municipal Building, Bridgewater	do.
Whinstone Road Metal	Gosforth U.D.C.	C. J. Baff, Surveyor, Gosforth	do.
Retaining Wall, Littleborough	Leeds Corporation	W. H. Schofield, Surveyor, County Offices, Preston	do.
Boller House, &c., at Gasworks, New Wortley	Leeds Corporation	R. H. Townsley, Municipal Buildings, Leeds	do.
Cast-iron Pipes	Southampton Corporation	J. A. Croxther, Engineer, Southampton	do.
Drainage Works, Somerville-road	Birmingham Corporation	J. Price, Surveyor, Council House, Birmingham	do.
Granite Road Metal	Brentford U.D.C.	N. Parr, Surveyor, Brentford	do.
Street Works, Taylor-street	Crews Town Council	G. E. Shore, Surveyor, Crews	do.
School Buildings, King Edward-road, Nunceaton	The Governors	H. Quick, Architect, 64, Hetford-street, Coventry	do.
Alterations to Workhouse	Pwllheli United Guardians	R. G. Thomas, Architect, Menai Bridge	do.
Chapel, Resolven, Wales		B. B. Rees, Architect, 37, St. Mary-street, Resolven	do.
House, Skelmanthorpe, Yorks		J. Berry, Architect, 3, Market-place, Huddersfield	do.
Two Houses, Buttershaw, Yorks		Brayshaw & Dixon, Architects, Buttershaw	do.
Church and Schools, Purston, near Pontefract		Garside & Pennington, Architects, Pontefract	do.
Public-houses, &c.		Jennings & Duthoit, Architects, 6, Claremont-place, Dover	do.
*Stone Paving Carriage Ways and Footways	Corporation of London	The Engineer, Guildhall, E.C.	do.
*300 tons of 6 in. Granite	Sheerness U.D.C.	Council's Surveyor, Council's Office, Trinity-road, Sheerness	do.
*Brick and Stoneware Pipe Sewers	City of Westminster	Works Department, Westminster City Hall, Charing Cross-rd., W.C.	June 10
*Cast Cement Kerbing	Kent County Council	County Surveyor, 55, West-street, Maidstone	do.
Isolation Cottage at Infirmary, Preston		F. E. Dixon, Civil Engineer, 49, Lane-street, Preston	do.
Additions to Police Station, Altrincham, Cheshire		H. Bewick, Architect, Newgate-street, Chester	do.
House, Main-street, Derrygonnelly, Ireland		D. Elliott, Derrygonnelly	do.
Grand Stand, &c., Consett, Durham	Bucklow R.D.C.	M. D. McKenzie, Engineer, 7, Market-place, Altrincham	do.
Granite Setts	Directors Garryowen Athletic Grounds	B. F. Sheehy, Architect, 37, George-street, Limerick	do.
Hospital, at Workhouse	Mr. W. Best	T. H. Murray, Architect, Consett, Co. Durham	do.
Additions to Workhouse, Dunstable	Southampton Corporation	J. A. Crowther, Engineer, Southampton	do.
Kerling, &c., Maudstone	Stockport Corporation	P. Cunliffe, Architect, 10, Market-street, Stockport	do.
Store Premises and Houses, East Ardley	Luton Guardians	G. R. Bruck, County Surveyor, 88, West-street, Maidstone	do.
Street Works, Whitehill-street	Kent County Council	R. Castle & Son, Architects, Cleckheaton, Yorks	June 11
Paving Works (9,000 square yards)	Morley Indus. Co-op. Soc., Ltd.	J. A. Crowther, Engineer, Southampton	do.
Making Up Crownwell-road	Stockport Corporation	F. Lindsey, City Chambers, Glasgow	do.
Road Materials	Cheshunt U.D.C.	R. H. Jeffes, Engineer, Cheshunt	do.
Chimney Shaft, Western Shore	Houghton-le-Spring R.D.C.	D. Balfour, Civil Engineer, Houghton-le-Spring	do.
Chapel, Cwmpark, Wales	Southampton Corporation	J. Rees, Architect, Penryn	do.
*Additional Bridge at Isolation Hospital, Oak Fencing	Comm. of Bethel Baptist Church	Council's Surveyor, Wanstead, N.E.	do.
Two Hundred and Fifty Houses, Aber, Bargoed	Wanstead U.D.C.	D. Kenahole, Architect, Hanbury-road, Bargoed	June 12
Alterations to Workhouse Mortuary, &c.	Powell-Duffryn Coal Company	P. Davies, Council Offices, Downpatrick	do.
Station Buildings, Braywick-road	Ayrport Guardians	P. Johns, Civil Engineer, Guildhall, Maldenhead	do.
Paving Works, Osbornestreet, &c.	Maldenhead Town Council	Borough Surveyor, Town Hall, Preston	do.
Schools, Thirsk	Preston Corporation	T. Stokes, Architect, Thirsk	do.
Three Houses, Canonic-street, Ton Pentre	Mr. T. R. Thomas	W. D. Morgan, Architect, Penryn	do.
Shop, &c., Corporation-road, Workington		W. G. Scott & Co., Architects, Workington	do.
Additional Schools to Wesleyan Church, Thirsk, Yorks		H. Stokes, Architect, Thirsk	do.
Two Houses, Pendennis, Famborne, Cornwall		W. Raven, Praeger, Crowan	do.
Church, Soundwell, near Bristol		F. M. Bennett, Architect, 38, Corn-street, Bristol	do.
House, Dumphall, N.B.		J. Forrest, Architect, Forres	June 13
Additions to Workhouse Infirmary, Craiglockhart	Edinburgh Parish Council	A. Ferrier, Parish Council Offices, Edinburgh	do.
Crematorium	Downpatrick R.D.C.	W. Hartnett, Chapel-street, Lismore	do.
*Well Sinking, Crossgar, Ireland	Carlisle New Brewery Co., Ltd.	Council's Engineer, Public Offices, Downpatrick	do.
Inn, Calceote	Bradford Corporation	J. Leslie, Architect, 71, Broad-street, Carlisle	do.
*Cooking & Service Fittings, Cartwright Memorial Hall		Town Clerk, Town Hall Bradford	do.
*Electric Lighting, Cartwright Memorial Hall		do.	do.
Two Cottages, near Fordingbridge		F. Bart, Architect, Salisbury	June 14
Additions to Farm Buildings, Trowbridge		Foley & Co., Surveyors, Trowbridge	do.
Additions to Hospital, Mossall	Manchester Corporation	City Architect, Town Hall, Manchester	June 15
Additions to Business Premises, Merbury Tyddil	Coventry Corporation	C. M. Davies, Architect, 114, High-street, Merbury	do.
Additions to Infirmary, Stathe	Messrs. D. Ross & Sons	J. E. Swindell, Engineer, Coventry	do.
House, &c., Antrim	Mr. J. J. McKee	F. E. Lockwood, Architect, 91, Victoria-street, Belfast	do.
Five Houses, Fionasquare, Belfast	Walsingham R.D.C.	T. Penland, Architect, 35, High-street, Belfast	do.
Sewerage Works, &c., Milton Constable	Mr. J. W. Chapman	Council's Engineer, Bank Plain, Norwich	June 18
Rebuilding the Buller's Arms Inn, Brixham, Devon	Walsingham District Council	F. W. Yarnstone, Architect, Patagon	do.
*Wood Pavement	do.	Council's Engineer, Public Offices, Dynevor, Kilburn, N.W.	do.
Road Making and Paving	Acton District Council	Council's Surveyor, 212, High-street, Acton, W.	do.
*Block of Tenement Dwellings, Edgware-road	St. Marylebone Borough Council	Town Hall, Marylebone-lane, Oxford-street, W.	June 17
Enlargement of Operating Room	Kensington Guardians	Steward of the Infirmary, Marlborough-road, Kensington, W.	June 18
*New Post Office, Lough	Commissioners of H.M. Works, &c.	H.M. Office of Works, Storey's Gate, S.W.	June 19
Isolation Hospital, &c., Streton Sugwas	Hereford R.D.C.	E. F. Davies, Architect, 7, Bridge-street, Hereford	do.
*Brick Sewers	Tottenham, &c., Jnt. Drainage Com.	Council's Engineer, 712, High-road, Tottenham	do.
House, Houghton-le-Spring, Durham		J. P. Zulp, 6, William-street, Houghton-le-Spring	June 20
Bridge Works, Worthing	Miford R.D.C.	W. M. Barton, Guildhall, East Dereham	do.
*New Laundry, &c., at Smallburgh Workhouse	The Committee	G. J. Davies, Solicitor, Guildhall, East Dereham	do.
*New Schools, Forest Gate	London County Council	St. Antony's, 88, Redfriar-road, Forest Gate	do.
*Cartshed, Office, Botby, &c., Wandsworth Park	British Gas Light Co., Ltd., Norwich	Architect's Department, 18, Pa. Mad East, S.W.	June 22
Retort House, Coal Stores, and other Buildings	Belvoir U.D.C.	Engineer, Bishop Bridge, Norwich	do.
Sewers, &c.	The Committee	G. J. Jones, Civil Engineer, 37, Cross-street, Manchester	do.
Erection of University College, Sheffield	Bridgewater R.D.C.	Gibbs & Flockton, Architects, 15, St. James's-row, Sheffield	June 23
Laying 10 miles Cast-iron pipes	H.M. Works	E. D. & H. Marten, Engineers, Cheltenham	do.
*Corruption of Iron Frame at Upper Edmonton	North Walsham U.D.C.	H.M. Office of Works, Storey's Gate, London, S.W.	do.
*Broken Granite and Granite Chisps	Goring, &c., Dist. Gas & Water Co.	Council's Surveyor, North Walsham	do.
*High Pressure Rising Main, &c.	London County Council	G. H. Robus, Mansion House Chambers, E.C.	June 25
Cottage Dwellings, Foydon		Architects Department, 19, Charing Cross-road, W.C.	June 26
Schools, &c., Penybroke Dock	St. Pancras Female Orphanage, &c.	G. Morgan & Sons, Architects, 21, King-street, Carmarthen	do.
Galleries at Bethany, Baptist Chapel, Penybroke Dock	Lichfield Brewery Co., Ltd.	S. G. Goss, Architect, 3, Broad-street-buildings, E.C.	July 3
*New Orphanage	Mr. J. V. Bullock	C. Owen, Architect, Arcade Balcony, Walsall	No date.
Licensed Premises, Tanworth	Mr. F. J. Crossfield	J. Briggs & Co., Architects, Ulverston	do.
Shop and Stores, Main-street, Begnor	Salisbury, &c., Gas Co.	Settle & Farmer, Architects, Ulverston	do.
Stabling, &c., Todmusk, Treiston	Brightside & Co-op. Soc., Ltd.	Moore & Archibald, 27, Albert-road, Middlesbrough	do.
Alterations to House, West Dyke-road, Redcar		Clayton & Black, 152, North street, Brighton	do.
Additions to Market Hall, Redhill		H. Webb, Architect, Norfolk-row, Sheffield	do.
Store Premises, Cricket Inn-road, Sheffield		Browlick & Co., Architects, 77, Lowgate, Hull	do.
Church, Spring-street, Hull		do.	do.
Church, Graucetown, near Middlesbrough		do.	do.

(See also next page.)



## PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*Clark of Works Superintendent for Repairs	Harrogate, & Co., Jnt. Iso. Hoap. Com. School Board for London	3l. p. w. 350l.	June 10 June 20

Those marked with an asterisk (\*) are advertised in this Number. Competitions, iv. Contracts, iv. vi. viii. & x. Public Appointments, xviii.

## PRICES CURRENT (Continued).

## STONE.

## YORK STONE—Robin Hood Quality.

Scrapped random blocks	2 10 per ft. cube, del. rly. depôt.
2 in. sawn two sides landings to sires (under 40 ft. super.)	2 3 per foot super.
4 in. Rubbed two sides	2 6 "
2 in. Sawn two sides slabs (random sizes)	2 11 "
2 in. to 2 1/2 in. Sawn one side slabs (random sizes)	2 7 1/2 "
Scrapped random blocks	2 0 per ft. cube
6 in. sawn two sides, landings to sires (under 40 ft. super.)	2 8 per ft. super.
6 in. Rubbed two sides	2 "
Ditto	2 "
3 in. sawn two sides slabs (random sizes)	2 "
2 in. self-faced random flags	2 5 "
Hopton Wood (Hard Bed) in blocks	2 3 per ft. cube, del. rly. depôt.
" " 6 in. sawn both sides landings	2 7 per ft. super, del. rly. depôt.
" " 3 in. do.	2 1 1/2 "

## SLATES.

1 in. in.	£ s. d.
20 x 12 best blue Bangor	13 5 6 per 1000 or 1200 at rly. dep.
20 x 12 "	13 17 6 "
20 x 10 best seconds	12 15 0 "
20 x 12 "	13 10 0 "
26 x 8 best "	7 0 0 "
20 x 10 best blue Portma-	
do.	12 5 0 "
26 x 8 best blue Portma-	6 5 0 "
feeding green	15 2 6 "
20 x 12 "	17 2 6 "
28 x 10 "	12 10 0 "
26 x 8 "	7 0 0 "
20 x 10 permanent green	11 0 0 "
28 x 10 "	0 5 0 "
26 x 8 "	6 10 0 "

## TILES.

Best plain red roofing tiles	42 0 per 1,000, at rly. depôt.
Hip and valley tiles	3 7 per doz.
Best Brandy tiles	50 0 per 1,000
Do. Ornamental Tiles	52 6 "
Hip and valley tiles	4 0 per doz.
Best Rubbed Red, brown or	
Do. ornamental Do. (Edwards)	57 6 per 1,000
Hip tiles	4 0 per doz.
Valley tiles	3 0 "
Best Red or Moss Staff	
fordshire Do. (Peakes)	51 9 per 1,000
Do. Ornamental Do.	54 6 "
Hip tiles	4 1 per doz.
Hip tiles	4 2 "
Best "Rosemary" brand	
plain tiles	48 0 per 1,000
Do. Ornamental Do.	50 0 "
Hip tiles	4 0 per doz.
Valley tiles	3 8 "

## WOOD.

Deals: best 3 in. by 11 in. and 4 in.	£ s. d.
by 9 in. and 11 in.	15 10 0 15 10 0
Deals: best 3 by 9	14 10 0 15 10 0
Battens: best 2 in. by 7 in. and 8 in.	11 10 0 12 10 0
and 3 in. by 7 in. and 8 in.	11 0 0 less than 7 in. and 8 in.
Battens: best 2 by 6 and 3 by 6	11 0 0 12 10 0
Deals: seconds	1 0 0 less than best
Battens	0 10 0 0 10 0
2 in. by 4 in. and 2 in. by 5 in.	8 10 0 9 10 0
2 in. by 4 1/2 in. and 2 in. by 5 1/2 in.	8 10 0 9 10 0
Foreign Sawn Boards	
1 in. and 1 1/2 in. by 7 in.	0 10 0 more than battens.
Joists	1 0 0
White Sea: First yellow deals,	At per standard.
3 in. by 11 in.	23 0 0 24 0 0
" " by 9 in.	21 0 0 22 10 0
Battens, 2 1/2 in. and 3 in. by 7 in.	17 0 0 18 10 0
Second yellow deals, 3 in. by 11 in.	16 10 0 17 10 0
" " 3 in. by 9 in.	17 10 0 18 10 0
Battens, 2 1/2 in. and 3 in. by 7 in.	13 10 0 14 10 0
Third yellow deals, 3 in. by 11 in.	15 10 0 16 10 0
" " 3 in. by 9 in.	16 10 0 17 10 0
Battens, 2 1/2 in. and 3 in. by 7 in.	12 10 0 13 10 0

## PRICES CURRENT (Continued).

## WOOD.

Petersburg: first yellow deals, 3 in.	At per standard.
by 11 in.	£ s. d.
Do. 3 in. by 9 in.	21 0 0 22 10 0
Battens	18 0 0 19 10 0
Second yellow deals, 3 in. by	
11 in.	13 10 0 15 0 0
Do. 3 in. by 9 in.	16 0 0 17 0 0
Battens	14 10 0 15 10 0
Third yellow deals, 3 in. by	
11 in.	12 10 0 13 10 0
Do. 3 in. by 9 in.	13 10 0 14 0 0
Battens	11 0 0 12 10 0
White Sea and Petersburg:	
First white deals, 3 in. by 11 in.	14 10 0 15 10 0
" " 3 in. by 9 in.	13 10 0 14 10 0
Battens	11 0 0 12 10 0
Second white deals 3 in. by 11 in.	13 10 0 14 10 0
" " 3 in. by 9 in.	12 10 0 13 10 0
Battens	10 10 0 11 10 0
Pitch-pine: deals	
Under 2 in. thick extra	0 10 0 1 0 0
Yellow Pine—First, regular sizes	33 0 0 upwards.
Oldtimers	22 0 0 24 0 0
Seconds, regular sizes	24 10 0 26 10 0
Yellow Pine Oldtimers	20 0 0 22 0 0
Kauri Pine—Planks, per ft. cube	0 3 6 0 4 6
Danzig and Stettin Oak Logs	
Large, per ft. cube	0 2 6 0 3 6
Small	0 2 3 0 3 6
Wainoot Oak Logs, per ft. cube	0 5 0 0 5 6
Dry Wainoot Oak, per ft. sup. as	
1 in. do.	0 0 7 0 0 8
1 in. do.	0 0 6 0 0 7
Dry Mahogany—Honduras, Tabaco,	
co, per ft. sup. as inch	0 0 9 0 0 11
Selected, Figury, per ft. sup. as	
1 in. do.	0 1 6 0 1 8
Dry Walnut, American, per ft. sup.	
as inch	0 10 0 0 10 0
Teak, per load	17 0 0 21 0 0
American Whitewood Planks—	
Per ft. cube	0 4 0 0 4 6
Prepared Flooring	Per square.
1 in. by 7 in. yellow, planed and	0 13 6 0 17 6
shot	
1 in. by 7 in. yellow, planed and	0 14 0 0 18 0
matched	
1 1/2 in. by 7 in. yellow, planed and	0 16 0 0 1 6
matched	
1 in. by 7 in. white, planed and	0 11 6 0 13 6
shot	
1 in. by 7 in. white, planed and	0 12 0 0 14 0
matched	
1 1/2 in. by 7 in. white, planed and	0 14 6 0 16 6
matched	
1 1/2 in. by 7 in. yellow matched and	0 11 0 0 13 6
beaded or V-jointed boards	
1 in. by 7 in. do. do. do.	0 14 0 0 18 0
1 1/2 in. by 7 in. white do. do. do.	0 10 0 0 11 6
1 in. by 7 in. do. do. do.	0 11 6 0 13 6
6 in. at 60 to 90 per square	less than 7 in.

## JOISTS, GIRLERS, &amp;c.

In London, or delivered.	£ s. d.
Railway Vans, per ton.	£ s. d.
Ordinary quality	6 5 0 7 5 0
Rolled Steel Joists, ordinary sections	8 2 6 9 5 0
Compound Girder	
Angles, Tees and Channels, ordinary sections	7 17 6 8 17 6
Flitch Plates	8 5 0 8 15 0
Cast Iron Columns and Stanchions, including ordinary patterns	7 8 6 8 5 6

## METALS.

Per ton, in London.	£ s. d.
IRON—	£ s. d.
Common Bars	7 10 0 8 10 0
Staffordshire Crown Bars, good merchant quality	8 0 0 8 10 0
Staffordshire "Marked Bars"	10 10 0 10 10 0
Mild Steel Bars	8 15 0 9 5 0
Hoop Iron, basis price	9 0 0 9 5 0
" " galvanised	10 0 0 10 0 0
" " ("And upwards, according to size and gauge.)	
Sheet Iron, Black—	
Ordinary sizes to 20 g.	9 15 0 10 0 0
" " 20 g. and 24 g.	10 15 0 10 15 0
" " 24 g. and 28 g.	12 5 0 12 5 0
Sheet Iron, Galvanised, flat, ordinary sizes	
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	12 15 0 12 15 0
" " 20 g. and 24 g.	13 5 0 13 5 0
" " 24 g. and 28 g.	14 5 0 14 5 0
Sheet Iron, Galvanised, flat, best quality—	
Ordinary sizes to 20 g.	16 0 0 16 0 0
" " 20 g. and 24 g.	16 10 0 16 10 0
" " 24 g. and 28 g.	18 0 0 18 0 0
Galvanised Corrugated Sheets—	
Ordinary sizes, 6 ft. by 2 ft. to 20 g.	12 15 0 12 15 0
" " 20 g. and 24 g.	13 5 0 13 5 0
" " 24 g. and 28 g.	14 5 0 14 5 0

## PRICES CURRENT (Continued).

## METALS.

Best Soft Steel Sheets, 6 ft. by 2 ft.	£ s. d.
to 3 ft. by 30 g.	11 15 0 11 15 0
and thicker	12 15 0 12 15 0
" " 22 g. and 24 g.	13 15 0 13 15 0
" " 26 g.	14 0 0 14 0 0
Cut nails, 3 in. to 6 in.	9 3 0 9 15 0
(Under 3 in. usual trade extras.)	

## LEAD, &amp;c.

Per ton, in London.	£ s. d.
LEAD—Sheet, English, 3 lbs. & up.	14 7 6 14 7 6
Pipe in coils	14 17 6 14 17 6
Soil pipe	17 7 6 17 7 6
Compo Pipe	17 7 6 17 7 6
ZINC—Sheet—	
Vieille Montagne	27 5 0 27 5 0
Silesian	27 0 0 27 0 0
Copper—	
Strong Sheet	per lb. 0 10 1/2 0 10 1/2
Thin	0 10 1/2 0 10 1/2
Copper nails	0 0 11 0 0 11
BRASS—	
Strong Sheet	0 0 10 0 0 10
Thin	0 0 11 0 0 11
Th—English Ingots	0 0 6 0 0 6
Soulers—Plumbers'	0 0 6 0 0 6
Timmen's	0 0 8 0 0 8
Blowpipes	0 0 9 0 0 9

## ENGLISH SHEET GLASS IN CRATES.

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JUNE 13, 1903

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### The Architecture of Greece and Rome.

#### II.



our last article we followed out the treatment of Greek architecture in the work of Professor Anderson and Mr. Spiers; we now come to the Roman portion of the book, prefaced by a short

chapter on Etruscan architecture, as supplying part of the origin of the Roman style. The two special points which Mr. Spiers notes as distinguishing the general arrangement of a Roman temple from a Greek one are the mounting of the temple on a platform and the greater depth of the front portico; the latter an Etruscan characteristic. There is also, as instanced in the case of the Temple of Fortuna Virilis, at the early part of the first century B.C., the employment of engaged columns against the wall of the cellar as a substitute for the genuine colonnade. This, says the author, need not necessarily be a Roman invention, as we have the example of the Temple of Jupiter at Agrigentum and that of the monument of Lysicrates. But can either of these be regarded as evincing any deliberate intention on the part of the Greeks to choose this method of decorative architecture? In the Agrigentum example they were merely driven to it by constructive necessity, the scale of the Temple being too large for them to venture on architraves over an open colonnade; and as to the little Athenian monument, it has always seemed to us an open question, considering that the columns are complete in themselves and not merely *appliqués*, whether it was not at first built open, and walled in as an afterthought. It seems impossible to suppose that the Greek mind could have seriously contemplated the use of an applied order as a mode of decoration, unless when forced to this or nothing by special circumstances.

As soon as we come on the Roman scene, however, we are far away from the simple and limited construction of the Greeks; and it is remarkable how the two forms of architecture are representative of the materials available for building. The Greek marble, with its close texture, almost suggested, at

least made possible, the fine detail and the frank and unpretentious structure of Greek architecture. The Roman, living in a land of soft tufa and of fine cementing material, developed an architecture suited to the combined capacities of his materials; but as splendour and richness of effect was not to be attained with these materials, veneering with marble was the result, at least for the interiors; a method which answered the immediate purpose but prejudiced the durability of the architectural design, of which only the core survived the lapse of ages.

"'Brickwork I found thee and marble I left thee,' their Emperor vaunted;  
"Marble I thought thee, and brickwork I found thee,' the tourist may answer."

The methods employed in Roman construction are concisely but clearly described and illustrated in Chapter IX. In the chapter on the Orders as used by the Romans Mr. Spiers gives prominence, in speaking of the Roman Doric Order, to the temple of Hercules at Cora, less popularised in books than others, and approaching much more nearly to Greek Doric than the examples given as typical in books of the orders. Here we have a column and capital very nearly resembling the Greek Doric, save in the presence of a small torus base to the column (probably derived, says the author, from Tuscan services); and the outer triglyph is placed at the angle, as in Greek work, instead of being central with the axis of the column. Mr. Spiers observes that as the Tabularium, the Theatre of Marcellus, and the Colosseum, are all engaged orders, used in a decorative sense, the difficulty of Vitruvius as to the triglyph at the angles never arose; and he suggests that perhaps, after all, Vitruvius's method was never employed in buildings which were actually columnar; but we should not think this likely. The Cora Temple, from its close resemblance to Greek Doric, is probably an early Roman work; and it does not seem likely that Vitruvius would have spoken of the central position of the triglyph as the proper one had it not come into general acceptance in his day. The Romans, no doubt, thought that they were correcting a defect of alignment in the Greek order.

The Corinthian capital is of course essentially a Roman achievement; but when the author observes that in this capital "they masked the bell more effectually than we

find in Greek examples," one is tempted to ask—is that an improvement? It is certainly less constructional in appearance, and probably we should feel it so if we saw a pure Roman capital for the first time in comparison with the less completely developed Greek one; but we are accustomed to it by long habit now. The flat section of the leaf in place of the V section is certainly not an improvement. In fact the Roman Corinthian capital is like the Roman Corinthian order generally; exceedingly rich and sumptuous in effect as a whole, but not showing artistic refinement in detail.

There seem to be one or two oversights as to the correction of the press in this chapter; e.g. "The carving of the volutes are so much more refined," and we came across some similar errors in other places in the book, which should be looked to in a second edition.

From the details of the Orders we pass to the general grouping and treatment of various classes of Roman buildings. Mr. Spiers's chapter on the Forums follows out the sequence in which the various forums in Rome were built, after the one celebrated irregular enclosure which was the original Forum of Rome. The author draws attention to the difference between the feeling of the Romans and the Greeks in regard to irregularities of site; the Greeks being rather disposed to take advantage of the varying levels of a natural site for the picturesque disposal of their buildings in a manner suggested by the lines of the site; while the Romans, more wealthy and possessed by more of the engineering spirit, levelled their sites, and set out buildings on them on symmetrical and axial lines. This latter preference for axial symmetry is, it is true, essentially an architectural way of looking at things; only the Romans went so far as to make a site symmetrical which was not naturally so, while the Greeks would take a site as it was. Both systems may be defended according to circumstances. The Roman axial system is essential to architectural grandeur of effect and expression; the Greek irregular system sorts better with an architecture distinguished by grace and finish rather than grandeur or great scale; so that each nation perhaps intuitively employed the system best suited to its own architectural aspirations.



While the Romans carried their architecture, in its main characteristics, wherever their armies went, they were occasionally impelled to variations of practice by the nature of the country or of the materials with which they had to deal. Mr. Spiers suggests this as the real cause of the remarkable outbreak of Cyclopean architecture at Baalbec; that the Romans employed the traditional labour of the country, which was Phœnician, and Phœnician architecture was megalithic. The Roman design probably showed a podium of a certain height in plain masonry, without any particular direction as to the scale of the stories; the natives built it in their traditional way, and probably had some rough but effective machinery ready to hand for moving and placing immense blocks. They may however have been too slow about it to please their conquerors, as the megalithic system only extends, after all, over a small proportion of the podium, and looks rather as if it had been indulged in as a kind of bravado.

In speaking of Roman temples, the author notes that it is not always possible, in Roman work, to decide from the style its approximate period of erection. "Some of the architecture of the first century is almost as debased as that of the third century.\* It seems to have been a question as to the architect employed;" for in Roman Imperial times at least we have come on the professional architect as having a real existence. The notes on circular temples lead of course to the Pantheon and its history, and M. Chedanne's discovery of its real date, all which is told at some length. In regard to the Roman built-up theatres—it is most characteristic of the Roman nature to take all that trouble and expense to build up the back of the "house" instead of following the example of the Greeks and taking advantage of a hollow site—Mr. Spiers observes that the kind of erection which was first designed simply for utilitarian purposes became one of the finest architectural compositions it was possible to devise; "and, coarse as are the mouldings of the Colosseum and incorrect the relative proportions of the Orders, there is no more impressive monument in the world;" and we quite agree with him. Of course in the Colosseum mere scale, and the grand perspective of the curved lines, are elements in the effect. The author gives a full description of the Colosseum, without going much into the vexed questions as to the actual working of the spectacles. But when he says that the French excavations undertaken in 1810, covered in 1814 and a second time reopened some thirty years ago, "revealed contrivances for raising the wild beasts to the arena level," we must say that the French engineers' drawings and restorations, which can be studied in the British Museum, convey no such idea on their part; they show in their restorations a series of inclined planes for the animals to run up, and justify this restoration by features delineated in their measured drawings of the remains as then existing. We have always considered that the ingenious devices of some restorers for winding up the animals in travelling cages or lifts were absurd; as if a practical people like the Romans would have employed hundreds of men in laboriously winding up animals which could run up of themselves, and only wanted to have their

\* "As in that of the third century" it stands in the book; another grammatical oversight.

cages opened to do so. We recommend to theorists on the Colosseum the study of the French restoration; it is much more practical and commonsense than the fantastic and unscientific mechanical devices imagined by Parker and others.

In the chapter on the *Thermæ*, the author suggests that the study of these buildings has a practical value to us now, as examples of the principles to be observed in the aggregation of a number of large apartments of different heights and dimensions, "a problem which at the present day has constantly to be solved, and from this point of view the actual purpose and use of each hall is of minor importance;" though it must be added that the understanding of the purpose and use of all the numerous apartments is a matter of the greatest archaeological interest. In regard to the general principle observed in planning the *Thermæ*, Mr. Spiers maintains, and we think rightly, that the *Tepidarium* constituted the nucleus and dominating motive of the whole plan. The *Tepidarium*, rising much higher than the adjoining halls, was lighted by a clear-story above their level; and the same principle is carried out in subordinate portions of the buildings, the larger apartment of a group rising higher than the rest and being lighted above their roofs. Mr. Spiers also touches upon an interesting point in regard to the actual constructive value of the columns in such buildings as the vaulted halls of the *Thermæ*, which he thinks have been too hastily assumed to be merely decorative in consequence of the fact that in the Basilica of Constantine the puzzolana concrete has held up the vaults in spite of the support of the columns being removed; but he maintains that "this is exceptional; as a rule all the larger columns carried floors or vaults, and their removal has been fatal;" a conclusion which, if established, removes one considerable reproach against the Roman architects.

The succeeding chapters of the book describe the *Triumphal arches*, the palaces of the *Cæsars* (the latter illustrated by an elaborate plan from M. Deglane's restoration); *Hadrian's Villa*, tombs, aqueducts, and private houses, with an added chapter on *Pompeian interiors* and decoration, as affording the fullest information we have in regard to the Roman house. In speaking of *Spalato*, Mr. Spiers questions whether its importance, as an example of the decadence of the *Classic* columnar style and the first hint of an arched style, has not been exaggerated, as the west front of the *Propylæa* at *Damascus* (151 A.D.) shows the incident of the arch springing from the two central columns of the portico, and the entablature design carried round it; capitals carrying an arch without an intervening entablature are found in *Pompeii*; "and the accentuation of the Roman relieving arch over a lintel, by enriching it with mouldings, is found in the second century in *Asia Minor* and *Syria*." It might have been well to give an illustration of one of these examples.

A short glossary of terms used in Greek and Roman architecture is given at the end of the book, followed by a list of books relating to *Classic* architecture, most of which have been consulted in the preparation of the present volume. As a comprehensive *résumé* of the history and characteristics of Greek and Roman architecture this must certainly be considered to be the best

one-volume work of its kind that has yet appeared in our language, and one which should be interesting to educated readers generally, as well as to those who are in a special sense students of architecture.

#### ITALIAN NOTES.

THE recent visit of the Emperor William II. to Italy has been marked by a curious manifestation of his interest in matters artistic. After visiting the King of Italy and the Pope in Rome, he was accompanied by the former on an excursion to the Abbey of Monte Cassino, for the purpose of viewing the artistic labours of the modern Benedictines who inhabit that famous seat of ancient learning. Attended by all the stately display which naturally accompanies the presence of an emperor in company of a king, the two monarchs paid a hasty visit to the newly-decorated buildings on May 5, and the Emperor not only expressed his approval in complimentary speeches about the famous institution of the Benedictine Order and its motto, "*Ora et Labora*," but also presented the Abbot with the substantial proof of his approbation in the form of a subscription of 10,000 marks (500*l.*).

The Benedictine Abbey of Monte Cassino would seem to be largely in the hands of German monks at the present day; at least the leading spirits in the community belong to that nationality. The abbot is a certain Padre Krug, who has passed the last forty years in Italy; the principal decorator is a monk named Padre Desiderio Lenz, a native of Bavaria, who is chiefly working at present on the mosaics and other details of the "*Camera di San Benedetto*."

Perched upon a hill so high above the nearest railway station that the heart of the average tourist rather sinks within him at such a climb, the abbey presents nothing of interest to the distant view, and a nearer approach reveals very few traces of any of its numerous rebuildings, or the extreme antiquity of its foundation. The present buildings are of the seventeenth century and still later; only a very few plain and unpretentious portions can claim to have anything venerable about them, and their designations are, of course, merely legendary. Within this very uninteresting building (speaking from an artistic standpoint) there is, however, a very vigorous effort being made to revive those artistic traditions which were specially identified with monastic institutions during the Middle Ages. Photographs have been published of various portions of the new works in progress, which were initiated more than a dozen years ago by the decoration of a chapel in the tower called "*di San Benedetto*," a fragment of the more ancient buildings which is piously believed to date from the original monastery of A.D. 529.

The style of work which has been adopted in this important modern monument is rather peculiar, and may almost be considered to have a special *cachet*. It is unlike much of the modern "*Gothic*" or "*Classic*" with which the world has been inundated throughout the nineteenth century. The effort has evidently been to revive the characteristics of the usually barbarous style of what are known as the dark ages, that is to say, of a period at least preceding the days of Giotto and Pisano. Such an attempt has a certain novelty about



it when it is carried out on the scale and with the determined intention which seems to mark this modern Benedictine community.

Judged by ordinary standards, the decorations at Monte Cassino must fail as works of art, because they do not display the ordinary knowledge of technique and school-of-art study, which it would seem ridiculous to ignore, as necessary at the present day, in works of a monumental character. They can, therefore, only be considered as expressing a desire to return to some primitive ideals, in protest against all that is modern in art and modes of thought. Such a style of art is, perhaps, more easily adapted to mosaic work than anything else, and, perhaps, with this idea the German Emperor criticised what he saw at Monte Cassino as being "a restoration of the mosaic art particularly suited to the austere mysticism of Religion." The numerous very low-relief sculptures which the monks are also executing have rather too much the appearance of poor copies of an imperfect type of art, but they are, at the same time, too rigid and precise in detail and design to deceive the student of old work. Monte Cassino will become an interesting monument of revived art in the cloister, and of the great religious enthusiasm of modern times. Its boneless saints and flat decorative figures, its mosaic backgrounds and "austere mysticism," will represent an earnest protest of these latter years against the naturalism of worldly art, and as such it will always attract the admiration of certain minds. As art pure and simple, its chief interest lies in the fact that here in central Italy, removed from the ordinary influences of modern society, almost a school of ecclesiastical art has come into being for the purpose of executing architectural sculpture and decorations in the style of a period long before the "Great Masters" had any existence. The new Benedictine art-development may be considered a success chiefly in as far as it displays an enthusiastic spirit amongst the workers—a spirit such as animated the Munich school of Cornelius and Overbeck in the middle of the last century. It is very reminiscent of that famous old Munich school; but with the difference that the German artists of fifty years ago were not so archaeologically inclined as their modern descendants who live under the rule of St. Benedict.

The foundation stone of the new Campanile of St. Mark, in Venice, was laid with much ceremony and jubilation on St. Mark's day by the Count of Turin. This ceremony has been hurried on in rather a premature way by the party which insists upon the restoration, but for the present the project seems somewhat vague, and it is not yet settled whether the restored tower is to be carried up to the full height and design of the original. It is understood that the Government will be responsible to the amount of 3,000,000 lire, the half of which has already been subscribed by the public.

In other parts of Italy very little of artistic importance has taken place during the last few months. The Cathedral of Florence has been completed as regards its modern exterior by the setting up of the great central door of bronze in the west front. This immense doorway (about 26 ft. high by 13 ft. in width) is the work of Agostino Passaglia, a pupil of the celebrated Florentine sculptor, Duprè. It is a very ordinary production of the style of fifty years ago,

and hardly calls for criticism. In Italy, the "Gothic" reproductions of the nineteenth century are, perhaps, more utterly inept and generally unsatisfactory than in any other country. At a time when Pugin in England, or Viollet-le-Duc in France, were showing what could be done in reproducing the styles of the Middle Ages, the Italians were content with the most deplorable pasteboard imitations of their own mediæval work—imitations which even a theatrical scene-painter might have been ashamed of. It is remarkable that even at the present day this pasteboard "restoration" style should still survive and be admitted into the most important public monuments. The exterior of Florence Cathedral, which has been rebuilt to all intents and purposes during the last hundred years, may now be considered as a truly grand example of nineteenth-century Gothic. Its concluding detail is this great west door, with its artless academic bas-reliefs under weakly-designed "Gothic" canopies, its perfect execution and mechanical lifelessness of effect. The work has cost the not inconsiderable sum of 125,000 lire (5,000*l.*), and the weight of metal employed amounts to 12 tons.

#### NOTES.

The News from  
Knossos

We seem to have by no means come to the end yet of the surprises which the Palace of Minos has in store for us. Mr. Evans's long letter in the *Times* of the 5th inst. described the discovery of a new and important residence, apparently a kind of royal villa, at a little distance from the main palace, and of which, as it was partly on the side of a hill, nearly the whole upper story can be made out. We also hear of the discovery of King Minos's private theatre in the great palace, with a tier of stepped seats looking down on a small paved area. A day or two later, however, Mr. Macmillan communicated to the *Times* the account of another find, which was considered sufficiently sensational to be the subject of a telegram, consisting of decorative objects in porcelain, including vases, inlays, reliefs, and especially a number of figures, about a foot high, showing complete and minute representation of costume. We are not told whether these figures have the false and unnatural thinning at the waist which is shown in the painted figures. But this whole excavation is a more remarkable inlet into the remote past than was furnished even by Hissarlik. Whether the enterprising archaeologists who have carried out the excavations have not gone a little too fast in already discriminating and tabulating the successive schools and phases of "Minoan Art" may perhaps be questioned. But they have gone far to show that events which have long been regarded as mythical may be transferred to the domain of history.

The Metropolitan  
Fire Brigade.

HAVING from time to time commented upon the serious loss of life in the Metropolitan, and also on the great wastage of property, in such conflagrations as those of the Barbican and Cripplegate fires, we would call the attention of the London County Council to the necessity of utilising the opportunity of the impending change of command to

consider the advisability of placing the Brigade in the hands of an official who would be more in touch with the structural aspect of the Metropolis than a naval or military officer. The problems of life-saving, of fire-extinction, and of precautionary measures against fire are becoming more and more subjects demanding a thorough constructional education. Life-saving and fire-fighting are no longer solely matters of routine, discipline, and pluck. It is essential that the command should be in the hands of one who, whilst being a good disciplinarian, will thoroughly understand the architectural and engineering requirements of his position. The firemasters in Scotland, who fulfil similar functions to those of our Chief Officers, pay far greater attention to constructional questions than has been the case in London. Some of the great provincial centres in England likewise have already understood this side of the problem of reducing the annual fire waste; and in Northern Europe such appointments are now usually given to either surveyors, engineers, or members of the constructional branch of the Army.

Lessons from  
a Fire.

FROM the report of the Insurance Company's inspector on a recent fire in the Roosevelt Building, New York, some useful lessons may be learned by those who have not yet acquired the knowledge supposed to be possessed by the insurance engineer. The building is defined as being of the class "commonly designated as fireproof buildings with unprotected ironwork occupied for mercantile and like manufacturing purposes." One satisfactory feature is that the first warning was afforded by an automatic alarm, an appliance of which we seem to hear very little in Great Britain. The fire spread very rapidly, ascending the central staircase and elevator shaft, and entered each of the floors above. In parts of the sixth and seventh floors, some 2 in. hollow tile plastered partitions succeeded admirably in arresting the flames, but the eighth floor, having no such partitions, suffered very severely. Five of the cast-iron columns supporting the roof broke off clean, 2 ft. from the top, and all the others were badly warped, as well as part of the outer framework, where the protection was knocked off by the falling roof beams. These beams caused other injury, some falling through the eighth floor and deflecting the seventh floor, while another part fell upon the stair landing, and descended to the bottom of the building, carrying away all the landings in succession. The ironwork in the sixth and seventh floors is generally good, and structurally the building has not been much injured below the eighth floor. Damage to the exterior walls is slight, but if they had been of stone it is thought that the loss would have been much greater. The lessons to be learned may be thus briefly summarised:—(1) That vertical openings not thoroughly enclosed in fireproof material constitute an extremely vital defect, making an otherwise well-designed building practically at the mercy of any fire when once fairly started; (2) That unprotected ironwork is thoroughly dangerous; and (3) That the provision of two stairways is imperative for the safety of occupants and for the use of firemen. In the present case, if the ironwork had been protected, and the vertical



openings adequately enclosed, it is tolerably certain that the fire would not have spread beyond the floor on which it broke out.

No less than four distinct modes of underpinning are exemplified in a description recently given by the *Engineering Record*. The foundations of a wall, 75 ft. long, forming one side of a six-story building, had to be removed and carried down several feet to the sandy bottom of a new excavation, rendered necessary by the erection of an adjoining building. The wall was temporarily carried by needle-beams, resting at one end on sills laid on the cellar floor, and supported at the other by a series of posts, inserted after the wall had been lifted bodily by screw-jacks. Brick piers were next built up between the needles from new footings to take the weight of the old wall, and after removal of the needles the remaining brickwork was added, the whole being wedged up and thoroughly grouted. The corner of the front wall was supported entirely from the inside by a horizontal timber cantilever, of which one end was inserted and wedged into a recess cut in the brickwork, and the other end reacted against a post wedged across the under side of several joists in the basement floor, while the fulcrum was furnished by a set of the needle beams already mentioned. At the opposite end of the building the corner was similarly supported. Another ingenious piece of work in the same building was the support of a heavily-loaded stone pier, 4 ft. square, by means of two cantilevers, the short arms of which were secured to the pier by steel pins, and the reaction of the long arms was taken by posts wedged up against distributing beams across the under side of the floor above. In this manner the pier was safely supported so as to permit the removal of the footing and the building of a new foundation. At one part of the side wall a stone pier, 2 ft. square, had to be underpinned with the wall. It was difficult to secure bearings for temporary supports, and unsafe to cut away material for the insertion of a needle beam. Therefore, a pair of steel pins were inserted horizontally to take bearing upon one of the main needles, and the other side was supported by the aid of a cantilever placed below the foot of the pier in a notch cut into the foundation, the long arm of the cantilever reacting through a post wedged against the basement floor-beams. By these simple devices one side of the building was rendered independent of the old foundations, and it naturally follows that if any subsidence had been feared it would have been perfectly easy to guard against injury by jacks acting between the posts and the various supporting beams.

HOWEVER excellent may be the qualities of a paint, it is impossible to expect that it will be effectual in protecting steelwork, unless the mill scale, rust, dirt, and grease have previously been removed. After leaving the rolling mill, steel is often stored in exposed positions for a considerable time before use, so oxidation progresses to such an extent that cleaning with wire brushes is not sufficient to permit the paint to come

into immediate contact with the metal. When specifications demand the sand-blast cleaning of structural steel, rolling-mill proprietors and structural engineers will provide the necessary equipment, as they have now provided modern drilling-machines for drilling holes instead of punching them. At present, competition prevents any industrial firm from taking the lead, and the purchaser must pave the way for any reform of the kind. There are very few records showing the results of sand-blast cleaning on an extensive scale, and a paper on the subject, lately read before the American Society of Civil Engineers, will therefore be read with considerable interest. The author gives an account of the experience gained in the cleaning of more than 135,000 sq. ft. of railway viaducts at Columbus, Ohio, and describes both the apparatus used and the methods of procedure. From one of the tables it appears that the cost averaged about 1½d. per square foot, including the cost of trestles, flagmen, and time wasted by interruptions. It must also be observed that the viaducts were generally covered with heavy rust and several layers of old paint. In new work the expense would, of course, be much less. The surface of the steel was cleaned bright, so that it had the appearance of frosted silver, and paint put on a year ago still holds on firmly, being to all intents and purposes as good as when applied. In matters affecting the future safety and durability of buildings, there is nothing like beginning at the proper place with precautionary measures. With structural steel, the proper thing undoubtedly is to be sure that the metal is quite clean before any paint or other protection is applied.

A PAPER on the design and arrangement of electric light stations was read by Mr. Ernest Matthews to the Society of Engineers on Monday night.\* The author illustrated his paper by drawings of the Bridlington Electricity Works, and so his remarks had reference mainly to the design of small stations. His statement that one-seventh of the roof of the engine-house should be skylight was criticised in the subsequent discussion, it being contended by one speaker that this would be insufficient in a smoky town, and by another that on a hot summer's day it would be unbearable. Another point which called forth some criticism was the statement that the floor-level of the boiler-house should be several feet below that of the engine house. In some cases this may be convenient, but it is not always advisable. American engineers often place the boiler-room over the engine-room, and the coal-bunkers over the boilers. This arrangement is sometimes used in this country—for example, in the power station of the Bristol Tramway Co. The remark that every material of an inflammable nature should be omitted as far as practicable from the building is hardly consistent with the use of matchboarding for the temporary end of the engine-house. The remarks on the wind pressure on the chimney-shaft were not very scientific, the data given by Rankine and Molesworth being quoted, whilst Buchetti and recent Continental practice is ignored. The greatest danger from wind-pressure does

\* A résumé of the paper will be found on another page, under the heading "Engineering Societies."

not arise from the maximum pressure during a gale, but from the danger of sudden gusts synchronising with the natural period of oscillation of the shaft. Rough empirical formulæ are given for the height of a chimney-shaft required to burn a given amount of fuel per hour, but no formulæ are given for the area of the cross-section required. The rules of the London County Council as to the heights of shafts are also quoted. We do not think, however, that these were fixed so as to produce the most suitable draught for a given consumption of coal, but rather so as to prevent them being a nuisance to the neighbourhood.

THE annual general meeting of the Institution of Gas Engineers has been held this week in London. On Wednesday morning a lecture on "Calorics and Candles," in which was discussed the relationship between the heating power and the illuminating value of gas, was delivered by Professor Vivian B. Lewes. The lecturer stated that when using non-luminous water-gas and an ordinary Welsbach mantle he obtained light of 158 candle-power when the gas was consumed at a rate of 8.15 cubic feet per hour, which is equivalent to 19.3 candles per cubic foot. With coal-gas the average result yielded by the same mantle may be taken as 80 candles with a consumption of 4 cubic feet per hour, or 20 candles per cubic foot. The lighting efficiency of coal-gas as commonly used at the present time is, therefore, practically the same as that of water-gas, although the heating value of coal-gas is twice as great as that of water-gas. Professor Lewes also showed a Welsbach mantle heated to incandescence by producer-gas. In spite of the fact that the producer-gas had a heating value which was less than one-third that of coal-gas, the mantle emitted a light of 150 candle-power. It is true that the gas had to be consumed at a rate of 30 cubic feet per hour, and that the efficiency was therefore only 5 candles per cubic foot, but it is evident that the statement that Mond gas and Dowson gas cannot be used for incandescent lighting is incorrect. Among the papers read before the Institution was one by Mr. S. O. Stephenson on "The Lewes Process at Tipton," in which it was shown that the process of passing water-gas through coal-gas retorts while the coal is being carbonised has been brought into daily use at Tipton, and has resulted in a larger yield of gas from the coal and a material reduction in the cost of manufacture. An interesting paper by Mr. Walter Grafton dealt with the methods of testing low-grade gas for illuminating power.

THE historic exhibition of English engravings and etchings in the first floor galleries of the Indian Section at South Kensington Museum is admirably arranged and very complete as a representative collection. The nucleus of the collection has been made by a selection of engravings and etchings from the Art Library in the Museum, supplemented by loans from private owners. The exhibits are classified in successive bays in chronological order, commencing with line engravings of the sixteenth and seventeenth

Direct and Indirect Underpinning.

Cleaning Steel by Sand Blast.

Electric Light Stations.

The Engraving and Etching Exhibition.



centuries, where one can see examples of the careful and laborious but rather mechanical line-engraving of this early period, as exemplified in such work as that of Elstracke and others. With the second bay we come to the etchings of Hollar and the engravings of Faithorne, and in the third bay to the mezzotints of the latter part of the seventeenth century, among which is an example (lent by the King) of Prince Rupert's remarkable plate known as "The Great Executioner"—"great" as to size merely, to distinguish it from the small work called also "The Executioner." Further examples of mezzotint and line engravings of the eighteenth century follow in the two next bays; in the latter there are several examples of that conscientious worker Woollett, somewhat prosaic in style and feeling, but exhibiting, as in "Roman Edifices in Ruins" (146: after Claude) that careful management of line which gives such a value to his work, in which every detail, though copied, is in a sense designed afresh by the engraver; a more solid and intellectual type of work than mezzotint, though it has not the breadth and softness of effect of the latter. Some of the subjects have a historical interest apart from the artistic merit of the engraving; Rooker's "Scotland Yard," for instance, dated 1766; while Sharp's engraving of West's "King Lear" shows what sort of melodrama a R.A. of the period could consider as a worthy illustration of Shakespeare. In another bay Elizabeth Judkins's "Mrs. Abington" is a singularly fine mezzotint after Reynolds; while in bay 12 two reproductions of Reynolds's "Venus" (lately at Messrs. Lawrie's gallery), a stipple by Collyer and a line engraving by Raimbach, show how little reliance is sometimes to be placed on the accuracy of an engraver; for the two, taken from the same picture, differ materially; Raimbach's line is the best and most artistic of the two. In the bays devoted to more modern productions we have of course many works which are original art and not reproductions, many of them well known. Among the later engravings it is remarkable how exactly Cousins's style suits the character of Lawrence's pictures; Cousins seems to have been created to engrave Lawrence. The best original etchers of to-day are well represented in the collection.

WHILE we have at South Kensington this retrospective exhibition, a modern development of work in black and white is illustrated in the exhibition at the Woodbury Gallery in Bond-street of "Original Pictures from Punch" ("for Punch" would be more correct). The humour of the situations is, of course, part of the attraction in an exhibition of this kind; but from the purely artistic point of view it is interesting to see all this work in various styles of black and white in its original form and scale, before being reduced down to the size required for publication. Mr. Halkett leads off the show with drawings which, with the exception of the pencil sketch of Herr Richter, are rather mechanical in the use of line; there is much greater freedom in the style of Mr. Armour, who follows him: Mr. Phil May is represented by half a dozen drawings, of which the best is No. 17, "The Tourist and the Oldest Inhabitant," a capital strong piece of line drawing. Among those of Mr. Boyd

No. 24 is worth special attention. Mr. Charles Harrison's sketches of the Arctic railway station and of "Life Under the Sea" (41 and 42) are admirable examples of the *reductio ad absurdum*, the latter especially, in which the resemblance to human figures and surroundings in fish form is very cleverly carried out. Mr. Bernard Partridge is very largely represented, and his are among the finest drawings, both for point and meaning and for power of design; especially "A Short Memory" (69) and "After the Coronation Revels" (81). Mr. Reed's extravaganzas are very good; Mr. Maybank gives delightful fairy pictures, and Miss Wallace-Dunlop three little studies of children and their ways. Mr. Linley Sambourne naturally occupies a large space in the collection; perhaps the finest of his contributions is "Costume and Cost" (177).

At the French Gallery in Pall Mall a point is made of the exhibition of four pictures and a number of sketches and studies, chiefly in pencil, by Professor Menzel, a painter who has achieved a wide reputation, and received a great many honours, in virtue of a talent for realistic execution which appears to be totally unaccompanied by any feeling for beauty. We confess that we have never been able to understand the fuss that is made by art critics and dealers about Herr Menzel's work. His large picture (large comparatively speaking) of "Market Day, Piazza d'Erbe, Verona" (2), is what we call an utterly prosaic style of art, and the sketches and studies come under the same category. Thinking of the beauty of pencil studies and sketches by Leighton and other artists one could name, these seem merely coarsely executed memoranda with no interest beyond that of their use to the painter as such. The only thing that is really pleasing among them is the small-scale portrait, No. 34, which shows a remarkably conscientious finish of the head, with more refinement of style and feeling than is seen in the oil paintings. The gallery contains also a miscellaneous collection which includes some fine and interesting works—several small landscapes by Corot and Daubigny; a "Fête Champêtre" by Monticelli, which for the first time enables us to understand why some persons profess an admiration for this artist, whose pictures in general suggest the idea of being puzzles in worsted-work, but in this one there is style and a certain beauty of its own; there are two good pictures by Jacques, of which "L'Abreuvoir" is the best; "La Toilette" by Fantin-Latour, one of his figure-pictures which seem to radiate light and colour; a fine cattle picture by Troyon; two architectural interiors by Herr Bosboom, who has achieved the faculty of indicating a great deal of architectural detail and texture in a very slight method of execution; and a sea-painting by Isabe, "Running for Shelter," which shows that the French in his day were no better marine painters than they are now.

THE Summer Exhibition of the Dudley Gallery Art Society contains much pleasant and pretty work in water-colour, but not very much that claims higher praise than that. Among the works that have more individuality of style and subject are Mr. Loxden

Pocock's "The Stile on the Common" (80), in reality a foreground study of gorse with distance seen through it; and Miss Jex-Blake's "A Still Day at Rye" (81), a picture which recalls Crabbe's descriptions of bare and rather melancholy coast scenery. Others that may be singled out are Mr. Stormont's "Road to the Shore" (77); Mr. Roscoe's "Summer Afternoon on the Exe" (93), the broad estuary of the Exe with the water blue in the sunlight; Miss Bernard's "Harfleur Quay" (142); Mr. Standen's "A Riviera Valley" (163), recalling the pretty but rather mannered style and finish of Birket Foster; Mr. Aldridge's "The Coast of Devon" (201); Mr. Walter Severn's "Gorse at St. Jean de Luz" (208), a foreground study backed by the silhouette of a distant hill; Mr. George Marks's "A Sandpit" (235), quite one of the best things in the room; Mr. Stannard's "The Green Mill" (244), in which the wooden windmill, painted a decided green, gives a curious and unusual touch of colour to the landscape; Mr. Coleridge's "Clovell" (249), showing a bird's-eye view of the little port from the high ground; and Mr. Duassut's "A Wiltshire Cottage" (253). Mrs. Sydney Bristow's two life-size heads (1 and 20), executed in broad washes, are rather a new style of work in this exhibition, and are clever and artistic in execution, though little more than sketches on a large scale.

At Messrs. Dowdeswell's Galleries there is an exhibition of work in enamel and gold and silver, by "Nelson and Edith Dawson," which includes among other things the beautiful triptych that was at the Arts and Crafts Exhibition. The effect to be got by the union of the translucent colour of enamel with the bright surface and fine lines of silver work is happily illustrated in many of these productions; and though gold is more costly and perhaps more durable, we do not see that it is in any other respect equal to silver for the purpose of work of this kind; the silver sets off the enamel colour better, and shows the lines of the metal design better than gold. We may mention especially, as beautiful examples, the two little silver bowls, hexagonal in shape, with enamel on the lids, Nos. 3 and 7. The metal part of the work is charmingly designed in these, in a kind of playful suggestion of architectural detail, and the coloured enamel decorates the lid. The "Silver Box with Cloisonné Enamel" (23) is a good example of the effect of play of slightly curved line in an object of very simple design. "A Mirror in Setting of Silver and Enamel" (27) shows a small mirror-cover with richly-coloured red flowers in enamel. Among others that are particularly good are a bowl in hammered silver, with enamelled lid (52), and a silver salver with a raised centre decorated with armorial bearings in enamel (55). Among the personal ornaments a pendant (87) shows how gold, enamel, turquoise, and brilliants, can make a charming combination; and a very effective lady's belt-clasp is shown in one case, the two halves of the clasp decorated with two swans, facing each other, in cloisonné enamel. The collection is full of objects of beauty, and should be of interest to architects, design of this kind having so much affinity with architectural decoration.



# ARCHITECTURE AT THE ROYAL ACADEMY.—III.

OTHER pressing subjects have compelled us to suspend our review of the architectural exhibits at the Royal Academy for a time; we now return to it to consider some of the designs for domestic and street architecture. Of the former there are a considerable number, but too many of them are merely pretty water-colour sketches of more or less picturesque houses of what may be called the "wigwam" or "hut" type, in which the object of the designer appears to be to make the house appear as far as possible the result of accident or of the "fortuitous concurrence of atoms." Many are without plans; some which have plans are without a compass—an important element in regard to the planning of a house which too many exhibiting architects seem to overlook.

Taking them in the order of hanging, the first we come on is "Crathorne Hall" (1,444), by Messrs. Ernest George & Yeates; two brown-tinted elevations, one on a large the other on a smaller scale, and a plan, of what is presumably a new house, though it is made to look very like an old one. Old or new, however, it is a pleasant quiet building to look at; Georgian in general character, the skyline diversified by two high-raised roofs of concave outline over the two extremities of the façade facing the fore-court, and which terminate in small lanterns or cupolas, one of them containing the bell which is a convenient addition to a solitary country house. In the plan the offices are grouped round three sides of a court, and are well shut out from the house and yet convenient of access. There is no compass, and we observe that dining-room, hall, and morning-room all face the same way, but what is the aspect there is nothing to show. This may be all right however, unless the hall acts as drawing-room; there is no drawing-room shown on the plan; it may be, of course, on the first floor, though this arrangement, inevitable generally in town houses, is not a common one in country houses. The garden front has three projecting bays, two finishing in a curved pediment, the centre one in a straight-lined one, with an order beneath it. Altogether a very pleasing house, if somewhat too archaeological in character.

Mr. Mountford's "Proposed Flats and Business Premises, Sloane-square" (1,450) is hung too high to be well seen; and the same may be said of Professor Pite's "Restaurant, Great Portland-street" (1,451), which looks as if it merited a better place, as a broadly treated and effective piece of street architecture; the ground story is a series of round arches on narrow piers, with a cornice over, above which is a kind of mezzanine of larger semicircular arches, each bay of which includes two bays of the lower arcade. This portion is in stone (judging from the colouring); above are two stories in brick, of simpler treatment. This is a geometrical elevation, and hardly needs a plan, as it is obviously only a street screen.

Messrs. Mallows & Grocock's "Dalham Hall" (1,454) is apparently an addition to a very plain old square brick house with a formal garden in front of it; the latter is perhaps really the point of the drawing. A small plan shows what is old and what is new. Mr. Ernest Williams's two elevations (hung very high) of Nos. 27 and 28, Pall Mall (1,458) seem to show an effective treatment of Late English Renaissance materials grouped with a certain originality. Messrs. Wimperis & East's "House, Leicester-square" (1,471) is a bold and picturesque treatment of a street front, with two lofty oriels running through three stories of the building; these, however, rather crush the ground story, and the decorative corbels, pleasing in themselves, which appear to carry the projections, would have been better for a simpler and more massive treatment—more of the appearance of carrying weight. But this is a pleasing front, showing some nice decorative detail.

Mr. A. T. Bollen's small line drawing of the interior of the dining-room at Ingram House, Stockwell (1,469), apparently a public dining-room, is worth more attention than its unpromising appearance will get for it; it is a simple but dignified interior, wainscotted up to the impost of the large circular-headed windows, and with a ceiling divided by wide "soffits" into compartments, each of which has a circular panel divided off by an enriched moulding. It is a room that might have been worth a more elaborate drawing. Mr. R.

Blomfield's "Caythorpe Court, Lincolnshire" (1,467) is a bird's-eye view hung too high to be intelligible, with the usual charming judgment with which, in the architectural room, bird's-eye views, which should be seen from above, are nearly always hung high up. On the other hand we find on the line Mr. Knowles's "Lintclose, Northumberland" (1,472), a respectable line drawing of a respectable house; but how it has merited, either in respect of drawing or architectural interest, to be hung in so prominent a position, is a question that perhaps even the author of it may have asked himself. In many respects, indeed, the manner in which drawings are selected for good or bad positions favours the idea that it is mainly left to the judgment of the carpenters. Messrs. Young & Hall's "Hospital for Epilepsy, Maida Vale" (1,476) is a very pleasing design, with its series of coupled columns carrying the balconies between the projecting wings, and the building looks better in reality than it does in the drawing; but it is ridiculous to hang a hospital drawing without a plan, seeing that in such a building plan is the first and foremost consideration; but that is the way in which architecture is illustrated at the Royal Academy. In Mr. Figgis's "Inebriates' Home, Lingfield" (1,475) we have, for a wonder, a bird's-eye view hung where it should be, below the eye; showing a range of quiet home-like buildings placed round three sides of a quadrangle, with a garden in the centre, and the chapel occupying part of the fourth side. It seems just the kind of building to express the purpose of leading people back to a simple, natural, and healthful life.

Mr. Arnold Mitchell's "Maesycragan Manor, Carmarthenshire" (1,490) is a finely drawn and tinted elevation of a solid-looking mansion in Domestic Gothic style, with a touch of castellated character in the large low square tower over the entrance part of the house; and the plan has points of interest, especially in the shape of the drawing-room, a long room placed across one end of the house, with two deep square bays projecting from the side and a semicircular bay at one end; as the only entry to the room is by a door near one end, there is an element of surprise as well as of picturesque effect in turning into this large room. Mr. Prentice's "Witham Hall" (1,496) looks an important piece of work, apparently additions to an old house, but hung too high to read the plan properly. At the angle of room with which we have now got there is quite a collection of small pretty water-colour drawings of country houses, rather however reminding one of Bacon's dry sentence—"these are but toys"; some of them have no plans, others have plans which tell one a little too much; No. 1,513, for instance, is a charming little drawing of a house, only the small plan thrown in at one corner shows that both dining-room and kitchen have south-west aspect—exactly the worst they could have, and that the kitchen window is in a corner of the room on the opposite side from the fireplace; another (1,504) shows the same defect in the position of the kitchen window, so that any one cooking must be in her own light; it is surprising how common this mistake is. Mr. Scorer's "Sketch for House, Isle of Wight" (1,509) is a very nice little elevation of a square high-roofed house in the Old English style, with a stone portico with coupled columns and a festooned frieze filling the space between the wings, the same order and frieze being repeated in the side of the long conservatory; but there is no plan, a thing of course doubly necessary in connexion with an elevation alone, unless, as already observed, the elevation is a mere street screen. Mr. A. H. Hart's "House on the Hadley Road" (1,520) is a fronting perspective view having almost the effect of an elevation, and having some very nice points about it, though we think it owes something to the artistic colouring and get-up of the whole; in this case a small plan is added. Mr. J. Oldrid Scott's "New Rectory, Oxted" (1,526), is a house in what we call the "brick hut" style, looking almost ostentatiously contemptuous of design, but with a certain character about it, and a plan well arranged for parish business; we notice here again that the dining-room and drawing-room are identical in plan and aspect, so that when there is too much sun in the one there must be too much in the other also. The same aspect cannot be equally good for drawing-room and dining-room; though of course there are cases where aspect is intentionally sacrificed to prospect.

Messrs. Nicholson & Corlette's "Burton

Hall, Cheshire: North and South Front and Ground Plan" (1,530) is an important contribution, and should have been hung lower. The very plain brick elevations are not, it is true, very attractive, but the plan is a rather remarkable one, with an arcaded court and fountain worked into the middle of the house, and a very good and varied plan in other respects, though here again the entertaining rooms all face south. A prettily executed water-colour drawing of a proposed Thames boat-house, with nothing remarkable about it except the prettiness of the execution, occupies the line immediately below these important plans, which are thus pushed up too high to be properly studied; another example of the inanity with which the architectural drawings are hung, as if pretty pictures were the main object of the room. Some of these drawings ought really to go into the water-colour room rather than into the architectural room. Mr. Sayer's "Fowey Hall" (1,564), a dignified house which, with its projecting pavilion at each angle, looks perhaps a little too much like an asylum or other such institution, has been illustrated in our pages, though not from this drawing; the author did himself injustice in sending no plan, for the plan, as we remember it, is a good one. Mr. Bathurst's "Two Views of a Country House" (1,559) is an exhibit showing a great deal of original character both in design and drawing; this is a red brick house treated in a most severe style, with circular-headed arches without impost as entrances from the garden terrace, and diversified with the green external shutters which are now coming to be considered a kind of element in country-house design; the terrace wall, of irregular light and dark masonry with a band of bright red bricks driven through it, is a charming specimen of the picturesque of walling; the drawings are altogether admirably executed, and the author has not forgotten either plan or compass, but the plan is rather an odd one. The long corridor on the north side is an interesting interior feature, so are the recessed porches to the garden entrance; but drawing-room and dining-room, identically treated, both face full south with their long sides pierced each with three windows. This is not the way to make rooms comfortable for habitation; but as a whole this is a design with a great deal of original character about it.

## THE GUILDHALL PICTURES.

It has been currently repeated, in the Press notices of this year's loan collection at Guildhall, that it is not so interesting as last year's; a judgment with which we cannot coincide, except in so far as the French collection of last year was of interest historically, in bringing before us examples of a school of French painters whose works are not much known in England except to professed students of the history of painting. Apart from this consideration, those pictures were not for the most part of very high value from the purely artistic point of view; they mostly represented art of the second, not of the first class. This year we have three galleries filled with modern Dutch pictures many of which are of the very best of their kind, and which represent a school of painting of specially artistic aim and character. They are not, it is true, paintings likely to be popular with or to be much understood by the class for whom these Guildhall exhibitions were in the first instance intended, and the attendance at the galleries comes obviously from the west rather than from the east end of London. If one could persuade the East Londoners to interest themselves in landscapes in which the object is not to imitate nature, but to translate nature into artistic expression, it would be an important step gained, no doubt, in their artistic education; but something in the way of a simple and intelligible lecture on the pictures would be necessary to lead up to that; you will never get uncultivated spectators to understand Maue and Maris by the light of nature. But to those who can look at them from the artistic standpoint the collection of modern Dutch pictures is a delightful one.

We emphasise the "modern," because in truth the one gallery of old Dutch pictures is the least interesting portion of the exhibition. That of course is to say that it contains no great Rembrandts, nor any of the finest work of such painters as Terburg, Ostade, and Jan Steen. The best Rembrandt is the portrait of his son (154); the Duke of Westminster's small



portrait of the painter himself as a young man is a charming picture, but it has not the special qualities which distinguish Rembrandt at his best. Ostade's "Music Lesson" (140), Terburg's "Portrait of a Gentleman" (153), and Jan Steen's "The Sick Lady" (156) are good examples of their authors, but hardly of the highest. Jan Steen's portrait of himself playing on a mandolin (141) has the same kind of frank and unabashed vulgarity as his more celebrated picture of himself and family in the garden. Frans Hals's "The Man with the Rumble" (173) is clever but hideous. Cuypp's life-size study of the head of a cow (184) surprises one by a force and vigour of execution which never appear in his completed pictures. As to the two or three large examples of Ruysdael, what commonplace and conventional things are these in comparison with the work of Mauve. There is a small town scene by Van der Heyde, and a small moonlight by Vanderneer, and these are first-rate of their class, which the Ruysdaels are not.

The painters most largely represented in the modern collection are Israels, Mauve, and the three brothers Maris—Matthew, Willem, and Jacob. Of Mauve we have seldom seen so many works together, and those who already admire him are likely to come away from this exhibition with an even higher idea of his genius. There is not a thing in the galleries with his name to it that is not worth attention; but two especially should be mentioned, the landscape "On the Heath, Laren" (76), a landscape with a clump of trees in the centre, and the broad and masterly painting entitled "Sheep in the Forest" (104), what may be called a foreground picture, which is perfect in its way. Among the other Mauve pictures it is curious to contrast with all the rest the one entitled "The Garden at the Back of Mauve's House" (87), which is so different in style from the rest that one would never take it for his; the explanation perhaps is that this was painted rather as an accurate study of facts than with the intention of making a picture.

The works by the three Maris's would make quite a little exhibition of themselves, so powerful and so varied are they. Jacob Maris, it is true, in his later works, tends to become heavy and oppressive in his colour and effect, though always with style and composition. The rather positive gentleman, whoever he is, who writes the notes in the catalogue, and who, like Macaulay, "too cock-sure of everything," improves the occasion by directing his readers to compare Jacob Maris's late example, "A Dutch Town" (100), with the early picture "The Weary Watcher" (90), and remark what a progress the painter had made in breadth and freedom of handling in the interval. That is true enough; but it is also true that while "A Dutch Town" is a depressing and grimy sort of picture, by no means beautiful, "The Weary Watcher," a little interior with a mother watching over her infant, dimly lighted only by a single candle, is a beautiful and pathetic work. It is possible to school oneself to like any kind of picture which has an artistic motive, but the natural man does not admire such painting as "A Dutch Town"; it is a systematically acquired taste, and perhaps not entirely a healthy one. But Jacob Maris is not left to be judged by this alone among the works of his later style; there is his large sea-coast picture, "Gathering Seaweed" (44), nearly all sky, and such a sky! there could hardly be anything finer of its kind; one such landscape is worth all the Ruysdaels that were ever painted. Matthew Maris is represented, among other things, by two most interesting and original studies of children, apparently painted about the same time and under the same influence, "L'Enfant Couchée" (70), a child, or a part of a child, in a light-blue dress, lying on the ground, and "Butterflies," a somewhat similar study on a larger scale, a little girl laid on the ground and watching some butterflies; both these are most original in style and colour, paintings which may be said to be artistic inspirations. The versatility of Jacob Maris is shown in his little picture "The Peacock Feather" (75), a small painting, full and rich in execution, of a child holding a peacock feather, the blue "eye" in which makes the one touch of bright colour, and dominates all the rest. The works of Willem Maris are somewhat less original than those of the other two brothers, but include a lovely little landscape "By the Stream" (18), which recalls something of the quality of Corot,

especially in the treatment of the trees. Matthew Maris, again, is exhibited in a different light from any of his other works that are here, in the little picture called "A Fantasy" (89), a girl with a distaff, a study in colour of a most original and artistic type. The critics who can find an exhibition with such a set of pictures as these of the Maris's, to say nothing of other things, "not very interesting," must have something the matter with their own eyes and perceptions.

Among the various pictures by Herr Israels there is no one of his very greatest works, but many which are fully worthy of his reputation; some of them well known. There is a small edition (9) of his grand and pathetic picture called "Grief"; not so impressive, from its small size, as the principal work, but quite as fine in execution. Among the others the finest is "The Sewing School at Katwyk" (86), than which nothing in its way could be finer, only it has not the pathetic interest of some of his more serious conceptions.

Among other works of the modern painters may be mentioned the highly-finished little work "La Romance" (22), by Bakker Korff, a painter of old ladies and bric-à-brac; "A Stormy Sunset" (28) by Herr Mesdag; "Prayer Disturbed" (29), a fine life-size painting by Herr Bisschop of a kneeling young woman looking round in church at something which has distracted her attention—the subject, however, is nothing, it is just a piece of fine forcible painting; "The Birdcage" (31), a picture of a child, by Jacob Maris, again quite different from anything else of his in the collection; "The Reading Lesson" (84), by Herr Alfred Neuhaus; "An Avenue in Holland" (94), by Herr Theophile de Bock, a work which reminds one a little of Diaz; and "A Sunny Corner" (118), by Herr Bisschop, an interior remarkable for fine colour and artistic style.

The valuable collection of pictures left to the Corporation by Mr. Gassiot is now hung in the large gallery, and forms a most interesting exhibition, including several famous works—Milla's "First Sermon" and "Second Sermon"; one of the best of Tissot's London Society pictures—"Too Early"; and Constable's large and very characteristic landscape, "Crossing the Brook." These are permanently there; but the Dutch collection is there only till July 25, and all who care for "Art for Art's sake" should see it before it is dispersed.

#### THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A SPECIAL general meeting of this Institute was held on Monday at No. 9, Conduit-street, Regent-street, W., when the following resolution was moved by the Chairman, and carried *unanimously*—

"That, subject to the sanction of the Lords of the Privy Council, the words 'during the five years from the date of approval of this provision by the Privy Council' be omitted from the proviso of By-law 9."

The fifteenth general meeting (business) was then held.

Mr. Alex. Graham, Hon. Secretary, announced the decease of Valère Dumortier, President of the Société Centrale d'Architecture of Belgium, Hon. Corresponding Member.

The Hon. Secretary also gave a description of some recent additions to the library.

The Report of the scrutineers appointed to direct the election of the Council, standing committees, &c., for the year of office 1903-4 was then read, and the following gentlemen were declared elected:—

*President*.—Mr. Aston Webb, A.R.A., F.S.A. *Vice-Presidents*.—Messrs. J. Belcher, A.R.A.; T. E. Colclutt; Alfred Darbyshire, F.S.A., Manchester; John Slater, B.A., Lond.

*Honorary Secretary*.—Mr. Alexander Graham, F.S.A.

*Members of Council*.—Messrs. F. T. Baggalay; C. E. Bateman, Birmingham; G. F. Bodley, R.A., F.S.A.; J. J. Burnet, A.R.S.A., Glasgow; A. W. S. Cross, M.A., Cantab.; Ernest George, Past Vice-President; J. S. Gibson; J. A. Gotch, F.S.A., Kettering; E. T. Hall; C. H. Heathcote, Manchester; A. Mitchell; E. W. Mountford; Professor Beresford Pite; G. H. Fellowes Prynn; S. B. Russell; W. Howard Seth-Smith; J. W. Simpson; L. Stokes.

*Associate-Members of Council*.—R. S. Balfour; H. V. Lanchester; W. J. N. Millard; E. W. Wimperis.

*Representatives of Allied Societies*.—G. C. Ashlin, R.H.A., Royal Institute of the Archi-

tecs of Ireland; J. W. Beaumont, Manchester Society of Architects; A. W. Brewitt, Nottingham Architectural Society; H. K. Bromhead, Glasgow Institute of Architects; A. H. Crawford, Edinburgh Architectural Association; A. Harrison, Birmingham Architectural Association; Butler Wilson, Leeds and Yorkshire Architectural Society; J. Wood, Bristol Society of Architects; J. Woolfall, Liverpool Architectural Society.

*Representative of the Architectural Association, London*.—Mr. H. T. Hare.

*Auditors*.—Messrs. Louis Ambler and W. A. Forsyth.

*Art Standing Committee (Fellows)*.—Messrs. J. M. Anderson, F.R.S.E.; W. D. Caröe, M.A., Cantab., F.S.A.; T. E. Colclutt; Sir William Emerson; Ernest George; J. S. Gibson; H. T. Hare; E. W. Mountford; J. W. Simpson; Leonard Stokes, Associates.—R. S. Balfour; H. V. Lanchester; W. J. N. Millard; P. E. Nobbs, M.A., Edin.; W. H. Romaine-Walker; E. W. Wimperis.

*Literature Standing Committee (Fellows)*.—Messrs. John Bilson, F.S.A.; A. W. S. Cross, M.A., Cantab.; Francis Hooper; W. A. Pile; G. H. Fellowes Prynn; R. Phene Spiers, F.S.A.; Hugh Stannus; H. H. Statham; C. H. Townsend; Paul Waterhouse, M.A., Oxon. Associates.—Arthur S. Flower, M.A., Oxon., F.S.A.; C. H. Reilly, M.A., Cantab.; Professor R. E. Smith; P. L. Waterhouse, M.A., Cantab.; A. M. Watson, B.A., Lond.; P. S. Worthington, M.A., Oxon.

*Practice Standing Committee (Fellows)*.—Messrs. T. Batterbury; S. Flint Clarkson; E. Flint; G. Hubbard, F.S.A.; A. H. Kersey; J. Douglass Mathews; W. Hilton Nash; J. O. Smith; T. H. Watson; E. Woodthorpe, M.A., Oxon. Associates.—W. H. Atkin-Berry; C. H. Brodie; Max Clarke; H. Hardwicke Langston; A. W. Tanner; W. H. White.

*Science Standing Committee (Fellows)*.—Messrs. T. Blashill; E. Flint; J. S. Gibson; Francis Hooper; G. Hornblower; W. E. Riley; H. D. Searles-Wood; A. S. Snell; B. Tabberer; K. D. Young, Associates.—H. W. Burrows; Max Clarke; B. J. Dicksee; E. R. Hewitt; G. Pearson; A. D. Watson.

The following candidates for membership were then elected under By-laws 7, 8, and 9:—*As Fellows*.—W. H. Atkin-Berry, London; B. W. H. Brameld, Manchester; W. J. Burrows, London; E. Guy Dawber, London; H. Field, London; J. W. Fisher, Wellingborough; J. Gibbons, Rushmore, Manchester; H. J. Lanchester, New Malden, Surrey; H. Carter Pegg, Westminster, S.W.; Reginald Pope, Folkestone; H. Redfern, Acton, W.; H. Whiteman Rising, London; A. H. Ryan-Tenison, Westminster, S.W.; F. W. Tasker, London; W. Henry White, London.

*As Associates*.—C. H. Ballantyne, Hawthorn, Melbourne, Victoria; E. A. Jollye, Wolverhampton; A. Woodroffe, Vancouver, B.C.

*As Honorary Associates*.—Alfred East, A.R.A., Westminster, S.W.; T. H. Mawson, London; Solomon J. Solomon, A.R.A., Lond.

*As Hon. Corresponding Members*.—Jean Louis Pascal, Member of the Institute of France, Paris; Heino Schmieden, Königl. Akademie der Bauwesen, Mitglied der Königl. Akademie der Künste, Berlin.

At the same meeting the Chairman made a statement with regard to the negotiations with the Institute of Builders in the matter of the "Schedules of Conditions of Contract," and moved that Clause 1 of both documents be amended as follows (the references are to the clause as printed in the current "Kalendar," p. 319):—

Line 3: for "said" read "signed." Lines 4 and 5: for "and instructions in explanation of the same" read "instructions, directions, and explanations." Line 9: for "in excess of" read "extra to." Line 12: for "excess" read "extra." Bottom line: for "excess" read "extra."

This having been agreed to, the Chairman moved that the following clause be inserted after Clause 12 in the form for use where quantities are part of the contract:—

"12a. Should any error appear in the bills of quantities other than in the contractor's prices and calculations, it shall be rectified, and such rectification shall constitute a variation of the contract, and shall be dealt with as hereinafter provided."

This was agreed to, and the meeting terminated.

\* Thus amended, the clause will read as follows:—

1. The works shall be carried out in accord-



ance with the directions and to the reasonable satisfaction of the architect, in accordance with the signed drawings and specification, and in accordance with such further drawings, details, instructions, directions, and explanations as may from time to time be given by the architect. If the work shown on any such further drawings or details, or necessary to comply with any such instructions, directions, or explanations be, in the opinion of the contractor, extra to that comprised in the contract, he shall, before proceeding with such work, give notice in writing to this effect to the architect. In the event of the architect and contractor failing to agree as to whether or not there is any extra, and of the architect deciding that the contractor is to carry out the said work, the contractor shall accordingly do so, and the question whether or not there is any extra, and if so the amount thereof, shall, failing agreement, be settled by the arbitrator as provided in Clause 32, and the contractor shall be paid accordingly. The contract drawings and specification shall remain in the custody of the architect, and shall be produced by him at his office as and when required by the employer or by the contractor.

#### MAGAZINES AND REVIEWS.

The *Art Journal* is naturally, at this time of year, mainly occupied in reviews and illustrations of the annual exhibitions; but a special article is included on "Sir E. J. Poynter as a Water-Colourist."

The *Magazine of Art* is also considerably occupied with the review and illustration of Academy pictures, but devotes an illustrated article to "The Decorative Designs of Mr. Frank Brangwyn," one of the painters who takes pleasure also in the artistic design of objects for utilitarian purposes. Some of these designs are a little eccentric and deficient in grace of line—the electric switch-board, for instance, and the inlaid panel for a bed; indeed, one would hardly expect a painter of the force and originality which are shown in his pictures to be consistently graceful and pretty in decorative designing. His stand for an electric lamp reflector, and his hall lamp, are admirable bits of artistic metal-work; and two inlaid table-tops in cherry-tree wood with small squares of central ornament, are very good. Sir William Richmond contributes an article on "The Real and Ideal in Art." What is the object of his short paper may be best estimated by the following extract:—

"His [the painter's] ideal of character may chance to be the embodiment of ugliness, so taken up may he be by the more or less brutal side of nature—so absorbed in the animal, that he presents the animal, being unable to see otherwise. After all, in so doing, he is stating his own ideal, and it is vastly appreciated by the majority—and mostly by them—because to them he is the presentment of a human being on canvas, rendered ordinarily, and so, to the average, sufficiently. Another, portraying the same person, will draw from the commonplace some mental, but not conspicuous, characteristic, extracted from the physical, which being only suggested and dimly defined, is not obvious to the superficial, or even swift, observer. Hence, in all probability, the more subtle if tentative, while at the same time searching, portrait may find a very limited area of appreciation at first sight; the process of the mind of the spectator must be in the same direction as has been employed by the painter if the work is to be understood; the soul of it must be withdrawn out of the matter with effort as well as sympathy. In point of fact, as much pains must be taken by the appreciator or the critic as has been taken by the artist. Not so with the other, more striking, but more superficial representation, which is obvious and unmistakable, evidently the portrait of Mr. or Mrs. So-and-So as their tailor or butcher and baker sees them, but not otherwise, or as they appear in society with their masks on or off."

The *Architectural Record* (New York) has an article by Mr. Montgomery Schuyler on the very interesting subject of "Recent Church Building in New York." The first thing, the writer says, which strikes one in taking up the subject, is how completely the Romanesque revival in America has spent its force. Some of the examples given are Gothic, and rather weak Gothic; but the Church of the Holy Trinity, by Messrs. Barney & Chapman, shows a powerful and original treatment of the tower. We do not see the special appropriateness which Mr. Schuyler finds in the Gothic treatment of the Lutheran Church of the Advent (Mr. W. A. Potter), which he seems to regard as so especially Teutonic in its inspirations. It

appears to us to be a Gothic which might as well belong to the Episcopal church of England or America; and indeed we never connect Gothic much with Lutheran associations. There appears also to be in New York a certain feeling in favour of Classic churches. The front of St. Francis de Sales (we presume a Catholic church), we agree, hardly suggests a church at all; the "Christian Scientists," whose first church is in the Classical style, have secured a certain degree of originality in the design of the termination of their entrance front, which has a massive effect rather recalling that of St. Mary Woolnoth. One or two Jewish synagogues are illustrated, and a Russian church in a kind of imitation of the Russian style, with a New York flavour added; not a promising combination. It is surprising that in a specially architectural publication like the *Record* such an article as this should be allowed to appear without any plans of the buildings, which are merely illustrated by photographic views. Mr. Edward R. Smith, in the same number, writes an article, of which this is only Part I., on "The Relation of Sculpture to Architecture." Under the heading "sculpture" he seems to include all carved ornament, which is not the sense in which the word is commonly understood, while he regards sculpture from the point of view of the provision of light and shade and variation of surface on a building. This is no doubt one very important function of sculpture as a part of architectural design, and perhaps it is well sometimes to consider it purely from this point of view, disregarding for the moment the special design and meaning of the sculpture; but it is not a point of view, we fear, which sculptors will quite appreciate. Under the title "The Renovation of the Brownstone District" are given a good many examples of recent street fronts in one district of New York. It appears that about 1830 brown stone was substituted for brick in this district, and regarded at the time as an important architectural improvement. We gather that the brown stone houses are now in their turn getting superseded by something more enlivening. The numerous illustrations given of recent houses are of considerable interest.

The *Architektonische Rundschau* contains nothing that can be said to be of much interest; the best thing in the illustration plates is the Schmetter-Haus at Troppau, by Herr Rudolf Smeltz, an architect of Brunn near Vienna. This is a building with a tower and cupola in the centre of the facade, and looks rather like the town hall of a country town; it is in reality, we presume, a kind of large tavern or house of recreation (we are not familiar with the term "Schmetter-Haus," but that appears from the plan to be its purpose); and considering the sort of architecture which generally illustrates this class of building, it is of some interest to see a design for such a building which is picturesque and not tawdry or pretentious. We can find nothing to interest us in the remainder of the number.

The *Berliner Architekturwelt* gives an illustration of a large boys and girls' school in the Bergmanstrasse, by Herr Haack, which is rather striking for the bold simplicity with which it is treated; it is a vast stretch of brick front with a stone plinth and surbase, pierced with regular rows of mullioned windows (flat unmoulded mullions and transoms), with the two doors for boys and girls, marked by a plain stone rusticated arch and half-columns, standing out a little from the general line of frontage. The skylight is broken by a stepped gable in the centre; otherwise the whole thing is absolutely severe in its lines, and yet it does not show that uninviting and prison-like appearance which characterises the normal French lycée. The gymnasium for the Grunewald neighbourhood (MM. Zaar and Dahl) is a pleasing-looking building, but in no way suggests a gymnasium. Among the other contents of the number is one of those imaginative architectural sketches which German architects are so fond of "Kirche in der Einsamkeit"—"A Church in a Lonely Place," which is effective and poetic, though of course it represents a kind of church which would never really be built.

In *Scribner*, under "The Field of Art," Mr. Russell Sturgis discusses the question as to a proposed building for art exhibitions in New York, and what should be aimed at in such a building. It appears that the artists and artistic societies in New York are making a combined move in the matter. Comparing New

York with Paris, it is stated that the Academy of Design stands for one salon and the Society of American Artists for the other (this kind of dual representation seems to obtain everywhere now). The Sculpture Society in New York appears to be a separate body. Mr. Sturgis discusses the views of those who are in favour of a picturesque combination of paintings, sculpture, and works of ornamental art.

"In a well-handled private collection, things are arranged in this way, prettily combined one with another; even a precious painting on the wall helped by the neighbourhood of other even if minor works of fine art, and helped, moreover, by such harmonies of colour as are derived from the neighbourhood of other paintings and from the background itself. The picture in question is not picked out for special insistence on the student's attention; it is, when seen, far more agreeably seen than if it had been more isolated. The reader will feel that if he had one hundred pictures of value he would not put them in a bare room which had nothing else in it; but then also he would feel that he would not invite as many people as that room would hold, to carry catalogues in their hands and jostle one another in the attempt to see his pictures. He would object to such a feature of a great public show as much as he would to the other. And so it is that it dawns upon the reformer that he is asking something which it would be quite immeasurably difficult to obtain. And, as one reads the arguments advanced by those who desire an ideal 'salon,' he sees that the grouping of furniture and vases, statuettes, and bijouterie, pictures and hangings, would involve such an encroachment upon the space left for the coming and going visitors, and would involve such restrictions and police regulations and so much watchfulness on the part of the caretakers, that the first purpose of these great annual shows would be largely defeated."

Thus the author seems to admit that the "ideal salon" is a practical impossibility. *Oportet vivere* is what is really, it seems to us, at the bottom of the difficulty. To refuse all works but those which are judged as first-rate would render the "ideal salon" a possibility; but then it would be a very harsh measure to the host of minor artists who are not without a claim to be recognised. *Scribner* contains also an article on "The Lover of Trees in Italy," with a number of charming illustrations of Italian tree effects.

The *Contemporary Review* contains two articles of considerable importance in regard to art and engineering work; one of these is a review of the character and the work of William Morris, by Mr. Lewis F. Day, which is an admirable piece of critical summing up, recognising Morris's limitations as well as doing justice to his character and genius. The other is a long article, full of statistics, on "The Internal Navigation of France," by M. Pierre Baudin, a former Minister of "Travaux Publics." It appears from this article that French canals have passed through the same stage as the English ones, of being eaten up by the railways, but that the French Government do not regard this sacrifice with the philosophical indifference displayed in England. At present the French canal system, M. Baudin tells us, mostly runs in one part of the country only, to the forced exclusion of other regions from its advantages; but that canals are wanted and will pay seems to be shown in the fact that the St. Quentin Canal, from Paris to the north, is "positively choked with traffic." But there seems to be every intention on the part of the French Government to extend and develop the canal system, and also to endeavour to bring about harmonious co-operation between canals and railways. The article ought to have attention in this country.

The *Cornhill Magazine* contains a very full exposition of "Radium" by Mr. W. A. Shenstone, F.R.S., a résumé of the subject which contains all that the general reader can require to know about it—so far at least; for, as Mr. Shenstone observes, the knowledge of the nature of radium rays may have been further advanced between the period of the writing and the publication of his article. He concludes with the remark that if the extraordinary qualities of radium are due to its throwing off swarms of minute particles of matter, "then the supply of them cannot be inexhaustible in the case of any given specimen of radium." The same number contains an amusing poetic onslaught on the motor car, under the punning title, "Autocarmen Seculare."

The *Nineteenth Century* contains a short but able article by Mr. Arthur R. Hinks, of the Cambridge Observatory, on "Stonehenge and the Midsummer Sunrise." We must refer the



reader to the article for the arguments; but the conclusion is that the certainty or probability of a date for Stonehenge, calculated on the theory that it is orientated to the mid-summer sunrise, has been greatly exaggerated; that if it was so orientated we do not know with what degree of exactness, and the structure itself is too rude to admit of very exact computation; furthermore, that we do not know whether, in such a case, it was the first appearance of the sun above the horizon, or the moment when his centre was on the horizon, or the moment when the whole orb had cleared it, that governed the orientation; and that in a latitude where the sun rises diagonally this would very much affect the chronological calculation. The writer has some general remarks in regard to the exaggerated importance attached to late years to the orientation of ancient temples, which are at all events useful as calling attention to the other side of the theory. We have long been of opinion that the orientation theory in regard to Egyptian and Greek buildings has been pushed a great deal too far. In the same number Mr. E. B. Havell, of the Government School of Art of Calcutta, writes an article on "The Taj and its Designers," the main object of which is to discredit the theory that European artists and architects had a hand in it. Some persons, it appears, believe or have believed this; but surely the Taj itself is the best answer. If there is a building that is thoroughly representative of Oriental art in all its glory, it surely is the Taj. Mr. Havell, we are glad to see, is one of those who deprecate strongly the influence which our rule in India has had in introducing second-hand Renaissance art into a country which has its own splendid artistic tradition.

*Macmillan* contains an interesting article by Mr. E. Vincent Heward on the planet Venus, a sketch of the history of observations of the planet before and after the telescopic era, and the results of the most modern observations. Among the latter is the note of a lengthened observation by Schiaparelli in 1890, which led him to the conclusion that Venus is in the same relation to the sun as the moon is to the earth—i.e. she turns always the same face to him and has no axial revolution, or at least no diurnal one. The following summary of the position concludes Mr. Heward's interesting article:—

"The error of previous observers in ascribing to the planet a diurnal rotation was due, it is believed, to variations in the atmospheric condition of the earth, which recur, Schiaparelli had remarked, about the same hour daily. Confirmatory evidence of the planet's fixity of position relatively to the sun was soon afforded by M. Perrotin, at Nice, who during six months' almost continuous observation in 1890, could find no sign of a daily revolution about its axis. He is of opinion that the few varying features visible now and then are due to cloud movements in the upper strata of the planet's atmosphere. The real body of Venus has never been seen; all that has been taken to indicate the presence of lofty mountains, wide chasms, and crater-like peaks is now believed to be the fleeting forms of cloud-scenery. But amid the perplexities which beset the observer there is the certainty that between the two separate regions of perpetual night and day there must lie a wide zone of subdued rose-flushed twilight, where the climatic conditions may be well suited to the existence of a race of intelligent beings, whose highest aim may possibly be the exploration of the mysterious regions lying beyond their ken."

In *Harper* there is an article by Mr. Macalister, "Uncovering a Buried City," which describes the result of excavations on the hill of Tel-el-Jezair, in Palestine, which has been identified by the inscriptions on certain ancient boundary stones as the Gezer of the Old Testament. It is mentioned as a conquered city in the Karnak list of Thothmes III., about 1500 B.C., and was an important place during the Crusades, so that its history extends over many centuries, and the excavations have brought to light several different recognizable strata of remains of different epochs. In the same issue is an interesting article by Mr. Carl Snyder on "The World beyond our Senses"—the world of light waves and cathode rays and other phenomena concerning which we can reason from deduction, but which are beyond the direct evidence of the senses.

Architects travelling or about to travel in the East should look at Mr. Crosby Butler's article in the *Century* on "A Land of Deserted Cities," describing the little known Roman remains to be found beyond the range of mountains along the eastern coast of

the Mediterranean, between these mountains and the Euphrates; a region, he says, almost unknown hitherto to the modern traveller. The author was a member of the American expedition to Northern Central Syria. Here is, possibly, a new field for architectural students and artists.

Mr. Wallace's recent article in the *Fortnightly Review* on "Man's Place in the Universe" has produced much other writing on a subject of such fascinating interest, though Mr. Wallace, as far as we have observed, has found no supporters. The first article in *Knowledge* is a long communication on this subject by the eminent French astronomer M. Flammarion, which is full of thought, but entirely adverse to Mr. Wallace's views either as to the place of man or the constitution of the universe. M. Flammarion will hear nothing of finite space; the universe, and consequently space, is infinite; a subject which in one sense at least is little use finite man discussing, since we can neither think the idea of infinite space or of finite space; for every brain which tries to conceive the latter alternative is brought up by the question—what is beyond the boundary? However, it is good to think sometimes on these vast problems; it takes us out of the littleness of everyday life on this small planet.

In the *Antiquary* Mr. F. B. Andrews (architect) commences an essay on the exceedingly interesting subject of "Medieval Barns," with illustrations from photographs of several barns, and a plan of that of Littleton. The subject is to be continued.

In the *World's Work* will be found an article, with a number of illustrations, on "The Machinery of Grand Opera," illustrated by special photographs taken at Covent Garden. This will give a good idea of the complication of the behind-scene arrangements and machinery for carrying out the effects demanded more especially in Wagner's operas. Whether the study of it is calculated to raise one's idea of Grand Opera as an intellectual entertainment is another matter.

To the *Review Générale* M. Maurice Zech contributes a long and learned article on Pergamos and its architectural and sculptural remains, to which we can only refer the reader. The article is to be completed in a future number.

In the *Gentleman's Magazine* is a short but interesting article by Mr. W. J. Lawrence on "A Famous Old Italian Theatre," the Teatro Farnese at Parma, represented in Bibiena's painting in the Wynn Ellis collection at the National Gallery. The subject is made the occasion for some considerations on scenic effect in theatres, as practised in Italy of the Renaissance and in this country.

*Printer's Pie* is not, we gather, a periodical, but a specially issued publication in commemoration of the Festival Souvenir of the Printers' Pension Corporation, 1903. It is published (price half-a-crown) by the firm of Spottiswoode, with the view of augmenting the funds of the Printers' Pension Corporation; and in this respect we are glad to recommend it to our readers, not only as a publication for a charitable object, but as an exceedingly good half-crown's worth, containing many interesting articles and excellent illustrations, and quite worth purchasing for its own sake.

#### COMPETITIONS.

QUEEN VICTORIA HIGH SCHOOL, STOCKTON-ON-TEES.—In response to the advertisement issued by the Governors, they received seventy-six competitive designs for the new school proposed to be erected at the corner of Yarm-road and Cranbourne-terrace, Stockton-on-Tees. The Governors appointed Mr. R. J. Leeson, architect, of Newcastle-on-Tyne, to assist them in deciding upon the designs, and, after a careful examination of the plans submitted, those of the following competitors were selected for further consideration, namely:—Mr. Felix Clay, Buckingham-street, Strand, W.C.; Mr. Stephen Wilkinson, Mosley-street, Newcastle-on-Tyne; Messrs. Clark & Moscrop, Darlington; Mr. H. T. Holdgate, Gray's Inn-square, London; Mr. Benjamin Bower, Temple-street, Birmingham; Messrs. Houston & Houston, Long Acre, London; Messrs. Sheppard & Burkinshaw, John-street, Adelphi, W.C.; Mr. H. T. Hodges, Heaton, Newcastle-on-Tyne; and Messrs. Armstrong & Wright, Newcastle-on-Tyne. Ultimately, on the advice

of Mr. Leeson, the Governors awarded the first premium to Mr. Felix Clay, the second to Mr. Stephen Wilkinson, and the third to Messrs. Clark & Moscrop. The designs will be exhibited in the Club Room, behind the Exchange Hall, Stockton-on-Tees, on Monday and Tuesday, the 15th and 16th inst., from 10 a.m. to noon, and from 2 to 4 p.m.

#### ARCHAEOLOGICAL SOCIETIES.

ROYAL ARCHAEOLOGICAL INSTITUTE.—At the general meeting of this Institute on the 3rd inst., Mr. E. W. Brabrook, V.P., in the chair, Miss E. L. Bruce-Clarke exhibited a small bronze figure recently found at Eastbourne in digging the foundations of a house. Professor T. McKenny Hughes read a paper on "Buried Cities," with special reference to Herculaneum. He described some of the ordinary processes of nature by which forests, dwellings, and cities were buried, pointing out that slight changes in geographical conditions often resulted in what might be called local cataclysms or catastrophes. For instance, the sudden shifting of sand dunes sometimes buried houses and villages which had long been considered out of their line of encroachment. He explained how the eddying wind sometimes formed mounds and hollows which were always moving within certain limits, and that heavy objects dropped on the surface at very different periods were thus by gravitation carried down to the bottom to be again covered and uncovered by the swirl of the wind; such processes causing much question as to the age of deposits, in which sometimes recent coins and flint implements were found together, as in the Culbin Sands, near Nairn. He looked forward to the time when the manor house which had been covered for two centuries under one of these mounds, would in some exceptional storm of dry wind be again exposed. He then passed on to the consideration of cases in which towns had been buried under volcanic ejectamenta, referring especially to Herculaneum. It had often been supposed that Pompeii had been buried under ash and Herculaneum under lava, but he explained the nature of the lava *d'acqua* which had overwhelmed Herculaneum, referring it not to lava nor to any flow of hot mud from the volcano nor to any outburst of water during the eruption, but to a heavy rainfall washing down the unconsolidated ash, which then set into a sort of Roman cement. He referred to the geographical conditions of the district as described in ancient history and as now seen. Two valleys ran down either side of the promontory on which the city was built. In these the rainwash was collected, filling up all hollows and choking the principal harbour so that it was impossible to approach the shore. But, he contended, outside the line of flow the ash was only wetted on the surface or to a small depth, and he urged that if careful researches were carried out and borings made, parts of Herculaneum would be found covered only with a dry ash easily removed, and probably monuments of great interest might be unearthed; perhaps, he added, another library of more value, he hoped, than that already found—Mr. J. H. Round then read a paper on "The King's Pantler," in which he traced the functions of the *panctarius*, as head of the pantry in the King's household, and their discharge at coronation feasts by the Beauchamps, Earls of Warwick, as great pantlers. He showed that the office in England had never been so important as that of the *grand panetier de France*, and that though at coronations the butler and the pantler had served together as great officers, the latter had ceased to officiate since the days of Elizabeth. In the discussions following the above papers the Chairman, Judge Baylis, and Mr. Lindsey took part.

BRITISH ARCHAEOLOGICAL ASSOCIATION.—The last meeting of the session was held on June 3, at 32, Sackville-street, Piccadilly, Mr. C. H. Compton, V.P., in the chair. The Rev. J. S. Coverley brought for exhibition an interesting collection of pottery, mostly Roman, discovered during the excavation of some barrows in Yorkshire and Derbyshire. Mr. Coverley also exhibited two fine copperplates engraved by Houbraken, 1750, with portraits after Holbein. Mr. Andrew Oliver exhibited a rubbing of a monumental slab from Bruges, bearing five chalices, two at the top, two at the lower end, and one in the centre surrounded by an inscription. The slab



was originally placed in one of the churches, but was turned out with several others some years ago, and is now used as a coping-stone to a quay wall, having been cut into sections to fit the breadth of the wall. Other slabs there are bearing figures of a bishop and priest. They all are of the date of the middle of the fifteenth century. The Rev. J. S. Coverley read a paper upon "Shears and Other Emblematic Signs on Sepulchral Slabs," having reference more particularly to the large collection of coffin lids discovered at Bakewell in 1842, during the removal of the foundations of the church. They have been described by some authorities as Anglo-Saxon, and by others as of the eleventh, twelfth, thirteenth, and even of the fourteenth centuries, the latter period being that to which many of them most probably belong. They undoubtedly commemorate the dead buried in the surrounding churchyard; the lids are flat with a florid foliated cross running the whole length and nearly all, without distinction of size, bear one of two symbols, either the shears or the sword. One has a key and a sword, the emblems, probably, of magisterial office. Having alluded to the various theories put forth by different writers to explain the meaning of these symbols, Mr. Coverley suggested that the shears, the axe, the sword, and especially the scythe, being all cutting instruments, were intended to be emblematic of the cutting off of our days. They were symbols of the unrelenting, inexorable Atropos. In support of this contention he quoted from Spenser, Shakespeare, Milton and other writers. There are instances, however, in which many of the signs described occur where they could not have been intended as emblems of mortality, but must have reference to trades, occupations, or office holding. In the discussion following this interesting subject, Mr. Cecil Davis, Mr. Gould, Mr. Emanuel Green, Mr. Oliver, Mr. Kirshaw, Mr. Allen S. Walker, and others took part. The Rev. H. J. Dunkinfield Astley next read a paper contributed by Miss Longe, on "John Salisbury, the last Prior of St. Faith's, and sometime Dean of Norwich." The Priory of Horsham St. Faith was a cell of the Abbey of Conches in Normandy, and was founded by Robert Fitzwalter and his wife Sybilla in the reign of Henry I. John Salisbury, the last Prior, was a remarkable man in many respects, somewhat resembling the celebrated "Vicar of Bray," in that, notwithstanding the tempestuous period in which he lived—the early Reformation days—he managed to steer his way with much adroitness, and successfully weathered the storm, remaining in favour with both Henry and Elizabeth, holding many preferments at the same time; and, although married, contriving to avoid even falling out altogether of Mary's favour. He died Dean of Norwich in 1573. Mr. Cheney made some interesting remarks upon the subject of the paper.

### Illustrations.

#### DESIGN FOR LIVERPOOL CATHEDRAL.

**WE** devote this week's plates to the design for Liverpool Cathedral by Mr. W. J. Tapper, which, as we have already said, we regard as, taking things all round, the finest of the designs submitted.

As we mentioned in the general review of the Cathedral designs in our issue of May 30, the tower connected with this design is on a separate site at the south end of the ground, and we were unable to include it in our photographs of the drawings.

The following extracts from the architect's Report, sent in with the drawings, serve to explain his views in the design:—

"There being no main street on an axis line with the centre of the site, and its north end being irregular in shape, a western cloister seems to be the natural thing, corresponding to the Atrium found in the Early Basilicas. It has many advantages, both practical and artistic.

"As suggested in the instructions, the main entrance is arranged at the Upper Duke-street end of the site, a flight of steps leading from the open space formed by the junction of Rodney, Upper Duke, and S. James streets, to a gatehouse in connexion with the existing boundaries, and the site plan shows the low wall and iron railing enclosing the cemetery chapel. It will be seen, however, that a broader effect would be obtained were it possible to remove this railing and throw open the chapel to the street.

Entering the low archway to the Cloister Court

and crossing this, the great portal is entered, and right and left, taking advantage of the greatest width of the site, are placed respectively the baptistry and morning chapel, the latter orientated as desired. The morning chapel at the liturgical west end is convenient. . . .

"As indicated on the sections of the site, it is proposed to do away with the slope towards St. James-street, and form a broad terrace with a parapet capping a high retaining wall. This would give a suggestion of strength to the building.

"In the crypt ample space is available for the boilers for heating purposes, fuel store, electric-lighting plant, engines, and bellows for the two organs, &c.

"After much consideration and study of various plans in order to arrive at the best means of accommodating 3,000 persons (without any interruption of the view of the preacher from columns), a simple parallelogram has been adopted. Great preaching naves exist, and it is from such that guidance has been sought, in order to arrive at a satisfactory solution of the problem set by the Committee. There are the great French and Spanish churches—e.g. Albi, Girona, and others, the former having a clear span of 60 ft., the latter one of 73 ft., and the results are most impressive.

"The dimensions of the proposed nave are 263 ft. 9 in. long, 76 ft. wide. Excluding the western bay, having piers for the gallery, the required accommodation is provided in an uninterrupted area. By placing the pulpit as shown the preacher would command the whole of this area, and he should be distinctly heard by all, judged by experience of existing buildings.

"Most careful consideration has been given to the question of a central vaulted space, but it is obvious from the fact that the area underneath the dome of St. Paul's Cathedral, 110 ft. diameter, only accommodates some 1,250 people, existing in the nature of a vaulted space with a floor, are capable of accommodating more than twice that number is impractical, from an artistic and constructional point of view. The acoustic properties of such a vast vaulted area would also be doubtful. . . .

"In Medieval times, the canonical body being large, the choirs were also, but this is not so to-day. Common sense therefore suggests a comparatively small choir. A deep choir with the Holy Table set far back is unsuitable for modern congregational worship. Its position here is at the centre of the crossing of the choir transepts. The red lines on the ground plan show that the vast majority of the congregation can see the Holy Table, and join in the Communion Service.

"Diocesan conferences are now well established, and it has been thought that a presbytery (such as are found at Ely, Lichfield, and elsewhere) eastwards of the Holy Table would be of practical value. In the centre, at the extreme liturgical east end of the church, would be placed the bishop's chair (cathedra), with the Diocesan clergy on either side. Such an arrangement is but a return to the usage of the Early Christian Church, and exemplified in later times at both Canterbury and Norwich. The plan therefore embodies all the essentials of the modern English Church—namely, the great preaching nave for large congregations, and for the holding of large musical festivals; the smaller choir for the daily cathedral service; the presbytery, a place specially for the diocesan clergy; and the morning chapel, for the bringing together of comparatively small congregations for early or evening services. Good access and egress, on which the orderly arrangement and comfort of large congregations depend, is afforded by the placing of the various doorways.

"At the west end of the morning chapel will be a gallery for a small organ. Above the cloister leading to the baptistry will be the cathedral archives, or muniment-room.

"The position of the baptistry is in accordance with early Christian usage. . . .

"The nave having a span of 76 ft. demands a proportionate height, and this has been made two to one, the same as at King's College Chapel, Cambridge, only on a much larger scale—the height from floor to apex of vault being 152 ft. Last should be thought extravagant, it might be well to mention that buildings of such dimensions exist in quite small towns, such as Beauvais, Amiens, Girona, and many others, small, indeed, as compared with the great City of Liverpool. The great width of the nave does not permit comparison with any of the English cathedrals.

"The leading idea in the design of the nave is the great clearstory windows, emphasised by their being continued round the east end of the nave over the choir arch. It is intended that the filling of these great windows with painted glass should form an integral part of the design.

"In a building of such dimensions it is important, in order to bring the whole into scale, that not only the detail, but the multiplication of parts, should be accentuated. By breaking up the wall into many stages, and the use of varying orders in the detail, scale is given to the building.

"A good effect of light and shade is hoped to be obtained by the contrast between the comparatively dark triforium, the solid panelling of the lower portion of the great windows, and the brilliancy of the windows above.

"An important feature of the nave design is the

treatment of its east end. The bay here is canted for two important reasons—namely, as an easy and simple method of leading on to the narrower choir, and of dealing effectively with what otherwise would have been a vast surface of walling. It also gives good perspective effect looking from the liturgical west end. The tall choir arch, and narrow choir beyond, is invaluable in emphasising the size of the nave. By means of such contrasts, an impressive effect is obtained.

"The other important feature is the orchestral gallery at the west end. This, with its vaulted arches, will give certain perspective effect and gradation of light and shade to what is often an uninteresting portion of a church. The great organ, with a well-designed case, would make a most beautiful decorative feature, brought out with a judicious use of gold and colour. Above this, high up and beyond, would be seen the rose window, filled with glass of jewel-like quality. . . .

"As regards the general treatment, the governing idea has been to sacrifice all subsidiary effects in order to produce one great harmonious monumental whole, of which the detail would be founded on that of the best period of Gothic architecture, not thereby implying a slavish copyism, but, rather, as has been well said by your advisors, that the spirit of our best architecture might be caught and its magnificent traditions handed on."

### ENGINEERING SOCIETIES.

**SOCIETY OF ENGINEERS.**—At a meeting of the Society of Engineers held at the Royal United Service Institution, Whitehall, on the 8th inst., Mr. J. Patten Barber, President, in the chair, a paper was read on "Electric Light Stations, their Design and Arrangement," illustrated by drawings of the Bridlington Electricity Works, by Mr. Ernest R. Matthews, C.E., F.G.S., Borough Engineer of Bridlington. After giving a sketch of the early history of electric lighting, the author gave a detailed description of the various points necessary to be observed in designing an electric light station, illustrating his remarks by drawings of the proposed Bridlington Electric Light Station, which he had designed and which was about to be carried out. He first dealt with the engine-house, and pointed out that it was a great mistake to cram up an engine-house, that the floor area should be full and sufficient, and that ample space should be left not only between each engine, but also adjoining each wall of the engine-house. He then referred to the necessity of making provision for future extensions by building a temporary end. Plenty of head room was necessary in order that the overhead crane could run to and fro with perfect freedom. The walls, he considered, should be built in cement mortar, and should be calculated to withstand not only the strains due to the overhead crane and the thrust of the roof, but also the vibration set up by the engines. Piers built in cement should support the girders or arches carrying the overhead traveller, and it was a most decided advantage to have the walls of an engine-house lined with glazed bricks, and he described such a method which he had adopted in the Bridlington engine-house. He considered that a 10-ton crane, worked by hand from the floor by ropes, was quite sufficient for a small station. Plenty of light was necessary, and he recommended that one-seventh of the roof surface should be skylight, and about one-sixth of the total wall area windows. Ample ventilation should be provided, chiefly by means of hopper ventilators in the windows, and by means of the glazed roof ventilators. The engine-bed would vary from 5 ft. to 20 ft. in thickness, according to the type and weight of the engine. The floor might with advantage be paved with red Staffordshire encaustic tiles, laid herring-bone fashion on 6 in. or 9 in. of concrete, the cover plates of the trenches being filled in to match the floor. A convenient size for the trenches, he thought, was 2 ft. 6 in. wide by 2 ft. deep. The drains should have manholes at intervals; the roof should be supported by light steel roof trusses; brackets should be inserted in the walls to carry pipes; and there should be a pair of broad doors running on rollers at the temporary end. The floor area of the boiler-house would depend on the number, size, and type of boilers. The Bridlington boiler-house measured 63 ft. by 33 ft. 6 in., and it accommodated two Lancashire boilers, each 7 ft. 6 in. in diameter and 20 ft. in length. In calculating the weight of the boilers for foundation purposes it was necessary to include water and fittings. Concrete 2 ft. in thickness should be sufficient. Provision should be made for future extensions by building one side of



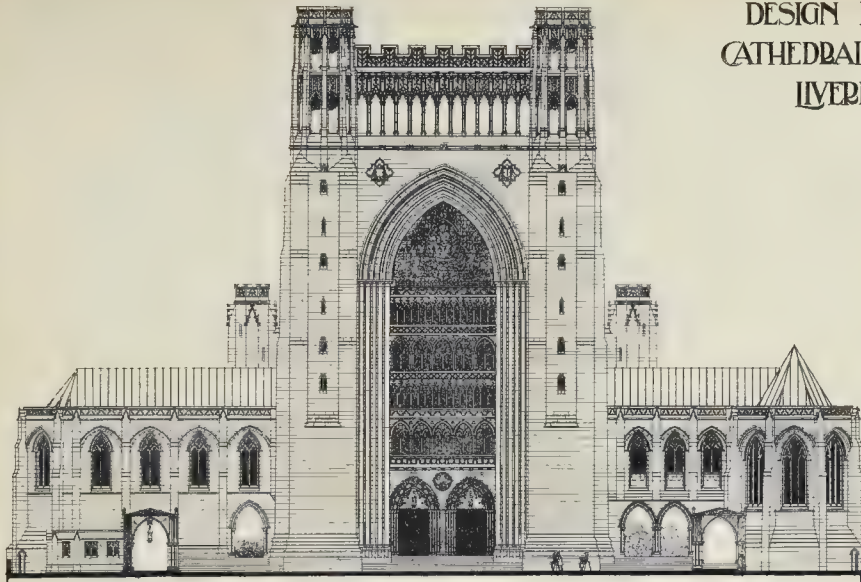




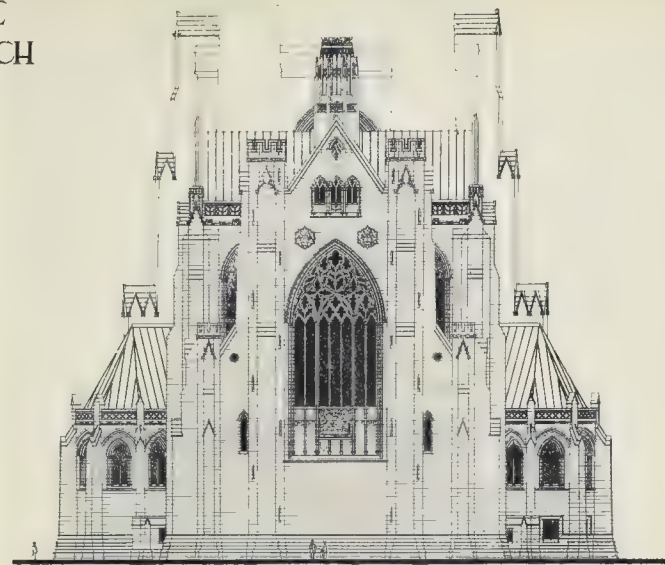




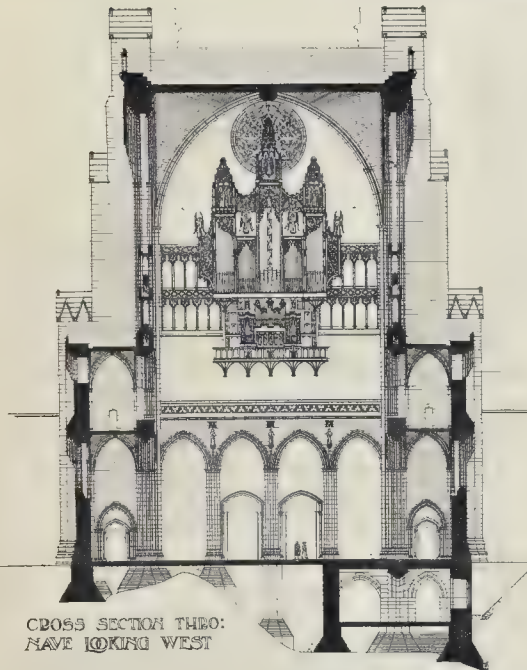
# DESIGN FOR THE CATHEDRAL CHURCH LIVERPOOL



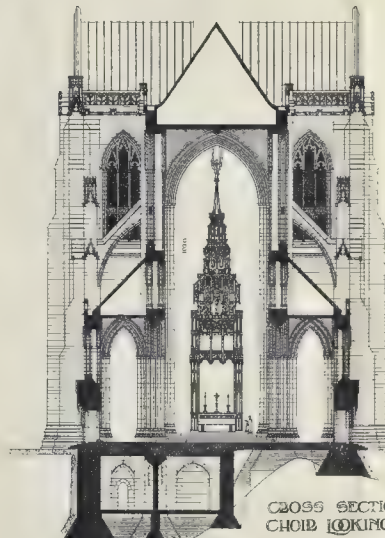
WEST ELEVATION



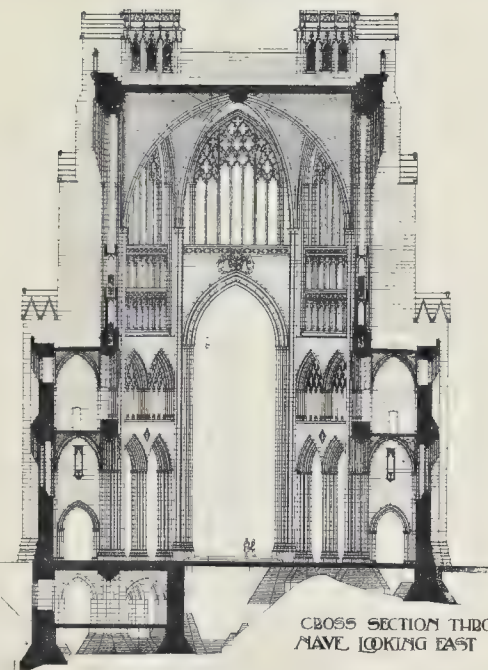
EAST ELEVATION



CROSS SECTION THRO:  
NAVE LOOKING WEST



CROSS SECTION THRO:  
CHOIR LOOKING EAST



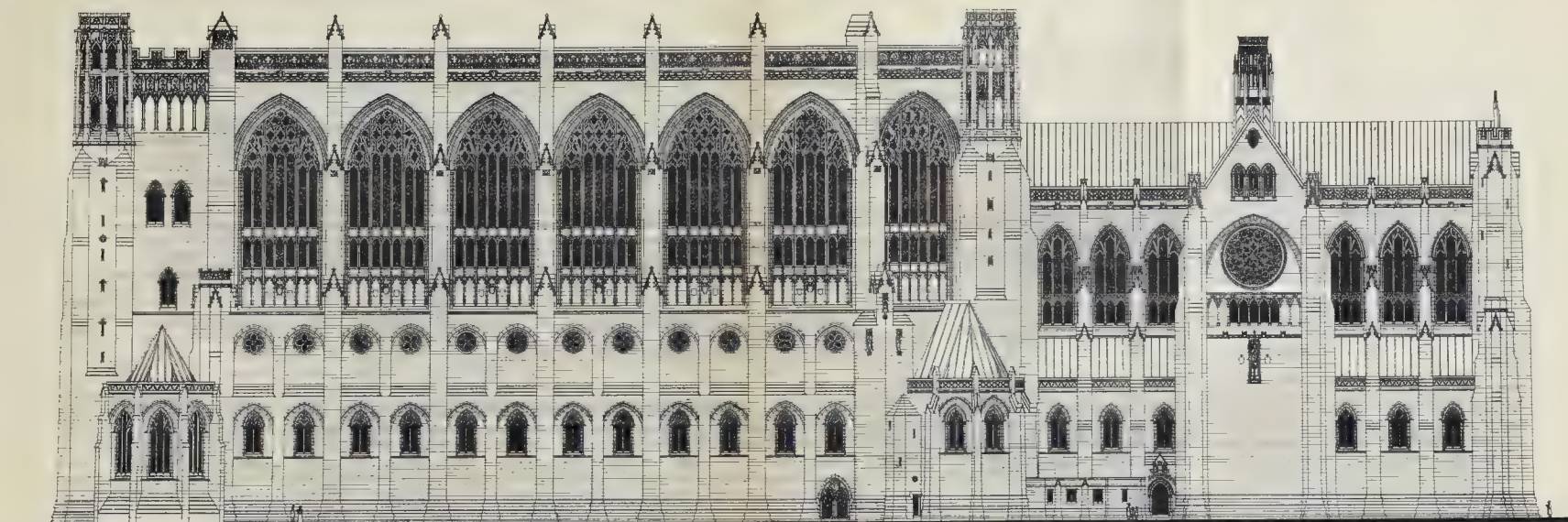
CROSS SECTION THRO:  
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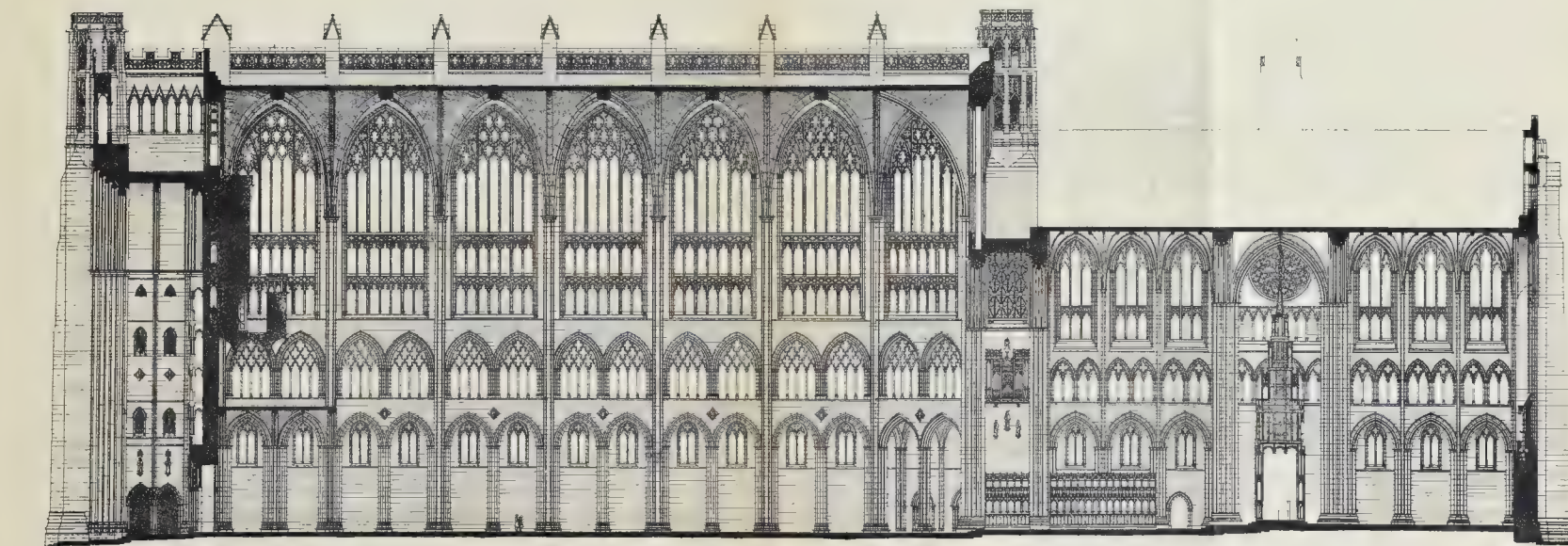


# DESIGN FOR THE CATHEDRAL CHURCH LIVERPOOL



SOUTH ELEVATION

SCALE OF 1" = 10' 0" FEET

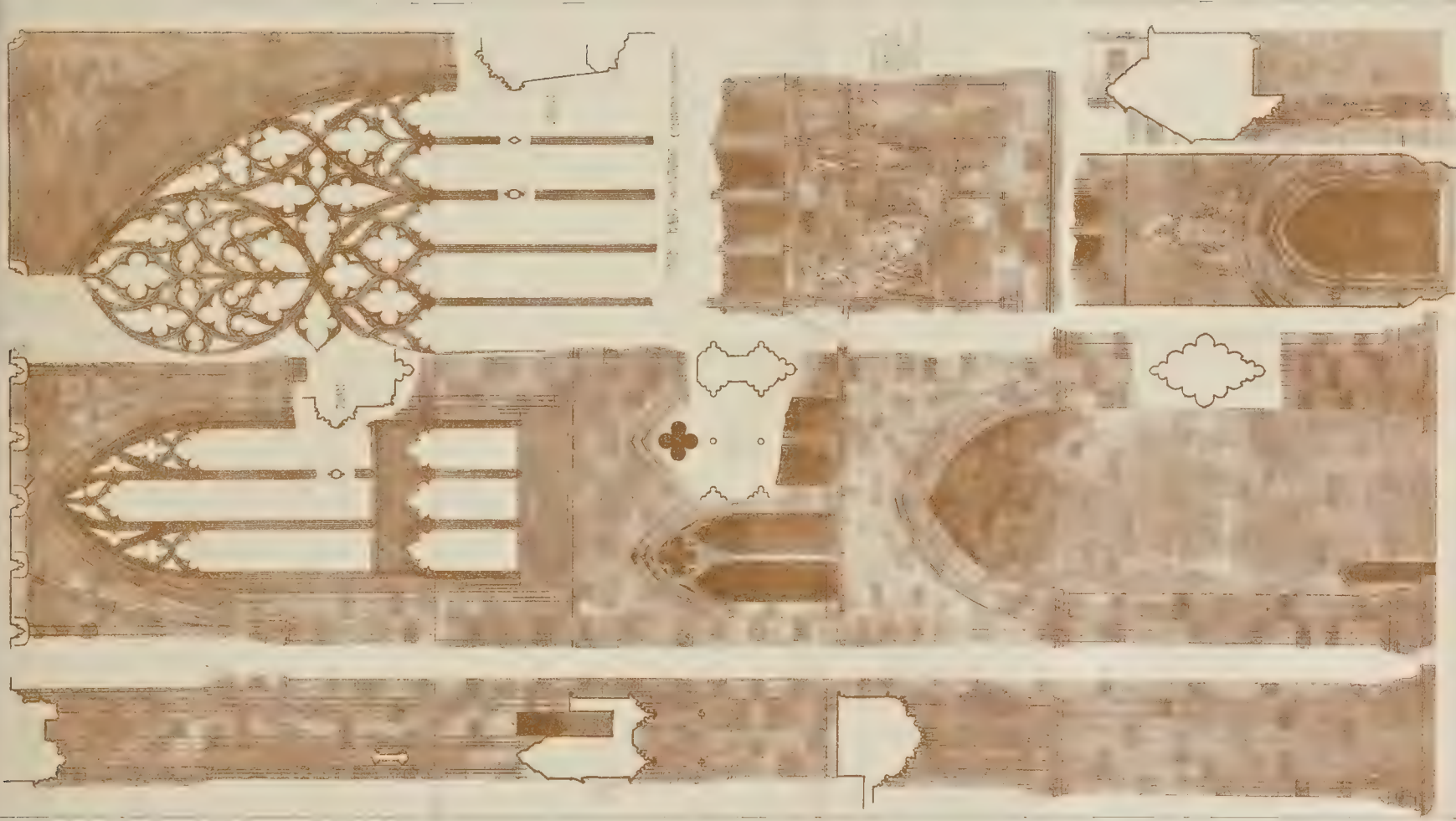


LONGITUDINAL SECTION









LIVERPOOL CATHEDRAL COMPETITION -- DESIGN BY MR W J TAPPEE, A.R.I.B.A.







the boiler-house in a temporary manner. The height might with advantage be from 24 ft. to 30 ft., and the floor should be sunk several feet. The walls should be built in cement mortar, and plenty of light should be provided by means of a number of large windows placed on the permanent side, and about one-fourth of the roof covered with patent glazing. The ventilation might be by means of hopper ventilators in the windows, and louver ventilators in the roof. The floor might with advantage be paved with flags on 6 in. or 9 in. of concrete, and the trenches should be covered with wrought-iron checker-plates. The roof should be supported by steel roof trusses, and should be close-boarded. Drainage for the scum and blow-off cocks, water-gauge cocks, &c., should be provided. The coal bunker should be placed as near the furnaces as possible, and an inclined footway should lead to the boiler-house for the purpose of wheeling ashes out. Care should be taken in the arrangement of the doors, and the flues should be lined with 9 in. of fire-brick, radiated bricks only being used. The accumulator-room should not be cramped for room; it should be light, well ventilated, and might be paved in the same manner as the engine-house. It should be not less than 13 ft. or 14 ft. in height. Two storerooms should be provided, one to contain heavy goods, the other oil, wax, and lighter goods. No works are complete without a meter-room. There should be a workshop sufficiently large to contain lathes, drilling and milling machines, filters, bench, forge, &c. A convenient size is about 25 ft. by 14 ft. Ample lavatory accommodation should be provided. The engineer should have a private office, fitted up with desk, drawing table, cupboard, and other suitable fittings. A convenient size for the men's room is 20 ft. by 10 ft. The water-storage tank should be formed of square cast-iron plates, planned to template, and strongly stiffened with brackets, and flanged. Referring to the chimney shaft, the author observed that where the buildings were intended to be permanent a brick shaft should be erected, which might be square, octagonal, or round. The wind pressure on the two latter was stated to be considerably less than on the former, the relative pressures being: Square, 1.0; octagonal, 0.75; round, 0.5. The external width of the shaft at the base should be, if square, one-tenth of its height, if octagonal one-eleventh, and if circular, one-twelfth. The author then dealt with the foundation, observing that, given a good clay foundation, a chimney 150 ft. high might stand on a good bed of Portland cement concrete 5 or 6 to 1), 20 ft. or 22 ft. square by 7 ft. or 8 ft. thick. The concrete should remain three weeks before any brickwork was placed upon it, and all the bricks should be of the same density. He then dealt with the thickness of the brickwork, also the bond, which should be one course of headers to three or four courses of stretchers. The mortar, he said, should be lime mortar and not cement mortar, which was too rigid. The brickwork should proceed slowly, say 3 ft. or 4 ft. per day. He said the cap might be of iron, terra-cotta, or stone, and should not project more than the thickness of the brickwork. The shaft should be lined to a height of at least 30 ft. for ordinary heats with a fire-brick lining. The lightning conductor should not be carried around projections, but through them. The author then gave particulars of how the lightning conductor should be fixed; also as to how the inside diameter or area of a flue should be determined, and as to the height of a shaft.

#### ST. MICHAEL BASSISHAW CHURCH, LONDON.

The church having been pulled down in March, 1900, the site, extending over an area of 5,000 ft. superficial, was let a few days ago, upon a building lease for eighty years at a rent of 1,280*l.* per annum, or 5*s.* 1*d.* per foot, equivalent to, at, say, thirty years' purchase, a fee-simple of 334,800*l.* per acre. The church was built of brick in 1676-9 by Sir Christopher Wren, at a cost of 2,822*l.* 17*s.* 1*d.*, on the site of one that had been erected in the middle of the fifteenth century; the original church was founded in or about 1140, with a patronage belonging to the prior and canons of St. Bartholomew-the-Great in West Smithfield. Wren cased-in the remains of the former tower, and decorated the interior with some very good plaster work; for the Corinthian columns that

sustained the nave roof he employed balks of timber, lath-and-plastered, with plaster-cast capitals and cornice. The cambered ceiling, shaped into panels, had openings for light. The tower, 21 ft. square at base, and leaden lantern, rose to a total height of 140 ft.; the lantern, eight-sided on plan and in two stages, carried a concave spirelet with finial and vane. King Henry III. bestowed the advowson of St. Michael's upon Adam, the son, it appears, of Salomon de Basinges, who in 1216-7 served as Mayor of the City. It might, indeed, be termed the "Lord Mayors' Church," for many holders of that office were buried there, amongst them being Sir James Yarde (elected 1519), in a chapel he built for his own interment on the north side of the choir, and often cited in the churchwardens' books of account as "the great tomb," in charge of the Weavers' Company; Sir Richard Gresham (1537), and Sir John Gresham (1547), sons of John Gresham, of Holt, co. Norfolk; Sir Wolstane Dixie (1585), who founded the Divinity Lectures; and Sir Leonard Halliday (1605). A finely sculptured tablet, 1673, commemorated the labours of Dr. Thomas Wharton during the Great Plague. There, too, were buried John Barton and Agnes, his wife, munificent benefactors to the rebuilding in or about 1450, and Sir John Ayleph, Sheriff in 1548, who is depicted as one of the barber-surgeons in Holbein's painting of the Court of that Company receiving their charter from Henry VIII. The parish engine and watch-houses stood, 1681-1840, on the open space at the east end, formerly the churchyard, and levelled and paved in 1865. The City Lands Committee bought the site from the Ecclesiastical Commissioners for 36,000*l.* in 1899, and the parish was united to that of St. Lawrence Jewry. At the dismantling of the fabric the bell, cast in 1679, was transferred to the Church of St. Etheldreda, Fulham, whilst the highly decorative altar-piece and the two tables of the Decalogue, were secured for St. Michael's, Basing; a fourteenth-century stoup, and the large piece of carving, painted mostly in white, of the Royal Arms, with the Arms of the City at each side, which extended across nearly the entire width of the nave, against the west wall, were deposited in the Guildhall Museum. Of the proceeds of the sale of the site and materials, 12,000*l.* have been applied towards the erection and endowment of the church and vicarage house of St. Michael at Edmonton. The adjacent Basing, afterwards Bakewell, Hall, derived its name from the family who took their cognomen from Basing in Hampshire; whether the church was also styled after them has been questioned by some who would ascribe that affix to the Basils, or the Basinges of an Italian origin who in the "Hundred Rolls" of 2nd Edward I. are named amongst the Lombards. A delivery of Infangthief of 13th Richard II., 1399, cites the parish of St. Michael Bassishaw in the Ward of Basing-shaw; in a "finalis concordia" made at Westminster in 23rd Charles I. we find the church mentioned as St. Michael Basingshawe. On clearing the site were found distinct vestiges of three different floors beneath the existing ground level, and the vault of Sir John Gresham with an inscription, painted on plaster, recording his burial therein on October 30, 1556.

#### PATENTS, DESIGNS, AND TRADE MARKS, 1902.

In his twentieth Report, which has just been issued, Mr. C. N. Dalton, the Comptroller-General of the Patent Office, gives tabulated statements relating to the general business of the department during the year 1902. The total receipts, 242,285*l.*, show an increase of 9,954*l.*, as compared with 232,331*l.* in 1901. The total expenditure, including 11,047*l.* on new building works, amounted to 114,925*l.*, showing a decrease of 10,115*l.*, as compared with the expenditure during the previous year. The receipts from patents (218,371*l.*), designs (13,506*l.*), and trade-marks (11,984*l.*) fees show an increase under each head, and there is also an increase in respect of the sale of official publications (8,304*l.*). During the twelve months 28,976 applications for patents were received, and 13,761 patents were sealed; the corresponding figures for 1901 being 26,777 and 13,062 respectively. The surplus of receipts above payments was 127,361*l.*, as compared with 107,201*l.* in 1901: the sums paid as renewal fees upon letters patent in each year since the existing scale was adopted have increased gradually from 88,850*l.* in 1893 to 137,945*l.* in 1902. Amongst the payments are items of 4,412*l.* for pensions, 22,950*l.* for printing, and 2,765*l.* for stationery,

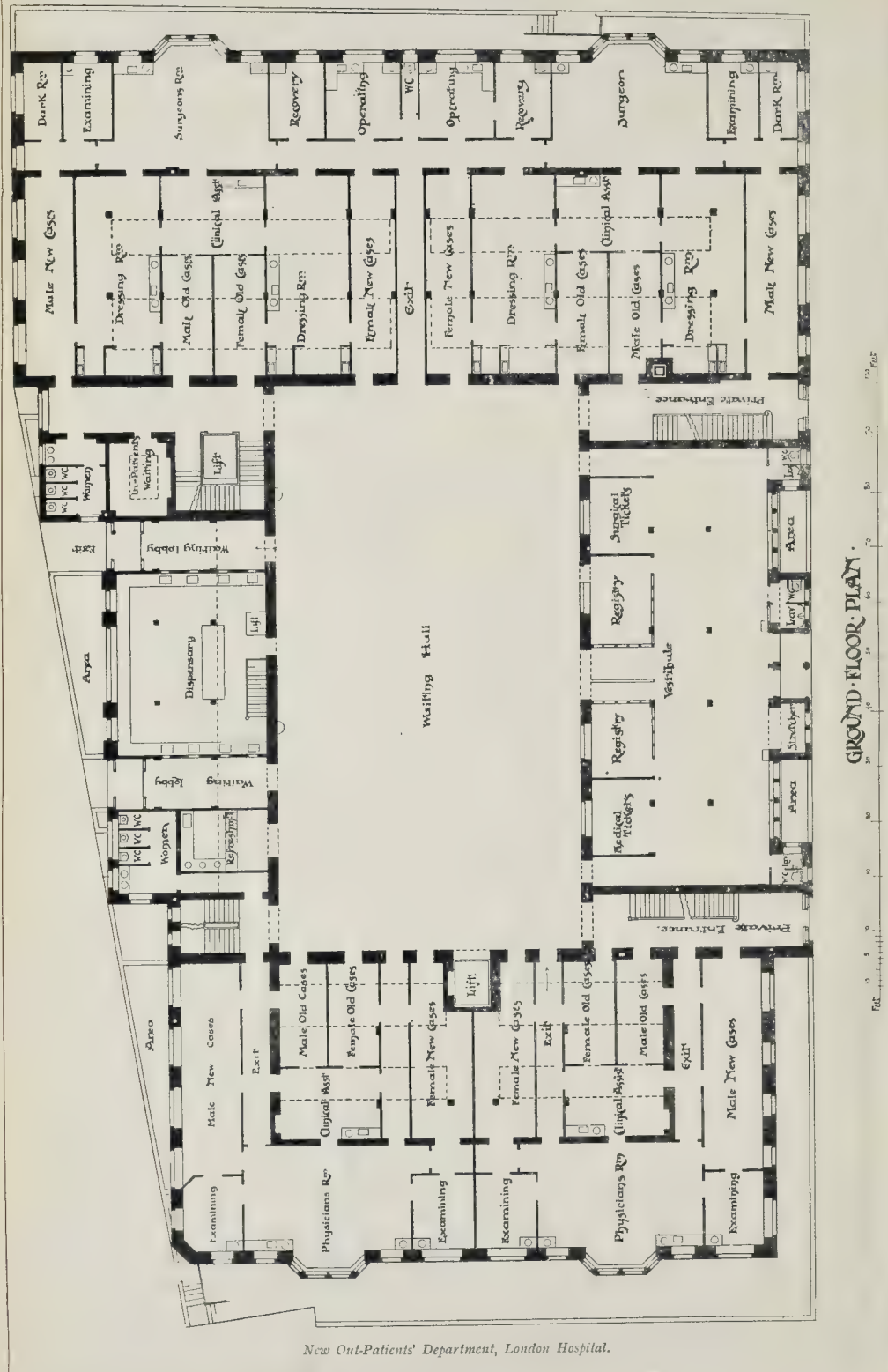
books for the free library, binding, &c. The salaries amount to 65,091*l.* 1*s.* 8*d.* for a staff of 335, which includes seventy-two examiners, a body of skilled experts which is gradually being enlarged to meet the growth and development of the work on the technical "side," due to the recent passing of an Act that establishes, for the first time in this country, an inquiry into the novelty, or otherwise, of an invention.

On January 9 last year were opened the new offices and library in Southampton-buildings—the library, occupying the site of the former one, measures 140 ft. by 60 ft. It is 50 ft. high, and has two galleries, 10 ft. wide, around each of the four sides. In December a sum of about 164,000*l.* had been expended upon building operations, acquisition of sites, and furniture, out of a total outlay estimated at 167,750*l.* Further additions are about to be made upon a site on the east side of the Staple Inn block and extending into Farnival-street, for which the statutory "notices" have been given to secure the necessary compulsory power of purchase. Some few additional offices will be provided by the reconstruction of a small block of buildings on the north side of Quality-court, Chancery-lane; "but," as the Comptroller significantly says, "in order to accommodate the whole of the staff which will be required to administer the provisions of the Patents Act, 1902, a large extension of premises will be necessary." We may here mention that the block in Quality-court constitutes the only remaining portion of the old offices as designed by, it appears, Sir William Chambers shortly before his death in 1796; the facade, built of stone, presents an order with four fluted Roman-Doric columns, and a pediment. Meanwhile the accommodation, supplemented by hired rooms in Birkbeck Bank-chambers.

The Appendices of the Report contain some new tables which distinguish the countries of inventors to whom patents were sealed in 1900-1-2 and show the actual number of patents issued in 1901 in the United Kingdom (6,102), to nationals of 53 foreign countries, the United States (23,890 and 3,022), Germany (6,600 and 3,899), Belgium (14,435 and 5,217), Austria (1,028 and 2,376), and Switzerland (643 and 1,325). Other Appendices show that 17,627 of the applications received in London in 1902 came from England and Wales, 3,549 from the United States, 2,866 from Germany, 1,459 from Scotland, 1,001 from France, 376 from Ireland, and 80 on. Those figures, as compared with the several amounts for 1901, evince a large increase in those from England and Wales, the United States, and Scotland; a small increase in those from France, Belgium, Victoria, New Zealand, Germany, Russia, other European countries, and a decrease in those from Austria, Canada, New South Wales, India, Norway, and Denmark. So far, the British and Belgian patents have not been subjected to an official scrutiny into their novelty; that fact must be remembered in drawing any deductions from some calculations made at headquarters for ascertaining the number of patents taken out in each of those countries by nationals as compared with the population. The respective ratios are:—United States one native patent for every 3,196 of the population; Belgium one for 4,749; Switzerland one for 5,152; United Kingdom one for 6,811; Germany one for 8,525; and Austria-Hungary one for 45,720. On the data compiled, the palm for invention by nationals belongs to the United States where the ratios range from one patent granted to every 1,080 of the population in Columbia to one to every 29,137 in South Carolina.

The total number of specifications for 1901 is 14,023, being more than for any previous year, 1896 and 1897 excepted, and being an increase of 9 per cent. over the number for 1900. The most striking growth is due to the development of electrical traction on rails—the "railways and tramways" class increasing more than 50 per cent., and "railway and tramway vehicles" increasing about 25 per cent.; the number of vehicles described by inventors as intended for use on electrical railways and tramways has risen from thirty-six to eighty-seven, and the number of specifications for "locomotives" class, which embraces motor-cars, is larger by more than 30 per cent., the improvements relating mostly to the driving and other gear. On the other hand the electrical classes do not maintain the position they attained to in the preceding year, and the classes that come more within our own province there are now at the maximum those which comprise gas manufacture, heating, hinges, mining, pumps, roads, sewage, and wood; a marked advance is evinced in respect of lock fastenings, grinding, crushing, &c., as well as electricity-conducting, electrical telegraphs, furnaces, lifting, and hoisting. The Report contains some interesting observations upon the trend of invention in 1902, which is more particularly in the direction of electrical traction, motor-cars, especially motor-cycles, wireless telegraphy, reversible outside seats for tramcars, and appliances for golf. The Comptroller remarks that the disastrous fire on June 9 in the City of London, by which ten lives were lost, owing to the insufficient length of the escapes, led to a large increase in applications for fire-escapes, but this, he adds, lasted for only a short time. A transcript of the Act of 1902 is attached to the





New Out-Patients' Department, London Hospital.



report; the provisions of that statute as to the official search into the novelty of the invention described and claimed by the would-be patentee are at present in abeyance, since much preliminary work must be completed, and the official staff will require considerable augmentation and reorganization to render it equal to the new duties which it is required to discharge. The number of volumes added to the library was 4,625, consisting for the greater part of text-books or periodical publications upon technical and scientific subjects. The number of readers was 118,974, as compared with 101,584 in 1901, and the highest number recorded in any one year.

#### NEW OUT-PATIENTS' DEPARTMENT, LONDON HOSPITAL.

THIS building, which has just been erected, takes the place of the old out-patients' department, which occupied a part of the cramped, dark, and badly ventilated basement of the old west wing of the hospital. To form a site, it was necessary to demolish forty houses on the hospital estate. The building, as completed, is the largest of its kind in the United Kingdom, occupying nearly an acre of ground, but is only of an extent necessary to cope with the number of out-patients who require treatment. The total number treated last year was 162,147 persons, and it is anticipated that larger numbers will come to the enlarged department.

The building is entered from Oxford-street through a large vestibule, capable of seating 200 patients, in which are the registration and ticket offices at which new patients are registered and old cases receive their tickets. In the centre of the ground floor is a spacious waiting hall 105 ft. by 55 ft., and 40 ft. high, having seating accommodation for 1,000 persons. It has an open steel roof with a lantern the whole length in addition to large windows in upper part.

At the east end of the building there are two consulting-rooms, a waiting-room, the surgical department. Each suite consists of a surgeon's room 28 ft. by 19 ft., clinical assistant's room, an operating-room with a recovery-room adjoining, two examining-rooms, and in both male and female sides there are waiting-rooms for old and new cases with separate surgical dressing-rooms. At the west end is situated the medical department. This has also two suites of rooms, and each consists of physician's room, 30 ft. by 19 ft.; clinical assistant's room, two examining-rooms, and waiting-rooms for both old and new cases for each sex. After receiving their prescriptions, the patients pass out through two waiting-lobbies past the dispensary, and medicines, &c., are dispensed through eight hatches; the patients then leave the building by the stairs into Green-street. This dispensary is connected to the laboratory in the basement by an electric lift and a separate staircase. A refreshment-bar is attached to the waiting-hall for the sale to the patients of light refreshments at nominal prices. Drinking fountains are provided both in waiting-hall and vestibule.

The general arrangement of the plan of the building ensures that the patients, after entering at Oxford-street, are sorted, and then proceed through the department in which their case is dealt with, and, after obtaining their medicine, leave by the east end into Green-street, without crossing the progress of other patients. This arrangement naturally facilitates the management of the great numbers which have to be dealt with by the officials. There are two private entrances from the street for the use of the staff and the officials. This out-patients' department is connected with the west wing of the hospital by means of a subway, which is constructed under Turner-street. This enables the officials and indoor hospital patients to get from one building to the other without crossing the public street, and allows of the medicine and stores from the laboratories to be taken direct into the hospital.

On the first floor are situated the aural, dental, obstetric, and massage departments, each of which are complete in themselves, having the necessary consulting, operating, and waiting-rooms. The aural department, at the east end, has a consulting-room, 60 ft. by 19 ft., fitted with thirteen tables; two operating-rooms, with anaesthetising and recovery-rooms and a darkroom; together with male and female waiting-rooms. The dental department, at the west end, consists of extracting and stopping-rooms, with anaesthetising and recovery, teeth-cleaning and waiting-rooms. The obstetric department has two consulting-rooms with dressing and waiting-rooms. The massage-room has waiting-rooms for each sex, and the staff sitting-rooms are also on this floor.

The second floor is devoted to the ophthalmic, photographic, and electrical departments. The ophthalmic department has rooms for surgeons and clinical assistants, large refraction and darkrooms, also operating-room with anaesthetising and recovery-room adjoining. There is a large photographic studio with two darkrooms and workshop and store attached, also a separate room for radiography. The electrical department has large consulting-room with electric bath-room, Röntgen ray room, and dressing-rooms adjoining. The Lupus department is also on this floor, and contains the "Finsen" lamp which Her Majesty presented to the

hospital together with several other lamps. There are separate rooms for the surgical dressing of wounds, medical officer, and nurses. The motor-generators and other apparatus for the transforming of the electric current to supply this department, are situated in a room in the roof above. Their Majesties will inspect, and the Queen will formally open, this department on June 11. These upper floors are approached by four staircases and two large lifts.

The basement contains a large laboratory department, fully equipped for the manufacture of medicines, pills, lozenges, and soda-water, and has large stores for drugs, dressings, and other necessities for medical and surgical treatment. The bath department consists of medicated and Turkish baths with the necessary dressing and waiting-rooms, and is also in the basement together with the boilers, isolation-rooms and accommodation for students, dispensers, porters, and other officials.

The whole building is of fireproof construction, and the floors throughout finished with mosaic, and, where necessary, the walls are glazed with either glazed brick or opaline; the remainder are finished with scarpite plaster. The whole of the rooms throughout the building are fitted up with sinks, lavatories, and other fittings as required for the various purposes. The whole is fitted with electric light and electric appliances. The internal and external areas are faced with white glazed bricks. The external elevations are of plain utilitarian character, being faced with red brick and artificial stone dressings. The large waiting-hall and principal rooms are ventilated by a system of inlet and forced outlet ventilation. The total cost of the building is £800,000, of which more than £200,000 was given by a friend of the hospital. The balance of £550,000 still remains to be collected.

The buildings have been carried out in accordance with instructions given by the Chairman and House Committee of the hospital, many months having been taken up in elaborating the scheme in consultation with the medical and surgical staff. The whole has been erected from the designs and under the superintendence of Mr. Rowland Plimbe, architect; Mr. Henry J. Wagg acted as consulting electrician, Mr. William Shepherd being the builder, and Mr. G. T. Murton clerk of works.

#### BOOKS RECEIVED.

STONEHENGE, By Arthur J. Ireland. (J. Henderson & Sons, Ltd.)

TRANSACTIONS OF THE SOCIETY OF ENGINEERS FOR 1902. Edited by Perry F. Nursey. (E. & F. N. Spon.)

LETTERING FOR ARCHITECTS, ENGINEERS, &c. Compiled by John B. Thorpe. (The London Drawing and Tracing Office.)

SUBJECT LIST OF WORKS ON ARCHITECTURE AND BUILDING CONSTRUCTION IN THE LIBRARY OF THE PATENT OFFICE. (Patent Office, 61.)

RURAL WATER SUPPLIES. By C. J. Russell Maclean. (Sanitary Publishing Co., 18.)

OLD ENGLISH DOORWAYS: A SERIES OF HISTORICAL EXAMPLES. By W. Galsworthy Davie and H. Tanner, jun. (B. T. Batsford.)

#### GENERAL BUILDING NEWS.

ENGLISH PRESBYTERIAN CHURCH, HOLYWELL.—This happy church has been completed. The site is in Whitford-street, and was purchased at a cost of 1,000l., while the building has cost another 2,000l. The church has a frontage of red Ruabon brick, with ornamental tower, and has been erected by Mr. Richard Jones, contractor, Holywell, from the plans of Mr. T. G. Williams, architect, Liverpool.

RESTORATION OF BARTON CHURCH, WESTMORLAND.—This church has recently been reopened after undergoing restoration. The work has been carried out under the guidance of Messrs. Oliver & Dogdshun, architects, of Carlisle.

CATHOLIC SCHOOL CHAPEL, HULL.—The foundation-stone of the new Roman Catholic school chapel, St. Vincent de Paul, in Queen's-road, Hull, was laid on the 4th inst. The building comprises a mixed school, to accommodate 260 children. There is also accommodation for sixty infants, and two large recreation rooms are also provided. On the first floor a large chapel will seat about 350 people, with vestry and choir. The cost is estimated at about 3,000l. Mr. A. R. Lowther is the architect and Mr. Levitt the contractor.

WESLEYAN BUILDINGS, LOWESTOFT.—The memorial stones have just been laid of new Wesleyan buildings which are to be built at the corner of Lorne Park-road. The present building, which is 100 ft. by 35 ft. wide, 23 ft. long, and 35 ft. high to the centre of the ceiling; it is built of red brick, with white stone dressings. Internally the walls are of plaster, with a pitch-pine roof, hammer beam trusses, and plaster ceiling. The gallery has a stone staircase, and the building two entrances, one in Lorne Park-road and the other in Lorne Park-road. The building is in it is electrically lighted. The architect is Mr. G. E. Smith, of Southsea, and the builders are Messrs. Smith & Wolf, of Lowestoft, the stone work being supplied by Messrs. Wolf & Brown, also of Lowestoft.

CONGREGATIONAL CHURCH, ANNAN, DUMFRIES-SHIRE.—The new Congregational Church at Annan was opened on the 4th inst. The building is of red freestone, and situated in Fruids' Park, off Green-croft Wynd. The entire cost was 3,500l., including a hall for the Sunday school. The architects were Messrs. Johnston Bros., Carlisle, and the builders Messrs. J. Rae & Sons, Annan.

GRAMMAR SCHOOL, HIGH WYCOMBE.—New buildings are being erected for the Royal Grammar School at Wycombe. The buildings, which have been designed by Mr. Arthur Vernon, the architect of the existing school, will be of white Gault bricks, with red brick facings and a tile-covered roof. The physical laboratory is 28 ft. long by 21 ft. 6 in. wide and 18 ft. high, and has balance-room and store adjoining it. The manual instruction-room is 24 ft. long by 18 ft. wide and 13 ft. 6 in. high. Adjoining the central lobby is a cloak-room. The patent Acme wood-block flooring is to be used throughout the building. The contract for the new building is being carried out by Messrs. Hunt & Son.

PRIMITIVE METHODIST BUILDINGS, SKERTON, LANCASTER.—The memorial-stones have just been laid of a new Methodist school to cost about 900l., being the first portion of a larger scheme estimated to cost altogether 2,400l. The old site in Main-street is being utilized, with the addition of adjoining cottages and land at the rear. When completed the scheme will embrace a chapel, with seats for 280 persons, organ chamber, and vestry; a school, with main room 45 ft. by 19 ft. 6 in.; and two classrooms 19 ft. by 16 ft., tearoom, lavatories, &c. The buildings will be of stone, standing slightly back from the street line, and enclosed within railings. Mr. J. Parkinson, Lancaster, is the architect, and the contract has been let to Messrs. T. Mawson & Son, builders, Lancaster.

BUILDING IN ABERDEEN.—The Plans Committee of Aberdeen Town Council have approved of the plans of the following new buildings:—Dwelling-house on the north side of Queen's-road, for Mr. A. S. Macdonald, per Mr. R. G. Widdows, architect; dwelling-house on the north side of Murray-terrace, for Mr. Peter Appell, per Messrs. D. & J. R. McMillan, architects; alterations in connexion with premises, No. 3, Bridge-street, for the Great North of Scotland Railway Co., per Mr. P. M. Barnett, engineer; twenty dwelling-houses on the north side of Leslie-road, for Mr. Alex. Young, builder; and alterations and additions in connexion with granary in lane on the west side of Rose-street, for Mr. William Scorgie, per Mr. A. J. Murray, architect; smithy on the north-east side of Skenes-square, for Mr. Adam Anderson, per Mr. Harvey Mennie, architect; cooperage on the east side of Hanover-lane, for Mr. John Robertson, per Messrs. Brown & Watt, architects; three dwelling-houses on the south-east side of Bedford-road, for Mr. James Malcolm, per Mr. W. E. Gauld, architect.

ARTIZANS' DWELLINGS, BRIGHTON.—The Sanitary Committee of the Brighton Town Council have submitted to the Council plans by the Borough Surveyor for the erection of self-contained semi-detached dwellings and tenement dwellings on the Spa-street area, for the accommodation of 336 persons of the labouring class displaced by the Improvement Scheme. The two designs of houses, the semi-detached to let at 13s. 6d. per week and the tenements at 7s. 6d. per week each tenement, were submitted, and it was stated by the Surveyor that the double tenements and the tenements of the area to be built upon, and are placed at the northern end of the street, five on each side. The frontage into Edward-street is to be occupied by shops. The plots for the houses in the new street have a depth of from 60 to 66 ft., and those for the shops vary in depth from 60 ft. to 81 ft. There are to be twenty-eight self-contained houses, ten tenement dwellings and eight dwelling-houses and shops. The first will cost 533l. 19s. 10d. each, with land; the second 622l. 2s. 6d.; and the last 613l.

HOUSE, CROMAR, ABERDEEN.—Lord Aberdeen intends to erect on the Cromar estate a new building to take the place of Tarland Lodge as a family residence. The main block of the house will be 102 ft. by about 50 ft. The architects are Messrs. Sidney Mitchell and Wilson, Edinburgh. The external walls are to be built of red granite quarried from the Hill of Redlick. For the inside walls a grey granite is being quarried in the immediate vicinity of the site, and the material for the main doorway is to be freestone from Auchindoir or Elgin. Mr. Rankin, Edinburgh, has been appointed clerk of works, and the successful contractors are:—Mason, Mr. George Hall, Aberdeen; carpenters, Messrs. D. Macandrew & Co., Aberdeen; plasterers, Messrs. Rodger & Baxter, Aberdeen; slater, Mr. Cumming, Tarland; roadmaker, Mr. Geo. Masson, Tarland.

SANATORIUM, WINSLEY, WILTSHIRE.—The foundation-stone has just been laid of the sanatorium for consumptives which is to be erected at Winsley, near Limpsley Stoke. The building consists of a long, narrow block, one room deep, with a corridor immediately behind, and of two stories in height, except at each end, where six servants' bedrooms are provided upon the second floor. The block containing the dining-hall, kitchen, and offices connected therewith is detached from the main block, being approached by a paved walk roofed over. The length of the main building is



194 ft. 6 in., and the depth 23 ft. only, and it contains upon the ground floor a reception-room, four rooms for the use of the resident physician, two rooms for the matron, and six bedrooms for patients. A clock-room is placed at each end of the building, and opposite are two projecting wings containing the staircases, bathrooms, lavatories, water-closets, and housemaids' closets, all being separated from the corridors by cross ventilated passages. The first floor is arranged in an exactly similar manner, and contains, in addition to the above-mentioned sanitary provisions, sixteen bedrooms, fourteen of which are for patients and the remaining two for nurses. The corridor is 6 ft. wide, with three bay windows at intervals. At each end are the exit doors with ventilating fan-lights over. All the rooms are 13 ft. 6 in. by 11 ft. 6 in., and 10 ft. and 9 ft. 6 in. high upon the ground and first floors respectively, and each room is lighted by windows extending right up to the ceilings. The windows throughout are wooden casements and frames with mullions and transoms, every light opening; the parts below the transoms being hinged at the sides and opening outwards, and those above hinged at the top and opening in a similar manner. In the walls opposite to the windows and above the level of the door-heads, the whole width of each room is filled in with ornaments and frames extending to the ceiling, every one opening upon centres. Some of the bedrooms are provided with fireplaces for use in certain cases, but the building is to be heated throughout by hot water upon the low pressure system, radiators being provided in the corridors, &c., and in each room. The dining-hall is 33 ft. by 27 ft., and capable of accommodating sixty patients. The room is lighted by eight windows, three on each side and two at the end, where the main entrance is placed. At the opposite end is the serving-room, provided with a hot plate, butler's sink, and cupboards for china, glass, plate, &c. Opposite the serving-room is a large storeroom. Communicating with the serving-room is the kitchen, 20 ft. by 16 ft., and beyond is the scullery. Adjoining the kitchen is a servants' hall, 16 ft. by 13 ft. The dairy and larder are placed outside, and approached by a covered way. A small enclosed yard is provided, in which are placed the coal store, servants' water-closet, and the approach to the heating-chamber and coke store, which are under the kitchen and servants' hall. The interior of the building throughout is finished with hard plaster, and circular angles are everywhere provided, right angles, flat surfaces, and mouldings wherever possible being avoided. The drains will be of Doulton's salt-glazed stoneware socketed pipes, jointed in cement. The drainage from the building will be discharged at the bottom of the hill, and will then be dealt with by the Bradford District Council, who will provide a separate system for the sanatorium and a few houses in the neighbourhood. The builders are Messrs. Jacob Long & Sons, of Bath, whose tender of £6,771 was accepted. Messrs. Silcock & Reay were the architects.

**EMPIRE THEATRE, ST. HELENS.**—The new Empire Theatre, which has been erected on the site of the old People's Palace in Corporation-street, St. Helens, was opened recently. The theatre will hold 2,000 people, and has cost £13,000. It has been erected to the designs of Mr. J. A. Baron, of St. Helens, the builder being Mr. James Pilkington. There are ten boxes and two tiers of balconies, the dress circle and upper circle on the first, and the amphitheatre and balcony above. The stage is 58 ft. wide by 37 ft. 6 in. long, and the proscenium opening is 25 ft. All the lighting will be by electricity.

**CHURCH, BARRY DOCK.**—The tender of Mr. W. A. Cadwallader, builder, Cardiff, at £5,958 18s., has been accepted for the erection of the new Church of St. Mary, Holton-road, Barry Dock. The building will be carried out from plans prepared by Mr. G. E. Halliday, architect, Cardiff, and will provide accommodation for 650 worshippers.

**BOARD SCHOOLS, NEWPORT.**—New Board schools were opened recently in Corporation-road, Newport. The estimate for the work was £18,000. The schools have a frontage of 220 ft. to Corporation-road and 200 ft. to Milner-street. The schools are designed and built to accommodate 600 boys on the first floor, and 600 girls on the ground floor, with a separate entrance from Milner-street, off the main road. The architects were Messrs. Linton & Barker, Newport, and the contractor Mr. John Charles, and the clerk of works Mr. S. Hutchins.

**RAGGED SCHOOL, IPSWICH.**—The reconstructed boys' school in Walter's Road, Ipswich, has just been opened. The work of renovation at the building, which was included in the original improvement scheme, has been carried out by Mr. Chas. Roper, from the plans of Messrs. Eade & Johns. The side walls and roof, built in 1857, have been retained, but the base of the building has been entirely reconstructed, with the object of locating the infants classroom in a more convenient position. As the building now presents itself, the infants' room is at the front; whilst at the rear there are two classrooms on the ground floor, and a classroom over head on the first floor.

**WORKHOUSE INFIRMARY, BIDEFORD.**—The new workhouse infirmary which the Bideford Board of

Guardians have built to take the place of the old buildings previously used for the accommodation of the sick poor was opened on the 2nd inst. At the rear of the workhouse, on a portion of the garden the Guardians have erected at a cost of £2,281, a building capable of accommodating about forty patients. It is 120 ft. long and 42 ft. high, and is built of Morland brick with red brick dressings. On the ground floor are a large men's ward, capable of holding fourteen beds, men's day room, separation ward, ward kitchen, and private room for the medical officer with dispensing store. On the first floor there are a women's ward of the same size as the men's, dayroom, separation ward, labour ward, and lying-in ward. Over the main entrance an additional story has been built, and here are the bed sitting-rooms of the nurses. The floors of the lower apartments are of wood blocks. Messrs. R. T. Hookway & Sons prepared the plans, and Messrs. Ellis & Son were the builders.

**SCHOOLS, PURLEY.**—On the 6th inst., at the Warhousemen, Clerks, and Drapers' Schools, Purley, a new wing which has been added to the boys' quarters was opened. The work has been executed by Messrs. Buckland & Waters, of Redhill, for the contract sum of £3,751, from the designs and under the superintendence of the architect, Mr. George Lethbridge, of Drapers' Gardens.

**PUBLIC LIBRARY, BARRY.**—The Barry Urban District Council are about to erect a central public library at Barry. The architects are Messrs. Hutchison & Payne, of London, and the building will probably cost about £10,000.

**NEW POLICE-COURT, YSTRAD.**—A new police-court for the Upper Rhondda Sub-division was recently opened at Ton. It has been erected from the designs of Mr. R. S. Gidkins, architect, at a cost of £5,500. Messrs. Morgan Bros. were the builders.

**OPERA HOUSE, BUXTON.**—A new opera house has been erected at Buxton at a cost of about £25,000. The new house stands at the entrance to the Gardens, with elevations to the Square and St. John's-road. It has been erected on the site of the old theatre, terminating in domed roofs, flank the centre facade. The vestibule is marble-lined, and has a painted ceiling and mosaic marble floor; the grand staircase, which runs down to it, is of polished white marble, with alabaster scrolls at the foot and marble seats at the side. The theatre consists of pit, dress-circle, six private-boxes, upper circle, and gallery, and provides seating accommodation for at least 1,200 persons. Its colours are blue and gold and cream. The whole decoration is in the style of Louis XVI. The ceiling takes the form of an elliptical dome, and is ornamented with a number of painted panels. An entrance has been provided direct from the Gardens to the dress-circle and stalls. There are two refreshment saloons. Mr. F. Matcham was the architect.

**ADDITIONS TO MORNINGFIELD HOSPITAL, ABERDEEN.**—For about a year alterations and additions to Morningfield Hospital for Incurables have been in progress, and these have now been practically completed. A new hall has been erected, which has an entrance from the main corridor of the hospital. The length of the hall is 42 ft. 6 in., and the breadth 23 ft. 6 in., while the height from floor to ceiling is 17 ft. The hall will be heated by radiators, as will also the corridors, new heating apparatus having been fitted up. The kitchen has been doubled in size. The floor has been laid with granitic octagonal tiles, while the walls to a height of 5 ft. have been covered with white tiles. A new scullery has been added to the hospital, and new bathrooms have been provided. The matron's rooms have been reconstructed and a room has been provided for the medical officer. On the west side of the hospital a verandah has been constructed. All the walls in the different rooms in the hospital have been repainted, and the woodwork revarnished. The whole cost of the work amounts to between 3,000l. and 4,000l. The architects are: Messrs. Kelly & Nicol; and the contractors—Mason work, Messrs. Chas. Gordon; carpenter work, Messrs. D. M'Andrew & Co.; plumber, Mr. Walter Simpson; plaster work, tiles, &c., Messrs. James Scott & Sons; slater, Mr. George Davidson; painters, Messrs. G. Donald & Son; ironwork, Messrs. James Abernethy & Co.; heating apparatus, Messrs. M'Kenzie & Moncur, Edinburgh. Mr. J. K. Pirrie has acted as clerk of works, and also superintended the laying out of the ground.

**TECHNICAL INSTITUTE, RICHMOND.**—This building is situated on a site in Gladstone-road, and is intended to form the local centre of the technical and art instruction conducted by the Surrey County Council. It has been erected by Messrs. T. H. Kingerlee & Sons, contractors, of Old Windsor, from the designs and under the superintendence of Mr. George Hamblin Fox, architect, John-street, Adelphi, W.C., and Putney, S.W. Externally the building is constructed of red facing bricks with Bath and Portland stone dressings, and relieved by orna-

mental carvings and the arms of the county and town. A stone entrance portico gives access to the main corridor and staircase. The accommodation provided is of three kinds: workshops for the practical demonstration and execution of the various trades and industries taught, classrooms for lectures and theoretical study, and studios for the art department. On the ground floor are four large workshops, fitted up for the bricklaying, carpentering, electric wiring, and plumbing trades. On the first floor are four large and two small classrooms for various technical and scientific subjects. The second floor is devoted to the art department, and comprises four studios for drawing and painting, modelling, and other art subjects, also an art master's room. In the attic story suitable accommodation is provided for the attendant and caretaker. Space has been secured to the rear of the site for any future extension that may be demanded by the growing needs of the town and district.

**SCIENCE BUILDINGS, COLSTON'S GIRLS' SCHOOLS, BRISTOL.**—New buildings have been erected at Stapleton for the use of the students attending the Colston's Boarding School. The new buildings have been erected on a portion of the playground to the north of the main block, and they consist of chemical and physical laboratories and lecture-hall, with balance and preparatory rooms. The new buildings were designed by Messrs. Walter S. Paul & James, architects, Bristol. The contractor for the general work was Mr. F. Chow. The heating and ventilating apparatus was entrusted to Messrs. James Crispin & Sons. The sanitary work and laboratory fittings are by Mr. G. F. Tuckey. Messrs. L. Thomas & Son supplied the fittings.

**PAVILION AND NURSES' HOME, LEITH.**—The new pavilion and nurses' home, which have been added to Leith Hospital at a cost of about £25,000, have just been opened. Properties were purchased adjoining the East House on one side of King-street and immediately opposite on the other side. On the first site a commencement was made with the Jubilee Pavilion towards the end of 1898, and as it stands now it is a three-story building about 150 ft. long, built of ashlar. The three floors give a total accommodation of sixty-three beds, and at the end of each of the main wards is a dayroom for the use of convalescent patients, a nurses' room, doctors' room, and ward kitchen. There is a lift, driven by electricity, and capable of conveying the ambulance waggons with patients to the different floors. This new portion of the hospital is to be devoted solely to the treatment of surgical cases. The Nurses' Home, on the opposite side of King-street, is connected with the main portion of the institution by an electrically lighted subway, which runs under King-street to the Jubilee Pavilion. The Home, which has been built in the old Scottish style—hardly, with stone dressings—contains separate bedrooms for thirty-three nurses, dining-halls for nurses and servants, a sitting-room and a reading-room, and in the rear of it new offices—a kitchen, laundry, boiler-house, engine-house, and disinfectant—have been erected. The plans were prepared by Mr. W. A. Thomson, architect, Leith.

#### FOREIGN.

**FRANCE.**—The monument to Charles Garnier at Paris is at last to be inaugurated, on the 20th inst. The base of the monument, in red granite, has been designed by M. Pascal; the pedestal, decorated with garlands in bronze executed by M. Germain, shows a plan of the Opera House engraved on a bronze plate at the summit, between two reclining figures representing "Le Travail" and "L'Avenir," the work of M. Thomas, is the bronze bust of Garnier by Carpeaux. A monument to Pasteur was inaugurated last Sunday at Chartres. This is the work of Mr. Richer, a member of the Académie de Médecine who is at the same time an able sculptor, and consists of a large alto-relief in bronze representing a scene in Pasteur's experiences which took place in the outskirts of Chartres. A simple architectural design serves as framework to this relief, the whole being surmounted by a marble bust of Pasteur. An orphanage for the children of sailors is to be built at Boulogne. The town of Coutances has opened a competition for erection of a new Savings Bank, and for a new hotel to the Hôtel de Ville. The municipality of Auxerre has voted a sum of 1,367,000 francs for important street improvements in the town. The Prefect of the Seine has refused to ratify the proposal (mentioned in our last "Letter from Paris") to give the name of Charles Garnier to a street on the site of the ancient prison of La Roquette, and a street near the Opera is to bear his name. The Municipality of the Seine-Inférieure has opened the new bith establishment at Vichy, where the "Trinck-hall" and the Casino have been built from the designs of M. Charles Le Cour, with the collaboration of M. Séguin as sculptor.

**INDIA.**—An office for the district office of the Locomotive, Engineering, and Traffic Departments is to be built at Hazrat Station. Residences for the officers are embraced in the scheme. The Secretary of State has sanctioned the construction by the Bengal and North-Western Railway Co. as integral parts of their main line many extensions on the metre gauge. Since Maynoo has been selected as the hot weather residence of the Burma



Government, the place has grown immensely. The improvements are mainly due to the Public Works Department. A hospital is nearly completed, as well as barracks for European soldiers. A wide circular road is nearly finished, and road construction generally is well to the fore.

**SOUTH AFRICA.**—The building trade is still very brisk in almost all parts of South Africa, thanks to the building "booms" that have grown out of the overwhelming demand for increased housing accommodation. Indents for builders' materials are naturally very heavy in favour of Home manufacturers, who will be interested in the following list of prices ruling at Johannesburg: Portland Cement, 73s. 6d. to 40s. per cask; lime, 5s. 6d. to 6s. 6d. per bag; bricks, slop (not burnt), 35s. per 1,000; common stock, 50s. to 55s.; good machine stock, 80s.; facing bricks, anything up to 47 10s. according to quality; deals, up to 17 1/2, 11d. per ft.; 18 ft. and 19 ft., 11s. 10d. and 15 1/2, 11d.; ceilings, 3d.; floorings, 4s. 6d.; windows, 8 by 10, 30s.; 10 by 12, 35s.; 15 by 30, 42. 6d.; 18 by 30, 50s.; doors, 2 ft 6 ins. by 6 ft. 6 ins. by 1 1/2 ins., 14s.; 2 ft. 6 ins. by 6 ft. 6 ins. by 1 1/2 ins., 15s.; 2 ft. 8 ins. by 6 ft. 8 ins. by 1 1/2 ins., 15s. 6d.; galvanised iron, 6, 7, 8, 9 ft., 6d.; 10 ft., 7s. to 7s. 6d. per ft.—*South Africa.*

### MISCELLANEOUS.

**PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.**—The London agent for "Magnalium," the new alloy mentioned in a Note in our issue of May 30 (559) is Mr. T. Arth Williams, 92, Hatton Garden, E.C. Mr. Bertram Blount, consequent on the death of his partner Mr. Stanger, has removed his Chemical Laboratory and Testing Works from 2, Broadway, to 76-78, York-street, Westminster, where the practice will be continued under his own name.

**ROYAL INSTITUTE OF BRITISH ARCHITECTS.**—The annual dinner of the Institute will be held on Tuesday, the 23rd inst., at the Whitehall Rooms, Hotel Metropole, at 7 for 7.30 p.m. Among the guests who have accepted invitations are His Excellency the American Ambassador, the Earl of Wemyss, the Earl of Lichfield, Viscount Dillon, Lord Monckswell, Lord Redesdale, the Bishop of London, the Lord Mayor of London, and the Sheriff, the Principal of the University of London, and Mr. Charles F. McKim, the Royal Gold Medalist for the year. Members who intend to be present are particularly requested to send in applications for tickets by Thursday, the 18th inst. Members' tickets are 21s., and their guests' 25s. Cheques should be made payable to "the Secretary R.I.B.A."

**DISTRICT SURVEYORS' DINNER.**—On Thursday last week the District Surveyors under the London Building Act dined at the Criterion Restaurant. Mr. Alexander Payne, President, in the chair. Among other members present were Messrs. J. Douglass Mathews, B. Tabberer, H. H. Collins, A. Conder, J. Clarkson, S. F. Clarkson, J. Goodchild, G. McDowell, Ernest Carriv, W. L. Spiers, H. Cheston, W. Grellier, A. Tanner, E. R. Hewitt, F. W. Hamilton, Ellis Marsland, A. H. W. Glasston, E. Street, O. C. Hills, C. T. Coggin, W. H. Lees, B. Dicksee, E. Drury, T. H. Watson, F. Wallen, Hon. Treasurer, and Henry Lovegrove, Hon. Sec. No visitors were invited, the dinner being limited to present and past District Surveyors, the latter being represented by Mr. Thomas Blashill and Mr. Alfred Williams.

**VICTORIA HALL, SUNDERLAND.**—The Corporation of Sunderland recently invited designs for alterations and additions to the Victoria Hall, Sunderland, and offered premiums of 100l., 50l., and 25l. for the first, second, and third designs respectively. The result, just made known, is as follows:—First, Mr. J. Ellingham, Sunderland; second, Messrs. Hall, Jones & Cummings, Westminster; and third, Messrs. Perry & Angell, London.

**THE LEYSIAN MISSION HOUSE, CITY-ROAD, E.C.**—The new premises, of which the erection has been just begun after the plans and designs of Messrs. Bradshaw & Gass, of Bolton, as selected in competition, will constitute the headquarters of the mission settlement at the School Lane, Cambridge. That mission was originally established in Whitecross-street in 1886, and was removed four years subsequently to Errol-street, near Bunhill Fields. The site, which adjoins the Alexandra Trust dining-rooms in City-road, is appropriated for a hall having a capacity for 2,000 sittings; a smaller hall for 600 (to be added hereafter); twenty-three classrooms for Sunday school and other educational uses; separate sets of clubrooms for boys, girls, men, and women respectively, with a gymnasium and a drill-hall for the boys' brigade; an "Old Leysian" settlement for visitors and twenty residents; a small settlement for the sisters and lady workers; Mounton Hall, a residence for the Rev. Dr. Mowbray, Principal of the School, for thirty-five students and young men employed in business; accommodation for the medical mission and dispensary, choirs and band; and offices for the staff, missionaries, &c.: a roof-garden will be constructed above each of the three blocks of the group, and the ground floor of the principal front will consist of eight shops and twenty-seven offices to be let for ordinary business

purposes. The estimated total expenditure upon the new buildings amounts to about 108,000l., towards which a balance of some 30,000l. is still required.

**AN UNUSUAL FOOTBRIDGE.**—For spanning various gaps in the footpath cut along the face of Gobans' cliffs, Antrim, several footbridges have been built, and for connecting the mainland with the Man-of-War Rock, a tubular girder of elliptical section has lately been erected by the Belfast and Northern Counties Railways Co. The bridge is 70 ft. in length, and the clear span is 65 ft., the main structure consisting of twelve elliptical frames, of which the major and minor axes measure 7 ft. and 4 ft. 8 in. respectively. Two longitudinal bars along the top, and ten longitudinal angle-bars at intervals around the lower portion of the periphery, serve to connect the elliptical frames, and the structure is further strengthened by diagonal bracing. The flooring consists of two 12 in. by 3 in. pitch-pine planks laid across the frames, and further supported by angles. Sufficient headroom exists for any person of normal stature, and the longitudinal bars afford ample protection for passengers. Owing to the expense of the cost of the bridge was built at Belfast, being transferred bodily to a lighter and towed to the site, where it was successfully hoisted to its final position. Considerable care was requisite during the last-mentioned operation owing to the cramped space in which the hoisting tackle had to be worked, and for the purpose of preventing the bridge from receiving injury by swinging against the rocks.

**CEMENT NOTES.**—According to a Russian official Report, the total output of the three cement factories at Novorossisk during the year 1902 was 193,584 tons, of which 32,258 tons were shipped to the far east and 1,000 tons to other ports abroad.

Sir P. Sanderson, British Consul-General at New York, writes in this article, that the considerable importation of cement to the United States from the United Kingdom, but there has been a rapid decline of late years, owing to a certain extent to manufacture on a large scale in this country. At the same time it may be remarked that Germany and Belgium have been able to retain their position in this article, and that of the United Kingdom is practically extinct. In 1892 the imports of cement into the United States from these three countries were: The United Kingdom, 335,000l.; Germany, 310,000l.; Belgium, 123,000l. In 1902 the returns show: Germany, 340,000l.; Belgium, 145,000l.; The United Kingdom, 21,000l. A consular report states that during the past year the shipments from Belgium of locally-produced cement were slack, the quantity sent to the United Kingdom being about one-sixteenth of the average of the previous five years.

**GRAMMAR SCHOOL, HUNTINGDON.**—The recently opened new school buildings were erected by Mr. M. J. Allen, of Brampton, after plans and designs by Mr. Ernest Bryson, Diocesan Surveyor, Ely, and Surveyor for the Borough of Huntingdon. The buildings, facing the barracks, are constructed of red brick with stone dressings—the stonework being by Mr. Baxter of that town. The school was originally established as part of the St. John's Hospital charity, founded 1594 by Henry II. by David, Earl of Huntingdon, King of Scotland. The old grammar school, which had been the chapel of the hospital, was remodelled and partly rebuilt forty years ago, under Robert Hutchinson's superintendence, at the charges of Dion Boucault, as a memorial to his son. A description of the hospital buildings, in all Saints' parish, is given in a report, 1890, of the Diocesan Commissioners, who in 1894 made a scheme for the future conduct of the school. About two hundred yards distant stood the home of Oliver Cromwell, who proceeded from the school to Sidney Sussex College, Cambridge.

**ELECTRIC LIGHTING OF LIVERPOOL STREETS.**—Two reports have been presented to the Electric Power and Lighting Committee in reference to the electric lighting of the whole of the tramway routes of the city and other main thoroughfares. The City Lighting Engineer states that "the total road mileage of tramway routes is 57 1/2 miles, four miles of which are already electrically lighted. In dealing with these roads, it would be desirable from every point of view to utilize the tramway poles where they exist and are suitable. These poles are at an average distance apart of 40 yds., which would necessitate approximately 2,054 lamps over the entire tramway routes. Trampoles do not exist over the whole of the tramway routes, and it is estimated that 508 electric columns would have to be provided. The following are the streets where three or four columns are principally thoroughfares, in addition to the tramway routes, viz., Great Homer-street, Fox-street, Old Hall-street, Boaler-street, Mill-street, Myrtle-street, Brownlow Hill, North John-street (part), South John-street, Hanover-street. The total length of these streets is about four miles, and it is assumed that the lamps in them might reasonably be placed at an average distance apart of 55 yards, which would necessitate approximately 145 lamps. On this assumption the approximate first cost and additional annual cost would be as follows, viz.:—Wiring and equipping lamps, switches, &c., on 1,540 trampoles, at 77s. each, 119,042l.; wiring and equipping lamps, switches, &c., on 653 electric lamp pillars, at 84l. 10s. each, 55,178l. 10s.—174,220l. 10s.,

credited by cost of 3,278 gas-lamp pillars, &c., discontinued at 11. 5s. each, 4,007l. 10s.; total first cost, 170,221l. Annual cost of 2,109 lamps at 16l. 12s. each, 36,593l. 8s., credited by present cost of gas lighting, 8,856l. 5s. 1d.; total additional cost, 27,637l. 2s. 11d." The Resident Engineer states that if this scheme "were carried out in its entirety, it would be necessary to add, say, 2,000 horse-power to the generating plant in the stations, and to lay additional street mains in advance of the usual extensions for ordinary supply purposes. The Engineer estimates the capital expenditure necessary for the above plant and mains approximately at 50,000l.

**CHURCH OF ST. MATTHEW, CITY-ROAD, E.C.**—The vicar of the parish makes an appeal for contributions to a fund of 2,500l. for the re-instatement of the fabric of this church, which is in an untoward condition. The church was erected in 1847-8, after Sir G. Gilbert Scott's plans and designs, with a capacity of 800 sittings, for the poor and populous district lying between Islington and St. Luke's. The steeple forms a conspicuous object as seen from the main road. In 1866 G. E. Street was the architect for the designs for the re-instatement of the fabric of this church, which is in an untoward condition. The church was erected in 1847-8, after Sir G. Gilbert Scott's plans and designs, with a capacity of 800 sittings, for the poor and populous district lying between Islington and St. Luke's. The steeple forms a conspicuous object as seen from the main road. In 1866 G. E. 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advantageously, and perhaps profitably, by electricity. In the summer months—May, June, and July—when sometimes the streams would possibly fail to give sufficient power, no artificial light would be needed either day or night, as it is constantly daylight. Common petroleum is sold at from 21. to 21. 10s. the cask. The houses are heated by means of stoves; peat is often used for fuel, but it is not much cheaper than coal, for which there is a considerable demand. Until now all such coal has been imported, although the mineral has been found on at least two of the islands, and a certain amount of survey work with a view to mining continues to be done by a French company. Petroleum-oil stoves are now being introduced for heating.

**USES OF REDWOOD.**—Mr. Bennett, British Consul-General, writing from San Francisco last month, dwells on the new demand which, he says, has sprung up for redwood, a material which California alone can supply. It has been discovered by the chief engineer of the Niagara Falls Power Co., that, under certain conditions which rule in connexion with that enterprise, the hardest steel is inferior in resisting power to California redwood. The company accordingly sent an agent to San Francisco to obtain figures for furnishing several million feet of the local lumber, to be employed instead of steel in the construction of a great tunnel at the Falls this summer. The reason given for the preference for the California wood was that when water passed over it continuously there formed a surface of soapy and pasty nature which was proof against corrosion, whereas in the case of steel the particles of sand and matter carried with great velocity from the Niagara River cut into and destroyed the steel in an incredibly short space of time. The Redwood Association was asked if it could furnish 3,000,000 ft. of redwood for delivery in Buffalo in July next, and gave an affirmative reply. The redwood lumber to be supplied under this contract is to be 3 in. by 8 in., and to be set on the narrow end, the length to be from 12 ft. to 20 ft. Redwood has been found exceedingly useful in the construction of the big pipes used for the conveyance of water to many of the electric-power houses in the northern part of the State. These pipes are built up and banded. They cost less than metal pipes, are more durable, and are more easily carried around the sharp curves followed by these great water lines. It will outlive all other woods when constantly moist. While it is not non-combustible, which quality some enthusiasts have erroneously ascribed to it, it burns much more slowly than any other kind of timber used for building purposes, as it contains no inflammable oil or resin. While it is not desirable to be used as a fire wall, the resistance it offers to the inroads of fire has been the salvation of many dwellings constructed with it. The discarded stumps of redwood felled for the lumber many years since have come into favour for the manufacture of furniture and the interior decoration of buildings, the curled grain making beautiful figures, and the wood itself taking a fine polish. Just at present California redwood is in great demand in the Eastern States, partly because the forests in that section have become exhausted, but chiefly because of the variety of uses to which it can be profitably put.

**APPOINTMENT.**—At a meeting of the sub-committee of the Northumberland County Council Education Committee, the appointment was made of Mr. J. Wightman Douglas, architect, of Alnwick and Newcastle, as architect and valuer of the various schools to be taken over by that authority under the new Education Act.

#### CAPITAL AND LABOUR.

**BRADFORD BUILDING TRADE.**—At present there seems little prospect of the matters in dispute between the Bradford operative masons and their employers being adjusted peaceably. It will be remembered that in January the men gave in their notices failing an alteration of the rule affecting the employment side by side of society and non-society workmen. As it now stands, the rule says that no strike or lock-out shall be permitted where the dispute rests solely on this question, and what the men desire is to regain their former freedom of action, and to be able to decline to work with non-unionists. The Conciliation Board appointed at the conclusion of the last dispute, and consisting of six representatives of each side, with Mr. W. C. Lupton as chairman, has held numerous meetings, whereat unsuccessful attempts have been made to come to an agreement. It was alleged by the men that some of the masters, taking advantage of the rule, had given preference to non-unionists. This the masters strongly denied, and submitted that any specific cases that could be brought fully investigated by the Board. It was also alleged that one or two of the masters were employing more apprentices than the rules allowed, but upon this charge being looked into by a representative of the masters and a representative of the men, both agreed that it was without foundation. The notices expire on July 31, when a strike seems inevitable, as neither side shows any signs of giving way.—*Yorkshire Observer.*

**SOUTHPORT PLUMBERS.**—At a recent meeting of the Southport Trades and Labour Council, Mr. H. Aughton, of the Plumbers' Association, drew

attention to a grievance. He stated that the Corporation employed men to put in gas fittings at 6d. an hour, and that the Birkdale Council paid either 5s. 6d. or 6d. for plumbing work. This threw practical men out of a job, for it meant that only labourers' wages were paid. Of the Corporation sanitary inspectors, three had been either a gardener, a fishmonger, or a joiner. Plumbers thus had men domineering over them who did not understand their work, and sometimes in connexion with their trade they were compelled to do things which they knew were wrong. He expressed the opinion that if the Corporation paid the standard rate of wages the plumbers would have nothing to say. Mr. Proudfoot, J.P., said it was a terrible example for a Corporation to set men to work at one of the most skillful trades at sweating wages. It was agreed to form a sub-committee to meet the Plumbers' Association on the matter with a view of approaching the Council.—*Lancashire Post.*

**ST. HELENS JOINERS.**—The recent trouble between the joiners of St. Helens and district and the Master Builders' Association on the question of rules has been followed by a notice which has been given by the employers for a reduction of wages, and some alteration in the rules under which the St. Helens joiners are employed. The joiners are at present receiving 6d. per hour, but the masters desire a reduction to 5s. 6d. The men have replied to the notice by giving a counter notice asking for an increase to 9s. 6d.

**CARDIFF PAINTERS' STRIKE.**—This dispute has been settled by mutual agreement upon the rules which are in future to be observed by the Amalgamated Society of House Decorators and Painters. The chief concession to the men is an increase of one halfpenny per hour.

#### LEGAL.

##### BERMONDSEY BOROUGH COUNCIL AND SURREY COMMERCIAL DOCK CO.

AT Southwark Police-court on Friday last week, the Secretary of the Surrey Commercial Docks Co. was summoned by the Bermondsey Borough Council for failing to give, under Section 76 of the Metropolitan Management Act, 1855, seven days' notice of their intention to erect a new building in Furland-yard, Redfri-road, Rotherhithe. Mr. Ryall, the Town Clerk, appeared for the Borough Council, and Mr. Glen, barrister, defended. Mr. Glen contended that the Dock Co. were exempted from the Section in this case. This work was being done under the powers conferred upon them by the Surrey Commercial Dock Act, 1894, which empowered them to make new docks, new roads, and to make and maintain any buildings they might require. Mr. Ryall: I do not dispute your right to construct a new building, but I say you must give us notice under Section 76. Mr. Glen said that unless they were by their special act exempted from Section 76, the Borough Council would have power to control their buildings, and would possess the very powers which the special Act conferred upon the Dock Co. The new building (a workshop) in question would be within the dock gates, and he contended that according to the decisions in "The City and South London Railway Co. v. London County Council," and "The London County Council v. The School Board for London, 1892," a special Act with regard to any area over-riden and repealed any general Act. For fifty years the company had been in possession of the docks, and had never been required before to give any such notice. Since the Borough Council had been in existence, they had erected buildings without being called upon to give a notice under Section 76. Mr. Ryall: This is the first time that we have known of any change. The case was adjourned.

#### STOVES AT PIANO WORKS.

At the North London Police-court recently H. G. Kent was summoned by Mr. Josiah Goodchild, the District Surveyor for Islington (North), for fixing a stove to be used for heating glue at his piano factory without having given notice to the District Surveyor as required by Section 145.

Mr. Mead imposed a fine of 10s. with 12s. 6d. costs.

#### FATAL ACCIDENT IN ISLINGTON.

THE Deputy-Coroner, Dr. F. Thomas, recently held an inquest at the City Mortuary, Golden-lane, on Walter Edward Brooks, aged twenty-four, a carman, of Swanley-street, Islington.

On the evening of Sunday, May 31, a large piece of the cornice of No. 330, High-street, Islington, fell, killing Brooks and injuring others. After the evidence of the widow and other persons, Mr. Henry Lovegrove, District Surveyor, stated that he had carefully examined the cornice and, finding the remaining portion quite sound, was of opinion that it was possible that during the storm in the morning the upper member had broken off, as there was no evidence of the crumbling in part usually found in defective cement. He thought that cement cornices of that size should have a stone core.

Dr. L. Ferncombe, of St. Bartholomew's Hospital, stated that deceased died before he arrived at the hospital from an extensive fracture of the skull. Verdict, "Accidental death."

#### PATENTS OF THE WEEK:

##### APPLICATIONS PUBLISHED.\*

13,170 of 1902.—T. ROGERS: *Construction of Cooking Range.*

A fireplace in which the bars are readily detachable by being constructed with vertical slide members, the feet of which fit into recesses formed in the sides and front of the fireplace, the upper ends of the vertical members being retained by pivoted buttons.

14,033 of 1902.—M. C. J. G. GIESMANN: *Smoke Consumers for Domestic Fireplaces.*

A smoke-consuming device for fireplaces, consisting of a shell forming an air space at the back of the fire, and a trough leading from said space rearwards towards the flue.

15,604 of 1902.—O. RÉVAL: *Boilers for Heating Water for Baths, for Drying, and for Like Purposes.*

A combined horizontal bath or like stove and room heating apparatus, in which the furnace and combustion-chamber are entirely enclosed within the boiler, characterised therein, that the flue-pipe projecting through the boiler shell returns into the boiler after one or more exterior convolutions and then passes to the chimney, the exterior part of the flue-pipe being fitted with a valve and bye-pass immediately below the boiler.

18,371 of 1902.—G. MOORE: *Baths.*  
Relates to baths and consists in the provision of ledges, pockets, or recesses in the bath, as rests, supports, or like purposes.

27,004 of 1902.—C. HOSKINS: *Fastenings for Windows.*

A drop latch constructed to fasten on upper sash of window, and arranged to allow the window to be left partially open for ventilation, the latch being protected so as to prevent further opening of the window from the outside, while by lifting the latch from the inside the window may be freely opened.

14,375 of 1902.—J. W. B. WRIGHT AND H. DARWIN: *Gas-heating Stoves.*

In gas-heating stoves, a detachable firebrick back, and box or frame therefor, arranged to enter and engage with the flue slot or combined so as to be suspended thereby.

14,358 of 1902.—J. W. B. WRIGHT AND H. DARWIN: *Gas Cooking Ranges.*

In a gas cooking range, the combination with an open gas fire of an oven formed with external flues in communication with the flue or outlet of said gas fire, a water boiler or heater, a flue surrounding said water boiler and communicating with the fire flue and oven flue, and means for regulating the passage of the heat to said flues.

5,152 of 1903.—J. V. OOSTERWICK: *Chimney-tops.*

A chimney-top comprising a polygonal frame, closed at the top and provided at the sides with a number of openings, hinged cover plates for said openings, each pair of opposite plates simultaneously covering their respective openings.

5,577 of 1903.—R. KRUBETKE: *Means for Securing Casements and Similar Windows.*

A device for securing casements and similar windows in open positions, comprising a plate pivoted in the casing attached to the casement or to the latter itself and provided with a suitable number of holes in a row, each of which holes is adapted to engage a pin adapted to slide in a slot in said casing or along the bottom of the casement, and fixed to the end of a bar, the other end of which is pivotally connected to the fixed window frame or the like.

7,011 of 1903.—J. D. MILLER: *Sash Locks.*

This consists in the combination with the lock of a casing, of plurality of interfitting sections, the face or bolt guiding plate being formed of two members integral with the respective sections, the inner for engagement with the rear of said face plate forming the bolt of the opposite section, and means for securing the two sections of the casing to each other, a bolt guided within the casing, and means for operating said bolt.

7,463 of 1903.—J. BARDSELEY: *Door Closers and Checks.*

In a door closer, an operating lever arm, and a spindle to which said lever arm is connected, combined with a double-acting coil wire spring encompassing but free of said spindle, and means intermediate said lever arm and the upper and lower ends of said spring, and free of said spindle, for winding said spring at its respective ends from said lever arm in accordance with its direction of motion.

3,263 of 1903.—E. WART & SON, LTD., G. EWART, AND F. J. D. HÜLLINGHURST: *Ventilators.*

This invention consists of a ventilator so constructed as to be entirely free from any moving parts, and made up either of sheet metal or of castings. The main feature of the invention comprises the double arrangement of fixed fans or

\* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.



blades, which fans or blades are so shaped that wind blowing against the same cannot pass between them and so down the main pipe, but will on the contrary induce or create an up-draught in the main pipe of the ventilator.

11,377 of 1902.—L. M. WATERHOUSE and THE SIMPLEX STEEL CONDUIT CO., LTD.: *Fittings for Metallic Conduit Systems of Electric Wiring.* A device for metallic conduits which consists of a box having the necessary inlets and outlets, and provided with a circular opening into which a self-retaining lid is adapted to fit, the self-retaining lid having a central opening from which the projecting portion of the fitting passes, so that the lid and fitting are thus fixedly attached.

12,308 of 1902.—H. KNOEL and G. SEQUIN-BRONNER: *Construction of Roofs.*

In the construction of roofs, a horizontal disposition of the framework which carries the roofing and a division of the roof into a plurality of collecting basins, from the deepest points of which the rainwater is carried off.

12,944 of 1902.—W. G. HOLLINGWORTH and W. CLOWES: *Steam-heating System.*

In a vacuum-heating system withdrawing the air from the return or exhaust of the radiators or the like and leading said air to the condenser or equivalent apparatus.

12,604 of 1902.—H. C. ROSTOCK: *Manufacture of Asphalt Composition.*

The process for the manufacture of asphalt composition, consisting in the addition of from about 15 per cent. to 20 per cent., or at the outside 25 per cent., of iron or steel filings to an asphalt mass containing asphalt oil, preferably Orinoco asphalt oil.

15,540 of 1902.—THE FIREPROOF PLATE WALL CO., LTD., and SIOBERHAM: *Means for the Protection from Fire of Structural Ironwork employed in the Erection of Buildings.*

A casing for structural ironwork, such as girders, beams, stanchions, and columns constructed of slabs, plates of plaster, cement, concrete, or similar material, with an air space surrounding the iron.

4,347 of 1903.—J. T. JITUS and W. TITUS: *Means for Heating, Cooling, and Ventilating Buildings.*

The combination with a multiple-storied building of an air-forcing apparatus and air-heating apparatus, and air shaft extending from the heating apparatus to the several stories, an air-cooling apparatus, an air shaft extending from the cooling apparatus to the several stories, and means for directing at will the air from the forcing apparatus to either or both of the said shafts, means for mixing the heated and the cooled air at said shafts to temper the air to a desired temperature, and means for regulating the admission of the tempered air to the several stories.

5,723 of 1903.—J. O'BRIEN: *Hot-water Heating System and Valves Therefor.*

In heating apparatus on the "Perkins" system, the formation of by-passes or branches by fitting a three-way valve at the junction of each branch or by-pass, to permit the possibility of regulating at will the heat in each apartment.

6,852 of 1903.—W. BRUECKNER: *Hot-water Heating System.*

Hot-water heating system characterised in that the return pipe (or return pipes) is first led in an upward direction to slightly below an expansion cistern, and then descends from there for the purpose of connexion to the hot-water boiler.

4,160 of 1903.—R. HADDAN (WELSENAAR, ROMEY, & VERKEER): *Tiled Roofs.*

This consists in the inter-connexion of the cover parts running from the ridge to the gutter, and in the fastening of the tiles themselves to the supports or underlays by means of suitable noses engaging over the tiles so that the lifting of the latter by the wind is prevented.

## MEETINGS.

FRIDAY, JUNE 12.

South-Eastern Union of Scientific Societies (annual congress continued).—Morning, afternoon, and evening meetings. Paper by the Rev. R. Asquith Bullen on "A Late Celtic Cemetery at Harlyn Bay."

SATURDAY, JUNE 13.

Architectural Association.—First summer visit, to Heathfield Park, Sussex. Train leaves Victoria Station at 11.15 a.m.

Building Trades Exhibition, Royal Agricultural Hall.—Opening of the Exhibition. 4.30 p.m.

St. Paul's Ecclesiastical Society.—Visit to the Church of Kensington. Train to Oxford from Holborn at 1.15 p.m.

Incorporated Association of Municipal and County Engineers.—Eastern District meeting, Sudbury.

Edinburgh Architectural Association.—Annual excursion to Bamfargh.

South-Eastern Union of Scientific Societies (annual congress, Dover, concluded).—Mr. A. T. Walmisley, Engineer, Dover Harbour Board, on "International Communication." 12 noon.

TUESDAY, JUNE 16.

Institution of Civil Engineers (Engineering Conference).—Mr. W. H. Maw will deliver the 11th "James Forrest" lecture on "Some Unsolved Problems in Engineering" in the Theatre of the Institution. 9 p.m.

WEDNESDAY, JUNE 17.

Institution of Civil Engineers (Engineering Conference).—The President, Mr. J. R. Hewitson, M.A., will inaugurate the conference with a short address to all the sections, in the meeting room of the Institution of Mechanical Engineers. 10 a.m. After which the various sections meet at the Surveyors' Institution, the Guildhall, Westminster, and the Institution of Mechanical Engineers.

Builders' Foremen and Clerks of Works' Institution.—Ordinary meeting of the members. 8 p.m.

London Master Builders' Association.—Finance Committee. 3 p.m.

THURSDAY, JUNE 18.

Institution of Civil Engineers.—Engineering Conference, continued.

Surveyors' Institution.—Conversations, Natural History Museum, South Kensington. 10 to 11 p.m.

London Master Builders' Association.—Council Meeting. 4 p.m.

FRIDAY, JUNE 19.

Institution of Civil Engineers.—Engineering Conference, concluded.

SATURDAY, JUNE 20.

Architectural Association.—Visit to the Building Trades' Exhibition.

## SOME RECENT SALES OF PROPERTY:

### ESTATE EXCHANGE REPORT.

May 3.—By EDMUND HORNE (at Southall). Southall, Middx.—Western-rd., Bell's Charity Land (built 1891), 9 a. 3 r. 2 p., f., e. r. 30. 6. £3,400.

May 20.—By THOMSON & RATCLIFFE (at Manchester). Manchester.—Peter-st., the Comedy Theatre, area 1,68 yds., f., subject to chief rents of 200 yds. 14s. 25,000.

May 22.—By THOMSON & RATCLIFFE (at Wigan). Wigan.—By the Wigan Colliery, 2 a. 3 r. 36 p., f. (including mines and minerals) 7,800.

May 23.—By NICHOLAS, DENVER, & CO. (at Worcester). Worcester.—Shelley Kings, &c., Worcester.—A freehold holding, 11 a. 1 r. 31 p., f. 540.

A freehold holding, 1 a. 2 r. 99 p., f. 92.

A freehold holding, 3 a. 3 r. 10 p., f. 92.

May 26.—By W. BROWN & CO. (at Leighton Buzzard). Leighton Buzzard.—Neale's Charity Farm, 103 a. 3 r. 3 p., f., y. r. 143d. 3,000.

May 27.—By LEEHMAN & HARRISON (at Breaston). Breaston.—The School Farm, 119 a. 3 r. 25 p., f. (in lots) 6,855.

By MADDISON, MILES, & MADDISON (at Varnham). Varnham.—Mill Seven Acres, 6 a. 3 r. 14 p., f. 350.

A freehold cottage, w. r. 12d. 170.

A freehold holding, 2 a. 1 r. 29 p., f. 170.

Burgh Castle, Suffolk.—Enclosure of land, 4 a. 1 r. 27 p., f. 180.

Market garden land, 6 a. 1 r. 23 p., f. 240.

Yarnmouth, Norfolk.—2 a. 3 r. 23 p., f. 250.

f., y. r. 22d. 14s. 25d. 258.

May 29.—By TILLEY & PARRY (at Chippenham). Chippenham.—The Manor Farm, 204 a. 1 r. 8 p., f. 6,250.

By CONN (at Sittingbourne). Sittingbourne, Kent.—High-st., l.g.r. 7d., u.t. 52 yds. 140.

High-st., l.g.r. 8d., u.t. 8d., y. r. 34d. 120.

4 to 16 (even), Station-st., u.t. 52 yds., g.t. nil, w. r. 70d. 4s. 800.

Newington, Kent.—Bull Orchard, 1 a. 2 r. 25 p., f., y. r. 35d. 500.

Three freehold cottages and outshouses, p. 510.

Dennes Downs Orchard, 6 a. c.r. 6 p., f., y. r. 32d. 840.

Bobbins, Kent.—Three freehold cottages, w. r. 77d. 14s. 590.

By E. HOLSWORTH. Holloway.—24, Hargrave-rd., u.t. 60 yds., g.t. 51. 108. y. r. 32d. 300.

By E. W. RICHARDSON. City of London.—Basinghall-st., site of St. Michael Bassishaw Church, area 5,000 ft., building lease for 80 yrs., let at per annum 1,250.

By A. DUMMER & CO. Dummer, Hants.—Dummer Down and Tower Hill estates, 588 a. 2 r. 19 p., f. 5,000.

Ash, Surrey.—Oakleigh and 41 a., f., p. 3,000.

Pirbright, Surrey.—A cottage and 4 a., f. 3,000.

Forest Hill.—16, Kilmorie-rd., u.t. 80 yds., g.t. 51. 108. c.r. 34d. 310.

80 and 82, Stansfeld-rd., u.t. 53 yds., g.t. 61. 17s. w. r. 96d. 305.

June 3.—By HILLIER & PARKER. Whitechapel.—27, Whitechapel-rd. (S.), f., e. r. 200d. 3,750.

By EDWARD WOOD. Clapham.—99, Honeybrook-rd., u.t. 94 yds., g.t. 71. y. r. 40d. 480.

Balham.—41, Gaskarth-rd., u.t. 88 yds., g.t. 125. c.r. 96d. 400.

Brixton.—14 and 16, St. James-rd., u.t. 128 yds., g.t. 121. 12s. y. r. 84d. 395.

Waldstone, Middlesex.—Canning-rd., Rixton Villa, f. 350.

Muswell Hill.—Alexandra Park-rd., Bragwood, u.t. 95 yds., g.t. 101. 10s. c.r. 60d. 520.

Wood Green.—17 and 18, Cranbourne-rd., u.t. 97 yds., g.t. 81. 8s. c.r. 62d. 8s. 320.

Notting Hill.—1, Heathfield-st., f., w. r. 181. 4s. 200.

Holloway.—72, Poles Pl., u.t. 62 yds., g.t. 51. y. r. 27d. 250.

By T. WOODS (at Hounslow). Hounslow, Middlesex.—Tivoli Cottages, f.g.r. 437. 10s., reversion in 39 yrs. 850.

Gloucester-rd., f.g.r. 60d., reversion in 80 yrs. 1,350.

Clarencet-rd., f.g.r. 62d. 10s., reversion in 93 yrs. 1,300.

Isleworth, Middx.—1 and 2, Devonshire Villas, f., y. r. 52d. 700.

1 to 4, Gumley-row, c., y. r. 52d. 1,550.

Twickenham, Middx.—Church-st., freehold house, formerly the Carpenter's Arms, p. 30d., c.r. 30d. 240.

June 4.—By S. H. DAVIES & CO. Soho.—18, Noel-st., f., e. r. 100d. 1,700.

Chelsea.—49, Cadogan-st., u.t. 40 yds., g.t. 81. y. r. 8d. 850.

Clapham.—19, Crescent-gr., u.t. 67 yds., g.t. 12. y. r. 60d. 50.

By NEWBORN, EDWARDS, & SHIPHARD. Pentonville.—25, Claremont-sq., u.t. 9 yds., g.t. 101. y. r. 60d. 163.

Canonbury.—29, St. Mary's-rd., u.t. 43 yds., g.t. 54. c.r. 10d. 560.

Calcutt-rd.—98, Blundell-st., u.t. 43 yds., g.t. 91. y. r. 30d. 265.

By STIMSON & SONS. Camberwell.—D'Eynsford-rd., f.g. rents, 42l. 6s., reversion in 50 and 53 yrs. 1,400.

D'Eynsford-rd., f.g.r. 13d., reversion in 50 yrs. 420.

Dennark-rd., &c., f.g. rents 72d., reversion in 51 yrs. 1,900.

Hackney.—12, 14, and 16, Chatham-pl., with workshops, yard, &c., in rear, f., y. r. 112d. 2,090.

Regent's Park.—19, 19a, and 21, Longford-st., f., y. r. 77d. 8s. 1,020.

South Lambeth.—Meadow-pl., f.g.r. 15d., reversion in 64 yrs. 385.

Clapham.—Richmond-ter., l.g.r. 30d., u.t. 25 yds., g.t. 4d. 340.

5, Carroun-rd., and 57 and 59, Meadow-rd., u.t. 35 yds., g.t. 12d. w. r. 103d. 630.

South Lambeth.—54, Lansdowne-rd., u.t. 57 yds., g.t. 61. c.r. 44d. 400.

Brixton.—56, Treherne-rd., u.t. 60 yds., g.t. 51. 5s. w. r. 47d. 18s. 335.

Newswold.—77 and 79, Romney-rd., f., w. r. 65d. 570.

Peckham.—107 and 109, Hill-st., u.t. 53 yds., g.t. 81. y. r. 63d. 2s. 525.

Enfield.—Bell-rd., f.g.r. 5s. 60d., reversion in 97 yrs. 1,405.

Peckham.—38 and 44, Forest Hill-rd., f., y. r. 103d. 1,160.

10s. 420.

Herne-gate, a plot of building land, f. 1,055.

Canning Town.—130, 132, 138 to 160 (even), Hermit-rd., u.t. 74 yds., g.t. 42d. 10s. 600.

Godalming, Surrey.—7 and 8, Bridge-st. (S), f., y. r. 50d. 210.

June 5.—By J. H. BULMER. Rotherhithe.—51, Elgar-st., f., e. r. 26d. 12s. 210.

Bermundsey.—3 to 6, Reed-st., u.t. 47 yds., g.t. 19d., w. r. 104d. 600.

Stratford.—68, Idmiston-rd., f., w. r. 31d. 4s. 265.

By W. R. HALLIETT. New Eltham, Kent.—Blancher-rd., four plots of land, f. 280.

Blackheath.—25 and 26, Broadwall, c., y. r. 52d. 600.

By NICHOLAS, DENVER, & CO. Ropley, Hants.—Main-st., a freehold holding, 6 a. 2 r. 6 p., f. 710.

By SLATE, SON, & GARDNER. Bermundsey.—509 and 510, South-Eastern Railway Arches, goodwill-in-trade of a wine merchant's business, q. r. 25d. 200.

Clerkenwell.—22, Aylesbury-st., beneficial lease for 71 yrs., y. r. 50d., with goodwill-in-trade 250.

By JOSEPH STROWER. Little Laver, &c., Essex.—Hull Green Farm, 202 a. 3 r. 24 p., f., y. r. 115d. 2,220.

High Laver, &c., Essex.—Waterman's End Farm, 86 a. 1 r. 25 p., f., y. r. 66d. 1,650.

Thorpe Morieux, Suffolk.—The Manor Farm, 208 a. 2 r. 17 p., f. 3,000.

Mount and Watermere River Farms, 134 a. 1 r. 16 p., f. 2,170.

By TRIST & CO. Barnsbury.—Crosley-st., f.g.r. 22d. 1s., reversion in 78 yrs. 500.

Norwood.—363 to 373 (odd), Holmesdale-rd., f., e. r. 26d. 2,670.

By NORMAN, SON, & HANLEY. Clapham.—136 and 138, Manor-st., f., y. r. 56d. 780.

140, 146, 148, and 150, Manor-st. (S), f., y. r. 19d. 3,170.

Holloway.—Crayford-rd., l.g.r. 16d. 10s., u.t. 49 yds., g.t. 14. 310.

Camberwell.—George-st., f.g.r. 75d., reversion in 50 yrs. 1,900.

Hackney.—Laureston-rd., f.g.r. 3d., reversion in 39 yrs. 1,010.

Holloway.—Enkel-st., f.g.r. 23d. 9s., reversion in 57 yrs. 835.

Mayton-st., f.g.r. 26d. 8s., reversion in 57 yrs. 670.

Grove-rd., f.g.r. 5d. 6s., reversion in 60 yrs. 1,725.

Finsbury Park.—Rock-st., f.g.r. 61., reversion in 68 yrs. 580.

Kaling.—Denmark-rd., f.g.r. 23d., reversion in 76, 74, and 58 yrs. 1,220.

Clapham.—Wittenberg-st., f.g.r. 40d., reversion in 52 yrs. 1,120.

Wittenberg-st., f.g.r. 42d., reversion in 25 yrs. 1,750.

Wittenberg-st., f.g.r. 11d. 17s., reversion in 5 yrs. 1,050.

High-st., f.g.r. 79d. 10s., reversion in 19 yrs. 400.

High-st., f.g.r. 20d., reversion in 55 yrs. 600.

High-st., f.g.r. 180d., reversion in 49 yrs. 5,910.

Little Manor-st., f.g.r. 5s. 25d., reversion in 96 yrs. 615.

Sutton, Surrey.—Linden Villas, f.g.r. 25d., reversion in 54 yrs. 650.

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e. r. for estimated rental; w. r. for weekly rental; q. r. for quarterly rental; y. r. for yearly rental; u. for unexpired term; p. a. for per annum; y. s. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; c. r. for crescent; av. for avenue; g.dns. for gardens; yd. for yard; g. for grove; b.h. for beer-house; p. h. for public-house; o. for offices; s. for shops.



## CONTRACTS AND PUBLIC APPOINTMENTS.

(For some Contracts, &amp;c., still open, but not included in this List, see previous issues.)

## CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c., supplied by	Tenders to be delivered
Sinking Wells, Croomgar, Ireland	Downpatrick R.D.C.	R. L. Morrow, Council Offices, Downpatrick	June 13
Surveyor's Materials, &c.	Chelmsford Corporation	Technical Surveyor, 16, Lincoln-road, Chelmsford	June 15
Drainage Works	Lossmouth Town Council	G. Gordon & Co., Civil Engineer, Inverness	do.
Sewage Works, Melton Constable, Norfolk	Walsingham R.D.C.	T. T. Goidie, Engineer, Bank Buildings, Norwich	June 16
Bridge Works, Hever	8 weeks R.D.C.	W. H. Bolt, Surveyor, Leigh, Tonbridge	do.
Schools	Isleworth School Board	T. W. Cotman, Architect, Ipswich	do.
Wood Paving	Willesden District Council	Council's Engineer, Public Offices, Dyno-road, Kilburn, N.W.	do.
Road Making and Paving	do.	do.	do.
Sewerage Works	Consett (Durham) U.D.C.	R. Robinson, Civil Engineer, Darlington	June 17
Erection of Seventy Houses near the Rhyl, Trebgarth	United Building Society	W. S. Williams, Architect, Tredegar	June 18
Sewerage Works, Monaghan	Asylum Committee	J. F. Peddie, Civil Engineer, Belfast	do.
Coal Hopper, &c.	Swains Harbour Trustees	A. O. Schenk, Civil Engineer, Harbour Offices, Swains	do.
New Laundry, &c., at Southburgh Workhouse	Southburgh Union	F. Davies, Solicitor, North Walsham	June 20
Small Mission Church, New Malden	do.	V. Davidson, Architect, New Malden	June 22
Block Paving and Sound Proofing Boys' School	Pwllheli School Board	J. T. Howells, Solicitor, Pwllheli	do.
Sewers, &c.	Belper Town Council	G. J. Lomax, Civil Engineer, 37, Cross-street, Manchester	do.
16 Port House, Norwich	British Gas Light Co.	T. Glover, Engineer, Bishop Bridge, Norwich	do.
Cast-iron Pipes	Mountain Ash U.D.C.	H. P. Leaton, Town Hall, Mountain Ash	June 23
Supply of Road Materials	Tankerton Estate, Ltd., Whitstable	A. A. Kemp, Surveyor, Tankerton Estate Office, Whitstable	do.
Pumping Station, Chimney Shaft, &c., Palmer	Brighton Borough Council	Town Clerk, Town Hall, Brighton	do.
Erection of University College, Sheffield	H.M. Works	Gibbs & Flockton, Architects, 15, St. James's-row, Sheffield	do.
New Sash Office at Upper Edmonton	County Borough of West Ham	A. Saxon Snell, 25, Southampton-buildings, Chancery-lane, W.C.	do.
Corrugated Iron Tram Car Shed	Clark of London Union	Borough Engineer, Town Hall, West Ham, E.	do.
New Floor Surface Drainage, &c.	Lambeth Guardians	Clerk to the Guardians, 61, Bartholomew-close, E.C.	do.
Iron Fire Escape Staircases, Refractory Work	Holborn Union	S. R. J. Smith, Architect, 15, York Buildings, Adelphi, W.C.	June 21
Painting Ramps, &c., at Workhouse	Balling Town Council	W. & T. R. Milburn, Architects, 25, Fawcett-street, Sunderland	do.
Stalling and Cart Sheds at Central Depot, Longfield-av.	Goring, &c., Dist. Gas & Water Co.	Council's Engineer, Town Hall, Balling, W.	June 25
High Pressure Rising Main, &c.	County Borough of Sunderland	G. H. Robus, Mansion House Chambers, E.C.	June 26
Quarter Sessions and Police Court Buildings, &c.	London County Council	Architects Department, 15, Chancery Cross-road, W.C.	June 21
Cottage Dwellings, Croydon	do.	G. Morgan & Sons, Architects, Carnarvon	June 30
Additions to Chapel, Penbroke Dock	Darley Dale (Derbyshire) U.D.C.	G. & F. W. Hodson, Engineers, Loughborough	do.
Water supply Works	Watford U.D.C.	Offices of the Council, 14, High-street, Watford	do.
Furnishing of Schools at Parkstone	Ramsey School Board	J. W. Start, Architect, Colchester	July 1
New Orphanage	St. Pancras Female Orphanage, &c.	S. G. Goss, Architect, 3, Broad-street-buil-line, E.C.	do.
Retaining Wall and Ballings at Recreation Ground	Paddington Borough Council	Borough Surveyor, Town Hall, Paddington	July 1
Drainage Works	Steyning West R.D.C.	Not stated	No date.
Burn House, Gosh, Glynysgrw, Wales	do.	W. D. Davies, Bryn Bernard, Wales	do.
Additions to Premises, Netherfield	do.	R. Whitbread, Architect, Carlton	do.
Well Sinking, Cheltenham, near Derby	do.	W. Crane, Forest-road, Nottingham	do.
Sewerage Works, Bridge-street, &c., Long Eaton	do.	E. H. Balcay, Surveyor, Long Eaton	do.
Surveyor's Materials	Keighley Corporation	W. H. Hopekinson, Keighley	do.
Hospital Management Centre at Alexandria School	Watford School Board	W. H. Syme, Architect, 1, High-street, Watford	do.
Painting, &c. Works, Lincoln, Pontefract and Scarborough	War Department	T. R. Office, Fishergate, York	do.
Restoration of St. James's Church, Grayne	Restoration Committee	Arnold Baker & Day, The Precincts, Rochester	do.

## PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
Clerk of Works	York Electric Lighting Committee	3l. 10s. per week	June 13
Working Foreman	Rochester Corporation	2l. 2s. per week	June 22
Builders' Engineers	Metropolitan Asylums' Board	Office of the Board, Finsbury-cir., E.C.	do.
Franchisesman	C.E. H.M. Dockyard, Pembroke	Not stated	No date.

Those marked with an asterisk (\*) are advertised in this Number.

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## PRICES CURRENT OF MATERIALS.

\* \* Our aim in this list is to give, as far as possible, the average prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

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Grizzles	1 12 0 "
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Shippers	2 5 0 "
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Best Fareham Red	3 12 0 "
Best Red Pressed	5 0 0 "
Ruabon Facing	5 0 0 "
Best Blue Pressed	4 5 0 "
Staffordshire	4 12 0 "
Do, Bullnose	4 12 0 "
Best Stourbridge	4 8 0 "
Fire Bricks	4 8 0 "
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Best White and Ivory Glazed	
Stretchers	13 0 0 "
Headers	12 0 0 "
Quoins, Bullnose, and Flats	17 0 0 "
Double Stretchers	12 0 0 "
Double Headers	15 0 0 "
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Two Sides and one End	20 0 0 "
Spalls, Chamfered, Squints	20 0 0 "
Best Dipped Salt Glazed Stretchers and Headers	12 0 0 "
Quoins, Bullnose, and Flats	14 0 0 "
Double Stretchers	15 0 0 "
Double Headers	14 0 0 "

## PRICES CURRENT (Continued).

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NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.	
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6 in. Rubbed two sides	— " "
Ditto	— " "
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3 in. self-faced random flags	0 5 "
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3 in. do.	1 2 1/2 "
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in. in.	£ s. d.
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20 x 12 "	13 10 0 "
16 x 8 best	7 0 0 "
20 x 10 best blue Portmado	12 5 0 "
16 x 8 best blue Portmado	5 0 0 "
20 x 10 best Eureka unfading green	15 6 "
20 x 12 "	17 1 6 "
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18 x 10 "	9 5 0 "
16 x 8 "	6 10 0 "







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Garston, Liverpool ..... £156 10

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**HUGHENDEN (Bucks).**—For the erection of additions to new stables, Hughenden Manor, for Mr. Coningsby Dineen, M.P. Mr. Arthur Vernon, F.S.I., architect, 29 Cockspar-street, London, S.W., and High Wycombe, Bucks.:—  
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**LLANDEGLA (Wales).**—For the erection of a chapel. Mr. Wm. Moss, architect, 2, Temple-row, Wrexham:—  
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S. Moss ..... 1,200 | poeth\* ..... £1,180  
T. Williams ..... 1,199

**ST. AUSTELL (Cornwall).**—For the erection of two villas, for Mr. W. Rowse. Mr. J. Mutton, architect, Charlestown, St. Austell:—  
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[Architect's estimate, £610.]

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# The Builder.

VOL. LXXXIV.—No. 3156

JUNE 23, 1905.

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### Sculpture at the Royal Academy.



S with the paintings this year so it is with the sculpture at the Academy; there is nothing that can be called a great work, but there are a good many of high merit and interest;

though it can hardly be said that this year, as in several previous years, the sculpture is the finest part of the exhibition.

Sculpture is expression through form and modelling, but one may distinguish two types of sculpture; that which aims simply at the representation of a moment of action or attitude in the figure, without conveying any meaning or sentiment beyond the mere beauty or interest of the figure itself; and that which is intended to convey a thought which could be expressed in words. All other qualities being equal, the latter is no doubt the higher order of work. But after all, it is execution more than any other quality which decides on the pre-eminence of a work in sculpture; not, of course, the mere detailed finish of a costumed figure on which the modern Italian sculptors pride themselves, but that kind of execution which implies the perfect mastery of the pose and balance and of the anatomical construction of the figure, and the perfect sense of what can be expressed in the material, which together go to make the indefinable something which we recognise as "style." And a mere modelled figure with style, though with no special story or *motif* expressed in it, is of more value than a poetic conception which does not rise to the quality of style. Such a work, in fact, makes its own ideal meaning, though such as can be only felt and not defined. As to mere likenesses, and those slighter efforts which may be called *genre* work in sculpture, they of course occupy an entirely inferior plane, though they may be interesting in their way.

We have examples of both of the two

principal types of sculpture in works that are in pretty close juxtaposition in the Central Hall. Mr. Bertram Mackennal's group "The Truth-seeker," is a work embodying a special thought. A nude figure of a man, with a face expressive of set and earnest purpose, is just taking a stride in advance partly across the body of a woman reclined on her side, to whom he pays no attention. Evidently the artist has meant to sum up in the momentary action of these two figures the position of the man who quits human love in the search after intellectual truth. It is a fine conception in symbolic sculpture, and expressed with dramatic vigour; but *quâ* sculpture, and in the matter of style, it hardly touches the highest point, and we have seen works by the same artist which, with less of symbolic meaning, were superior in design. On one side of this is to be seen the work of Mr. Oliver Wheatley, whose object in general is obviously to exhibit human pose and action, as he did in his admirable figure of "The Potter" last year. His "Sons of Poseidon" represents two youths swimming, one of them apparently exclaiming at the other for coming into collision with him; parts of their bodies emerge from a roughened surface representing the water; but the difficulty in treating swimmers in sculpture is that to show much of the figures they have to be represented as swimming higher out of the water than would be quite practicable, except by a momentary effort, and consequently the effect is not altogether truthful. This is a spirited attempt at a difficult subject, but we cannot consider it a very successful work. On the other side of Mr. Mackennal's group is Mr. Taubman's "The Butterfly," a statue, with a bronze-green patina, of a nude young girl kneeling and looking at a butterfly perched on her upstretched hand. Nothing could be more simple in idea, but the work as a whole is complete in conception and execution—it has the quality of style, in short, and is one of the best pieces of sculpture of the year.

The most remarkable and complete among the works which embody a poetic idea is Mr.

Toft's "Spirit of Contemplation," a design in which thought and style are perfectly combined, and which is unquestionably the most notable piece of sculpture in the Central Hall; but this is a bronze replica of a work previously exhibited in plaster, and which we have before described and commented on. Next to this, one of the most serious works in aim and feeling is Mr. Henry Pegram's large relief entitled "A Monument," in which the idea of a memorial to the dead is treated somewhat after the manner not infrequently adopted by M. Mercié in monumental sculpture; a draped figure of a mourning woman is shown in relief on a slab designed in a certain architectural fashion, the upper portion of which is occupied by a medallion portrait of the subject of the monument. This is a fine and pathetic work, and the architectural portion is well designed; but while the subject reminds one of the eminent French sculptor one cannot help feeling how far it falls short of Mercié in the quality of style; both the mourning figure and the portrait seem somehow too *prononcé*; there is something hard and matter-of-fact about their design and execution which is at variance with the poetic ideal aimed at; it is difficult to say why, but those who are familiar with the best French sculpture of the day will feel the difference between this and a similar subject as it would be found treated in the Salon; the difference, perhaps, between the genius of the English and the French mind.

Among the other works in the Central Hall a prominent one is Mr. Gilbert Bayes's "The Fountain of the Zodiac Belt," not a very intelligible title; the design consists of a nude female figure, of rather prosaic realism and not very beautiful, who holds a long and wide belt which assists the composition, and drops in a vertical line before her a cord supporting some kind of bag or net, we know not what, at the end of it, which seems to form the issue for the water; semi-circular seats are scooped from each side of the pedestal, and two projecting corbels in front of the pedestal, supporting nothing, are themselves supported each by a small group of four horses, arranged quadriga-fashion, which are quite out of scale



with all the rest of the design and seem to have no kind of relation to it. This is a clever and original work, and has plenty of character but no style whatever; it is, in fact, eccentric, and eccentricity is a dangerous quality in sculpture. Mr. Bertram Pegram's "Prayer" is a small work of much charm, a face in relief surrounded by cherubs' heads. In "Pegasus" Mr. Gilbert Bayes shows a horse's head conventionally treated after the Parthenon model, with portions of the wings proper to Pegasus shrouding it on each side; a good bit of work of its class. Miss Pownall's "The Harpy Celæno" has vigour and power of modelling, though it is a revolting subject for sculpture. In "Paradise Lost," a marble bas-relief, Mr. Arthur Walker shows a powerful conception of Satan at the ear of Eve—powerful at least in the malicious expression of the tempter, for the face of Eve is rather weak. Mr. Lucchesi's statuette illustrating a woman of Carthage stringing a bow with her long hair cut off for the purpose is one of those pretty and correct works (of which there are other examples in the Academy) against which there is nothing to be said except that they leave one totally indifferent. Mr. Reynolds-Stephens's pedestal group, "Love's Crown," placed in the centre of the hall, does not rise higher than *genre* sculpture, but is very good as such; the "crown of love" is the infant, and the difference of expression in the heads of the father and the mother, with the touch of tenderness in the countenance of the latter, is happily imagined and true to nature. It is a small-scale work in bronze and other metals, with a decoratively-treated pedestal.


Of the works which hold the middle of the floor in the Lecture Room the best and most interesting is Mr. Colton's marble group, "The Springtide of Life," which has already been exhibited in plaster; one of the works which represents a moment of life and action, in this case of two children, reproduced for its own sake. This has as decisively the quality of style as Mr. Taubman's "Butterfly," and is one of the most completely satisfactory works of the year. Miss Maryon's group of two children, under the title "Listen," is a pretty work of the same class, though by no means equal in style to the last-named. Mr. Brock's "Contemplation" is a beautiful and expressive female head crowned with masses of hair; we hope the wooden pedestal is only temporary; some richer and more durable material would be more in keeping. Mr. Leslie's large figure, "The Birth of Aphrodite," hardly succeeds in giving new interest to a very old subject. Mr. Armstead's fine and dramatically expressive half-size figure, "Remorse," is another replica of a work previously exhibited in plaster. Mr. Herkomer's "Phantasy in Copper and Enamel" is—a phantasy, and not a very happy one.

Among the works placed round the walls, Mr. Frampton's bust of Chaucer, to be placed in the Guildhall, is a fine powerful work, but as a conception of Chaucer seems rather too grave and serious; to be sure, it appears intended to represent the poet in middle life, and Chaucer can be serious and even tragic enough at times, but there is no expression of the naïveté and light-hearted interest in life which is, after all, the central impression derived from Chaucer's poetry as it has come down to us. Among other busts Mr. Hartwell's "Study of a

Head" is very beautiful; Mr. Bertram Pegram's bronze bust entitled "Girlhood" is noteworthy for expression and character; and Mr. Brock's two portrait busts of the late Mr. Cecil Rhodes and of Mr. Chichester are masterpieces of marble-cutting—that is the right term to use, for they are not finished up, they are boldly-carved portraits with the marks of the chisel obvious upon them; the characteristic and vigorous work of a sculptor who is master of his craft. Among works of the more imaginative class is Mr. Frampton's bas-relief in bronze, "Part of a Memorial to a Hero," a piece of work which ought to be judged perhaps in relation to the whole of which it is said to form a part; as it is, its meaning seems rather mystic and uncertain. Miss E. M. Rope exhibits two wooden carved panels for the front of an organ chamber—children playing on instruments and singing; they are very well treated for their position, carved in very low relief so as not to depart from the subordinate character proper to a panel. In this respect it may be doubted whether Mr. Simonds's four "Panels from Drawing-room doors at Bradfield House" are not in too high relief for the position of a panel in a door, though this depends of course on the architectural treatment of the door and its framework; they are dancing figures poised in the middle of the panels, and may be taken to represent the Four Seasons, though this is not so stated. Mr. Anning Bell's painted bas-relief of an angel for a reredos in Park Church, Glasgow, is a kind of decorative work which must be regarded in its relation to the effect of the whole reredos (not illustrated); taken by itself it is rather pointless. Among other things not to be passed over are Mr. Frampton's bronze bust of Mr. Strang; Mr. Harold Parker's pretty miniature bust of a child's head; Mr. Nicholson Babb's two little children "In Slumber-land"—a bronze miniature; Mr. J. Crossland Maclure's little statuette of "Andromeda," a draped Andromeda, remarkable for graceful and expressive lines of the figure; Miss Ruby Levick's "Sledge-hammerers," a bas-relief of artisan labour; Mr. Henry Pegram's memorial bas-relief to Sir John Stainer; Miss Florence Steel's design for a chain (we should rather say necklace) for the Mayoress of Preston, an excellent bit of decorative metal-work; and Miss Dorothy Rope's little silver bas-relief, "Summer is y Cum in In." A work which perhaps hardly comes properly under the domain of sculpture, though there is nowhere but the sculpture-room to put it in, is Mr. Reynolds-Stephens's "Part of a church screen, in metal mother-o'-pearl, marble &c." This is an effective design, consisting of brass stems of fine curvature of outline which branch out above into a thick metal foliage of somewhat too realistic character. It is clever work, but there is too much of "part nouveau" about it; it is without the reticence and purity of line which belong to the best style of design in metal work. This kind of design may for the present be attractive for its novelty, but it is a false style of art, or rather it is a want of style, and will not retain its place when the present fashion has passed away.

We shall give some illustrations of the sculpture at the Academy in another issue; for the present our illustration pages are filled, but we did not wish longer to defer notice of the sculpture at the Academy.

#### SOME UNSOLVED PROBLEMS IN ENGINEERING.

N the first lecture of the "James Forrest" series, delivered in 1892 by the late Sir William Anderson, the subject chosen was "The Interdependence of Abstract Science and Engineering." At the present time, the Council of the Institution of Civil Engineers, by whom the lectureship is administered, felt that new ground might advantageously be opened, and, in connexion with the lecture delivered by Mr. W. H. Maw on Tuesday last, the desire was expressed that the historical aspect should be left alone, and that the lecture should be devoted to the indication of some directions in which the further aid of the physicist would be of immediate service to the practical engineer. As Mr. Maw told his audience, the suggestion was made that his lecture should be entitled "Unsolved Problems in Engineering"—a very wide subject indeed—and the lecturer wisely adopted the more modest title which is indicated above. The lecturer made further exercise of a wise discretion by regarding the term "problems in engineering" in a restricted sense, leaving alone far-reaching composite problems which are dependent for successful solution upon several more or less fundamental factors that are also problems awaiting solution. The lecture with which we are now concerned dealt entirely with a limited number of these subsidiary but important problems.

In what we may term the first part, the question of power was considered in various aspects. After some general remarks upon the importance of the economical generation and distribution of power, and an explanation of the important difference between economy as understood by the physicist and by the steam-user, Mr. Maw proceeded to direct attention to some points awaiting final settlement in connexion with the steam-engine. Wasteful though the steam-engine must necessarily be, even in its most improved forms, it still compares favourably with other sources of mechanical power, and the lecturer was well advised in according prominent place to this motor. The general question propounded for consideration was how further progress could be secured. Even upon a detail so apparently simple as the steam-jacketed cylinder, Mr. Maw showed that there is great variation in actual practice, and a lack of knowledge of that exact and definite nature which alone is of real scientific value. Therefore he asked for much more thorough and systematic investigation than has hitherto been accorded to this particular department of work. Another problem relating to steam-engine economy mentioned as still remaining unsolved was the precise economic effect of interheaters, and here again Mr. Maw found available data to be far from satisfying, besides presenting discrepancies that required clearing up. Superheating is a somewhat kindred subject which has received attention within recent times, after having been tried and discarded in the early years of the steam-engine for reasons that no longer exist. The lecturer echoed a generally entertained sentiment in saying that we really wanted accurate information as to the extent to which the most advanced steam-engine practice could be improved by the application of superheated steam. The hint was also given that the advisability of



still higher pressures than are now used might usefully be investigated, and attention was drawn to the fact, overlooked by many engineers and others, that we are still without any direct determination of the physical properties of steam exceeding 350 lbs. per square inch. Altogether, the lecturer thought that the steam-engine still afforded ample field for experimental research of a kind differing widely from ordinary "engine trials," and carried out by collaboration between skilled experimentalists on one hand, and men specially qualified to analyse and to weigh evidence on the other.

Much said by Mr. Maw about the steam-engine applies equally to the internal-combustion motor, but he proceeded to emphasise the desirability of further research in this direction. We have already alluded in our columns to the work of the Gas-engine Research Committee appointed by the Institution of Mechanical Engineers, and although the two Reports issued by that body are of great value, Mr. Maw was perfectly justified in the remark that they have done little more than to touch the fringe of the subject and to afford an idea of the difficulties to be surmounted in carrying out investigations of that character. With the remark that internal-combustion engines alone afforded a crop of unsolved problems sufficient to occupy a large staff of investigators for several years, the lecturer turned to construction, a department of engineering in which our readers are directly interested. In his preliminary remarks he said that, in determining the ultimate strength of a structure we had to consider the maximum forces which may be brought to bear upon it, the stresses induced by these forces in the various elements of the structure, the physical qualities of the constructive materials used, and the extent to which these qualities may be affected by errors of treatment or defects of workmanship. The remark was added that if all these items were known with strict accuracy, it would then follow that an absolutely reliable structure could be built without any excess material whatever. Such conditions were recognised by the lecturer as unattainable in actual practice, but we may remark that even assuming them to be secured, it would not be right to build even a theoretically "reliable structure" without excess material, because it is by no means infrequent for the original load, or duty, of a structure to be increased in the course of its life. Subject to this correction, however, we have no fault to find with the suggestion that "factors of safety" might be more properly named "factors of ignorance." The lecturer then passed on to consider in general terms the effects of wind-pressure, and, among other points, he raised the interesting question as to the action of wind on the lee side of roofs—a matter on which the experiments of Irminger were said to have thrown much light, but which still requires further investigation. Turning next to the theory of the plate-web girder, Mr. Maw alluded to the well-known fact that much information was still wanting, and he mentioned the fact that, although Sir Benjamin Baker called attention twenty-five years ago to the fallacies involved in the accepted ideas as to the stresses on rivets in plate-girder flanges, these ideas and formulas founded upon them still found a place in our text-

books, with many other things that would have been abolished long ago if experimental research had been undertaken on a really practical scale. The latter is a very important point, and it would be distinctly interesting if some one with the necessary qualifications could be persuaded to write a paper on the many inaccuracies in such guides to knowledge, as well as in the pocket and note books so largely used in every engineer's office. The remaining part of the lecture was chiefly devoted to the physical properties of steel used for constructive purposes and in tool-making.

The matters discussed in connexion with steel of the former kind related to repetitions of stress, oil tempering, annealing, the elastic limit, elastic fatigue, microscopical examination, the decay of metals, thermal treatment, and several points of direct interest to the steel-maker. Upon all these the lecturer asked for further investigation, and in speaking of alloys of iron with other elements, he gave some interesting notes upon the series of remarkable alloys, which, under the name of "Invar," are now being largely used in France for the manufacture of standard gauges, pendulums, and similar objects. The striking feature of these alloys—containing about 33 per cent. to 36 per cent. of nickel—was stated to be their exceedingly small change of volume under variations of temperature, their linear expansion and contraction under the influence of heat being only about one-tenth that of platinum, the alloys being thus practically insensible so far as atmospheric changes were concerned. The result attained was said by Mr. Maw to be due, not merely to the proportions of the constituent metals, but also to the special treatment to which the alloys were subjected. This point is most significant, and leads directly to the thought that the most important results are likely to follow future investigation as to various alloys of iron. In dealing with tool-steels, Mr. Maw directed special attention to the rapid tool-steels, such as the Taylor-White steel and its successors, materials which have brought us face to face with an apparently abnormal state of affairs, again indicating how extremely limited is the knowledge at present available as to the materials in common use.

Having dealt with the subjects to which reference has now been briefly made, Mr. Maw expressed the difficulty he felt, within the time at his disposal, of doing anything like justice even to the modified title chosen for his lecture; and, in conclusion, he referred to the growth of electrical engineering—in which engineers and physicists have worked together hand in hand—as constituting a great object-lesson, sufficient in itself to abundantly emphasise the fact that the progress of engineering was indissolubly bound up with the progress of physical research.

#### GREEK ART AT THE BURLINGTON FINE ARTS CLUB.



THE loan collection of objects of Greek art which a Special Committee of the Burlington Fine Arts Club has got together must rank as one of the very best exhibitions which the club has ever opened. The large and interesting collection of coins demands special study and attention, as do the two cases devoted to gems of the Greek and Græco-Roman periods. And although we

miss some of the famous gems in the possession of Mr. Alfred Higgins, the distinguished collector and member of the Club, there are a great many exquisite examples of the art of gem engraving.

The first survey of the gallery and its contents leaves one with the impression that there is almost too much in the room; certainly more than enough to hinder quiet appreciation of the finest exhibits. The larger objects ranged round the room are for the most part busts and small "torsi." In viewing the latter, one becomes conscious of a distinct feeling of disappointment. They are not so good as many beautiful Greek torsi in provincial museums which are little known, and which, both for the beauty of their motives and the dexterity shown in the workmanship, should have found places in an exhibition of this kind; and it cannot be urged that the Club makes no appeal to museums, for we observe that the South Kensington Museum figures in the list of exhibitors.

Of the larger objects, great interest attaches to the fragment of the Parthenon frieze (No. 18), which is placed over the fireplace in the Club gallery. There is not much of it, but what there is repays study. It has been carefully described by Dr. A. S. Murray in the Royal Institute of British Architects' "Journal," 1902, No. 2.

Of the busts, a certain marble head of a girl (43) at once attracts attention, not only by the delicate refinement in the modelling, but by the extraordinary canopy which has been erected above it, presumably with a view to controlling the light. Concerning this head the cataloguer is discreetly silent, remarking that a new attribution by Mr. Marshall, of Lewes, is to be looked for. One cannot, by the way, sympathise with the comparison of the workmanship to that of the Renaissance. We should not, however, be surprised to learn that it is not Greek work at all.

Lord Lansdowne lends a very magnificent bust of an athlete (No. 40), an antique copy of an original of the fourth century B.C., mended skilfully in later times. Humanly speaking, the face is one of the most attractive in the room, and, especially in its profile, quite unlike any other example of Greek sculpture. It was found in the villa of that extraordinary lover of Greek life and thought, the Emperor Hadrian.

It is sometimes said that the Greek could not, and would not, utilise baby form as a basis of design. We claim that the much-abused child on the arm of the Praxitelean Hermes, which now finds shelter (Zeus be praised!) in Olympia, is a real baby with all the charm of infantile humanity in its little body; and it is delightful to note in the gallery at Savile-row so many examples of the Greek appreciation and use of child life. The winged Eros (No. 30) holding a socket of a torch in its left hand is, perhaps, the most delightful example which has ever been shown in London. It dates from the end of the second or the beginning of the first century B.C., and is very sympathetically described in the catalogue. Mr. Pierpont Morgan is the fortunate possessor of this and another baby statuette (Case A, No. 6), which we do not quote as an example of similar treatment or skill, but merely in the course of thought concerning the Greek artist and child life. Nos. 16 and 17 in the same case are further illustrations to the point.



In this case, too, is a bronze Aphrodite (No. 9), which is, perhaps, one of the best examples of archaic work in the room. One must not lose, in this little group, exhibit No. 28, which is a peculiarly beautiful example of the tall bronze lamp-bearer, called by the Greeks *λυχνόφορος*, but often loosely classed as a candelabrum. This particular example is of the fourth century, and of the pattern known as Etruscan. The poet Pherecrates makes mention of the style. The whole design is not only admirable in its workmanship, but is artistically full of vigour, and tinged with the humour of a mediæval bestiary.

In Case B there are many beautiful things. One remembers two perfect little bronzes in the possession of Mr. C. Newton Robinson, No. 56, a youth poised with the easy grace beloved of the Greek artist, and No. 55, a little child. This is mistakenly described as an "Eros" because of the little knot in the hair over the forehead, an obvious baby decoration common to many nations, for which reason, naturally enough, it makes its appearance on the heads of baby Cupids. This is to state the argument the right way round. In this same case the exhibit No. 37, lent by Mr. E. P. Warren, is of peculiar interest. It is a delightful piece of simple modelling, described as "of the later archaic period." It is a little difficult to understand why the cataloguer calls it "The Diver." It would be more reasonable to regard the curious position of the hands as an example of *χειρονομία*, the movement of the hands peculiar to certain dances, especially pantomimic performances.

In Case C is arranged another delightful group of small bronze figures. Very attractive is the freedom in the treatment of the figure No. 80, lent by Sir T. D. Gibson Carmichael. It looks as if it had formed part of some other object of art. The bronze vase handle (No. 82) in this case is really an astonishingly graceful piece of work, and deserves a better position in the group. It is in form the figure of a menad, the feet together, the elbows close into the waist, the fore-arms extended, and the whole figure bending forward with faultless grace. The modelling is very simple and restrained, and the mass of the shoulders is dexterously broken up by the lines of the *nebris*. It was formerly in the Forman collection. The transition from this to the shaggy head of a centaur (No. 71) in the same case is extreme, yet it does no more than forcibly remind us of the extraordinary catholicity of Greek culture and craftsmanship. It is of the school of Pergamon, and is in the possession of Mr. E. P. Warren.

Case D marks an attractive spot in the room. In it may be seen a beautiful piece of Greek silversmith work of the first century B.C. It was exhibited at the Burlington Fine Arts Club's silver exhibition in 1902. Near it stands a bronze Kantharos (No. 112), faultless in its form and in the springing of its handles. More than one visitor has been heard to remark that it should be copied in modern silver. No one can pass the fluted handle of a vase No. 107. It is one of the most beautiful specimens of craftsmanship in the room; and it would be well to dwell at this moment upon the extraordinarily interesting bronze crater No. 46, one of the best exhibits in the Club. It stands in the middle of the right-hand wall as the visitor enters. The shape of this vessel, which is of the first

half of the fifth century B.C., was frequently copied in earthenware, but is rare in metal. The enrichment of the mouldings, the bands of delicate low-relief ornament, and the design of the handles leave nothing to be desired. The vessel will be familiar to many connoisseurs, inasmuch as it was lent for many years to the South Kensington Museum.

The exhibition contains a good number of very carefully collected terra-cotta statuettes. It is but a short time ago that this branch of Greek art was very much neglected by the average man interested in antiquities, and, indeed, at the present moment there is really no good book in our language dealing with the subject. Now, however, that the first enthusiasm has worn off, it is very generally remembered and recognised that these little figures were made in great numbers, and many of them of surprisingly disagreeable proportions. In many cases figures, interesting in the treatment of the drapery or in the elegance of the colour scheme, which is still possible to realise after centuries of interment, are so inordinately long in the body, or so clumsily executed in other respects, that one experiences little pleasure in viewing them. The really good terra-cotta figures, however, rank as some of the best examples of Greek art. Cases E and F in the present collection of such figures contain some very perfect examples of the Tanagra period, notably in E No. 2, No. 11, and No. 37; in Case F No. 64 and No. 82, the latter, lent by Mr. Alfred Higgins, has an additional interest when we remember that there is an identical figure in the Louvre collection.

There are a great number of very fine vases and dishes, indeed so many that it is very difficult to pick out the most pleasing. Several beautiful and very interesting pieces hail from Castle Ashby, and one, in Case G (No. 24) from the Royal Museum at Canterbury. In the latter example it is perhaps the drawing in red on a black ground of a youth with high-strapped *endromides* which charms one; it is beautifully drawn and disposed on the side of the vase, and there is a delightful negligence in the soft hair hanging over the neck.

The studies of Greek life which these figure compositions on Greek pottery yield us are endless and of enthralling interest.

In Case I (76 and 77) are two fine examples of simple glazed earthenware. No one is likely to miss the two-handled vase in blue glass with prismatic iridescence which stands on the right of Case N, or the lovely little cameo relief, in white opaque glass on a purple transparent ground, of helmeted Athena, No. 4, in the same case.

The gems and coins would require an article to themselves, but without them there is enough in the exhibition to help us towards what Goethe called "*Gewahrwerden der griechischen Kunst*"—the *finding* of Greek art.

#### NOTES.

WE are very glad to learn that Mr. Aston Webb, R.A.,

Wednesday promoted from the position of an Associate to that of a full member of the Royal Academy. On this we may also congratulate the Royal Academy, because their selection of an architect seems to show that they have recognised the fact that architecture is in rather a weak condition in their body at

present, and that some more energetic representatives of the art are needed (for the position of A.R.A. is a merely complimentary one), and their selection of Mr. Aston Webb in particular may, we hope, be taken to indicate that the painters and sculptors are beginning to understand that architecture means the power of planning a great building, as well as that of introducing æsthetic detail.

THE EXPORTATION OF WORKS OF ART FROM ITALY.

THERE is no doubt that we may expect a larger amount of exportation of works of art from Italy from the present time. Last year a law was passed by the Italian Government which comes into operation during the present month. Under the old law, antiquities and objects of art were not allowed to be exported if they were what we should call in this country heirlooms. Under the present law, however, it seems that articles belonging to ecclesiastical or other public collections are alone inalienable. There still exists, however, a heavy export duty, though this has now been improved since it is to be the same all over Italy. Objects of art under five thousand liras in value will be liable to a duty of 5 per cent., which rises on a sliding scale according to the value of the article until it reaches a maximum of 20 per cent. It is not likely, however, that this duty will prevent the exportation of pictures of statuary from Italy. It is only rich private individuals or public institutions who are likely to purchase works of art from Italy, and this additional duty will of course be part of the purchase price and be paid by the buyer. As, however, the value of the article is to be fixed by Government officials, we fear that there will be many openings for inducing valuations which are not correct.

IT is not at all improbable that the Cabinet differences will materially affect the fate of the London Education Bill. It is true that it has now passed through Committee, but there are several opportunities still open for discussion. It has to be borne in mind that the Bill in its present form is unwelcome to every one. The idea with which it started—of giving the Borough Councils a large share in the education of London—has now come to an end, so that, in a word, all that the Bill does is to transfer the duties of the London School Board to the County Council. Nothing can be clearer than that such a change would be no benefit to the education of London. We do not say that it will make it worse, but certainly it will not make it better; in these circumstances there is no little possibility that the Bill may be dropped altogether, the only reason for its continuance would be to assist the Voluntary Schools. But the dissension in the country arising out of the Education Act of last year is becoming so accentuated that the Government may prefer not to enlarge the scene of combat by adding London to the Nonconformist battle-ground.

THE case of Wright v. Lawson, although it lays down no new principle of law, is worthy of one word of comment because it is a decision of the Court of Appeal upon a question of ever recurring importance between landlord and tenant. The defendant was lessor of

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certain premises in King's-road, Fulham, which, by his lease, he was compelled to "substantially and effectually repair, uphold, and maintain." The County Council, under the London Building Acts, served the defendant with a notice that a bay window was in a dangerous condition and requiring him to take it down or make it good. Owing to the age and structure of the house it was impossible to restore the window to its former condition, and the defendant therefore set back the window into the main wall. The plaintiff now sued him to replace the bay window, but the Court have held that the defect arose from the inherent condition of the structure, and that the defendant was not liable under the covenant. The only way in which this window could have been reconstructed would have been by supporting it on pillars or some other support which would have created a new structure, an obligation quite outside that imposed upon the lessee by such a covenant.

It is not often that such summary justice is meted out to local authorities who exceed their powers, as that recorded in the recent case of *Consett Urban District Council v. Crawford* (19 L. T. Rep. 508). A notice had been served on the respondent calling upon him to abate a nuisance on his premises on July 16, 1902. On July 24, seven members of the Council, with two of the officers and the County Medical Officer of Health, making a round of inspection, came to the respondent's premises, and entered a yard, two of the councillors, however, remaining outside. The respondent came up to the two councillors who were standing outside, and on hearing that the rest of the party were inside he placed a padlock on the door and locked it. The Council sought redress by laying an information against the respondent under Section 306 of the Public Health Act, 1875, for having wilfully obstructed them in the execution of the Act; but this consolation was denied them, as the Divisional Court decided that, as they had not complied with Section 102 of the Act they were only trespassers. It is somewhat curious that Section 102 does not in terms apply to the facts of this case, as it only contemplates cases where either permission has been given to enter, or where permission has been refused, and not to where permission has not been asked. The Court have now laid it down that permission must either be obtained from the occupier of the premises, or, after having been refused, obtained by order from the magistrates; and it is to be noted that if this latter course has to be resorted to, the magistrate has a discretion in determining, not whether a nuisance exists, but whether necessity has been shown for inspection—see *Wimbledon Urban District Council v. Hastings*.

THE recent case of "Lambourn Landlords and Trade Fixtures *v. McLellan*" decided an interesting point between landlord and tenant as to trade fixtures. The defendant was the trustee in bankruptcy of the lessee of certain premises taken on lease by him as a "boot and shoe manufactory." The lease contained a covenant that the premises at the determination of

the term should be given up, together with certain fixtures (not machinery or trade fixtures), and continued—"and all other erections, buildings, improvements, fixtures, and all things which now are or which at any time during the said term hereby granted shall be fixed, fastened, or belong to the said premises." The lessee had brought upon the premises certain machinery, admittedly trade fixtures, which were fastened to the floor and walls by screws. Under the above covenant the lessor claimed the trade fixtures, which except for the terms of the lease would certainly have been the lessee's property. The Court of Appeal decided against the claim, on the ground that where in a lease general words follow particular words, the general words must be limited in their application to things of the same *genus*. In this lease the particular words only embraced landlord's fixtures, and therefore did not extend to defeat the right of the tenant to his trade fixtures.

IN the recent case of *Urban District Council of Stretford v. Manchester South Junction Altrincham Railway Co.*, in which a railway company had been sued under Section 150 of the Public Health Act, 1875, by the Urban Council for expenses incurred in making up a road on a piece of land belonging to the railway, and which the railway company had made as an approach to their station, two deeds were put in evidence to show that the railway company had acquired the land, intending to make it a street or road, and, moreover, had sold some superfluous land, covenanting to leave this road as a public street or road. The railway company, amongst other defences, contended that such covenants in the deeds were *ultra vires* and outside their statutory powers, as they could not dedicate a road to the public. Lord Justice Vaughan Williams, in the Court of Appeal, whilst deciding against the railway company on other grounds, intimated a strong opinion that, even if this defence were substantiated, it would not interfere with the application of the section to the road in question. It would certainly appear a strange anomaly if the effect of *ultra vires* conduct on the part of the company could relieve them from such a liability and place it on the ratepayers.

Vibration on Tube Railways.

THE last of the electric locomotives on the Central London Railway will shortly be withdrawn and every train will be made up of two motor and five ordinary cars. It will be remembered that the Committee appointed about two years ago to investigate the alleged nuisance due to vibration caused by the trains arrived at very definite conclusions. They reported that the vibrations were very much greater in some houses than in others, and that different rooms in the same house were not similarly affected by the same train. It seemed also to be a matter of chance whether a given train caused a slight or a severe vibration. An analysis, however, of the results obtained by a vibration recorder proved that the locomotive was mainly responsible for the vibrations which set up such excessive resonance effects. Each axle of the old locomotives supported a weight of about

eight tons unrelieved by springs. The load in the new cars which is not spring-borne is less than two tons. The weight of the old seven-car train with gearless locomotive was about 138 tons, including its full complement of 336 passengers. The new trains weigh about 113 tons, but seat twelve fewer passengers. The motor cars are simply ordinary cars modified, so that a truck carrying two motors of 100-horse-power each can be fitted at one end. The combined pull of the motors when the train is running at fifteen miles an hour is nearly equal to a weight of three tons. With the new trains the vibrations are practically non-existent. Lord Rayleigh and the other members of the committee are to be congratulated, not only for finding out the exact cause of the vibrations, but for describing the method by which this difficulty could be overcome.

THE following is an epitome of a statement published by the Motor Racing on the Roads. Automobile Club Journal of

the treatment of the roads with a view to securing safety during the Gordon-Bennett motor race: Certain bends are to be straightened, right-angle turns to be rounded off, the hedges to be cut down for 200 yards on the approach side of each corner. The road is said to be closed at 6 a.m., and all the cross-roads blocked; the public are to be excluded from the road, and 2,000 constabulary to be employed. It would be interesting if the Club Journal had appended some account of the Acts of Parliament which confer such powers on either the Local Government Board or the County Councils, and had stated on whom the expenses were to fall, and whether the ratepayers, arbitrarily excluded from the highways, have not to bear some portion of the costs of converting the highway into a racecourse. It is some consolation to know that the statutes governing highways in England do not appear to admit of any of these proceedings; as it is in the country districts where the roads are maintained at considerable expense, the ratepayers are in an aggrieved attitude at the selfish indifference of the motor drivers to any consideration of the general public, and great dissatisfaction is felt at the Government's announcement that the promised Bill is, after all, not to be introduced this Session. In this connexion we would observe that it is generally assumed a motor car should be allowed to travel at any rate of speed on straight roads, but the question of the cross roads, which invariably intersect these main roads at short distances apart, and at right angles, is entirely lost sight of.

Engine Foundations.

EXPERIENCE seems to show that, owing to their greater resiliency, brick foundations are less trying to the working parts of stationary engines than foundations built of concrete. The weight of the material in either case may be taken at 130 lbs. per cubic foot, and as a general rule the foundation weight should be from two and a half times the weight of the engine itself, the exact proportion depending upon the type of engine adopted, and upon the outside forces exerted in belt and pump driving. When building stone or brick foundations the supporting surface of the earth should be covered with concrete to a depth of 2 ft. or 3 ft., and in the formation of foundations



entirely of concrete precautions should be taken to prevent the under side from assuming the convex form, a result which frequently happens, owing to the tendency of soft concrete to sink in the centre of a broad and deep foundation. The remedy is to form a dome-shaped bottom, which should be covered with asphalt before concreting is started, and it is also well to bond the concrete in layers 2 ft. thick.

THE Garden City Association reprint in the form of a pamphlet a series of articles written by the Secretary, Mr. Thomas Adams, and originally published in the *Dundee Advertiser*. Mr. Adams advocates the application of the principles advanced by the Association to the Naval Base about to be established at St. Margaret's Hope, near Dunfermline. It is urged that an absolutely unique opportunity for the laying-out of a model town presents itself concurrently with the scheme of the Admiralty for the establishment of a dockyard on the Firth of Forth. The permanent workshops, store-houses, and other buildings will in all likelihood form the centre in course of time of a resident population exceeding 25,000, a number that will moreover be largely increased as the great mineral resources of the locality are developed, and its trade and manufactures become extended. The deliberate formation and planning of a new town *ab initio* is a chance that seldom occurs in modern times, and we do hope that the opportunity will be taken to make a plan on fine architectural lines, and to lay out the whole town on one complete scheme, even if it can only be partially carried out at first.

THE Stationers' Company, who celebrated their 500th anniversary on June 10, originally formed a guild of booksellers, and had their first hall in Milk-street, Cheapside. In 1553 they removed to St. Peter's College, near the Deanery House of St. Paul's, which had been the home of the chantry priests. Having received a charter of incorporation from Queen Mary, dated May 4, 1557, they next migrated, *temp.* James I., to Bergavenny House, Ludgate-hill, which belonged to Henry Nevill, fourth Lord Bergavenny, in Queen Elizabeth's reign, and had been the "inn" of the Earls of Pembroke, and previously the residence, *temp.* Edward III., of John Earl of Richmond and Duke of Bretagne. In the old house, consumed by the Great Fire, were a portrait and memorial window of John Keynes, the famous printer, who traded in 1527-44 at the sign of St. George in St. Paul's Churchyard, where John Cawood, his apprentice, succeeded him. In Hansard's "Typographia" is a view of Bergavenny House, as altered for the Stationers, printed from the original block cut for the Company. The front of the present hall in Stationers' Hall-court was added in 1800 by Robert Mylne. In our number of March 30, 1889, we published an illustration of the window, executed by Messrs. Mayer & Co., after a design by Mr. Joshua W. Butterworth, F.S.A., the donor, and dedicated to Shakespeare. In 1886-7 Mr. Edmund Waller presented a large single-light stained glass window to commemorate St. Cecilia, and another in honour of Tyndale; in July, 1894, was un-

veiled the Caxton window, replacing the coloured glass by Edgington, in the north end of the hall, which had fallen into decay. At the Hall are preserved portraits of John Bunyan, Samuel Richardson and his wife, Robert Nelson, by Kneller, Prior, Steele, Dr. Hoadley, Bishop of Bangor, William and Andrew Strahan, the King's printers, and Alderman Boydell, who presented the picture by West of King Alfred and the pilgrim. In the hall was held the funeral banquet of Thomas Sutton, founder of the present Charterhouse. The Musical Society in 1683 began their St. Cecilia Feasts, which for a while consisted of a service in St. Bride's, Fleet-street (for which Purcell composed his *Te Deum* and *Jubilate in D*), followed, until 1703, by a midday feast in Stationers' Hall and the singing of an ode to St. Cecilia. Dryden, Pope, Congreve, and Shadwell rank amongst the writers of the odes, set to music by Blow, Purcell, Boyce, Greene, Clark, and other famous composers. The north block for the copyright registry, warehouse, and other offices was built in 1887 by Mr. Robert W. Mylne, surveyor (as was his grandfather, Robert Mylne, before him) to the Company.

Drawings by Mr. Herbert Marshall.

At the Fine Art Society's Gallery is a collection of water-colour drawings by Mr. Herbert Marshall illustrating subjects (as the catalogue rather oddly classifies them) "in London, France, and Holland." The London sketches ring the changes a little too much on the embankment and the Houses of Parliament, which we see silhouetted at almost all angles and from all points of view. Better than any of these we like "Chelsea" (10) with its fine and effective sky, and "Charing Cross Station from the River" (15), not only an admirable little picture but exactly like the place; some of the London street scenes are not altogether so recognisable. The finest and most important of the drawings exhibited however, are to be found among the French subjects. We may especially thank Mr. Marshall for giving us Chartres from two new points of view. Every picture we have hitherto seen of Chartres Cathedral is from nearly the same point—from the small street bridge to the south-east of the cathedral. Mr. Marshall gives us a beautiful view of it (63) from the low ground on the further side, with the river and trees as a foreground, and the town and cathedral rising grandly in the background. Another good Chartres subject is No. 41. "The Château of Amboise" (23) is a perfect picture, and almost equally fine is "A Fortress of Touraine" (31), the composition of which repeats a rather favourite scheme of Turner's—buildings and a hill crowded up on the left, the sloping line of the hill contrasting with the level lines of the plain and the bridge below.

Mr. Menpes' Paintings of the Durbar.

At Messrs. Dowdeswell's Gallery is exhibited a collection of studies in oil which Mr. Mortimer Menpes has brought back from the Durbar. The interest of such pictures is of course rather topographical and personal than artistic; but, for the kind of thing, these are pictures of quite exceptional talent and force of presentation and execution. Mr. Menpes is not afraid of

strong colour and knows how to use it; and his pictures of the picturesquely-costumed native potentates who attended the Durbar seem to bring Indian life and personality more vividly before us than any other artistic memoranda of the kind that we have seen. Single figures or heads form the majority of the subjects; but there are some very effective equestrian pictures, that for instance of "One of the Imperial Cadet Corps" (37). Then there is the native "Marriage Cart" (110) with the bullocks all covered with silver cloth of mail; the characteristic picture of "Veterans Sitting in the Sun before the Durbar" (84); "Watching the Pageant" (72) a scene in a balcony; and "Lord Kitchener Riding through the Streets of Delhi" (97), a very Western figure as the centre of an Eastern scene. The whole collection is well worth a visit.

Engravings at Messrs. Agnew's Galleries.

At Messrs. Agnew's Old Bond-street Galleries are to be seen one hundred engravings of "Beautiful Women and Children" after English artists of the eighteenth and early nineteenth centuries. This means that we have a collection of fine engravings from many of the most celebrated portraits by Reynolds, Romney, Gainsborough, Hoppner, Lawrence, and others, notable not only as beautiful portraits but as examples of various styles of engraving. Most of them are old friends, but it is pleasant to see so many together in one room. The exhibition is held in aid of the Children's Hospital in Great Ormond-street.

The Submerged Temples at Philæ.

THE collection of water-colour drawings by Mr. F. F. Ogilvie, at the Modern Gallery in Bond-street, is not only of artistic interest, but it serves to give valuable and, unhappily, very melancholy information as to the extent to which Philæ and its remains are injured, and must in time be still further injured, by the raised level of the water in consequence of the Nile Dam operations. We have had optimistic statements that the injury to Philæ would be very slight and not worth considering in view of the great practical advantages of the scheme; but Mr. Ogilvie's careful drawings, showing the condition and aspect of the temples at the highest water level, will convince any one who sees them that the place will be ruined before long. It is too late to protest now, but it is as well that people should know the truth, and we recommend those who are interested in ancient Egypt and her architectural remains to visit this exhibition and see what is the real state of things.

The Handel Festival.

We may remind the large number of our readers who take an interest in music that the Handel Festival takes place at the Crystal Palace on Saturday and on the Tuesday, Thursday and Saturday, of the following week; the rehearsal at 12 o'clock on Saturday; the Messiah on Tuesday, "Acis and Galatea" and a very interesting miscellaneous selection on the Thursday, and "Israel in Egypt" on the Saturday following; all these performances commencing at 2 p.m. The Handel Festival is one of the best things we do in England, and ought to be supported by all serious lovers of what is noblest and greatest in art.



## ARCHITECTURE AT THE ROYAL ACADEMY.—IV.

MR. E. R. SUTTON'S "Gordon Memorial Home, Nottingham" (1,558), is a quiet sensible-looking brick elevation with a stone oriel in each end wing, and plans on an intelligible scale added, but the plans are rather puzzling as there seems to be no large room for the boys except a dormitory on the upper floor. One would have expected to find a large day-room somewhere; is it on another floor that is not shown? "House at Scarborough" (1,567), Messrs. Cooper and Davis, is a very naive design, a square brick house with a tiled roof and four equally-spaced semicircular bays projecting from it; no plan is given, so we cannot tell what these four bays mean, and pass to "Norwegian Cottage, Chale, Isle of Wight; and Club-house, Parkstone, Dorset" (1,568), by Mr. G. A. B. Livesey; a rather scattered sheet of perspectives and plans. Why should there be a Norwegian house in the Isle of Wight? The Club-house has character. In "Proposed House near Witley" (1,576) Mr. Seth-Smith shows a very nice drawing of a quiet stone mullioned house of ordinary type, with a tower in the rear crowned by a rather original little cupola; a cut hedge makes an arcade in front of it; no plan. "The Hermitage, East Grinstead" (1,577), by Mr. E. T. Powell, is an addition on the basis of an old house which, however, seems to be quite swamped by the additions; it is picturesque, but considering that most of the visible portion at any rate is modern, it has rather too much the appearance of an old house added to at different times, with bits of unexpected timber-work here and there—pretty, but rather a piece of contrived scenery. The long drawing-room and dining-room, with windows at the end only, would not be very well lighted at the back; and kitchen, drawing-room and dining-room all have the same aspect, which certainly cannot be right for all of them.

Messrs. Greenaway and Newberry's "Holiday Cottage, Ditchling" (1,588) looks like its name; pretty little white elevations—plaster, or rough-cast, with brick plinth and a red tile roof; small-scale plans are added. Mr. E. W. Marshall's house at Limsfield (1,589) unfortunately shows no plan, for it looks a very nice specimen of a country house, and is shown in a very pretty water-colour drawing; it appears to be faced with a cream-tinted rough-cast; a gable with curved lines and decorated with some lozenges of red brick (?) makes a characteristic feature. Messrs. Hoare & Wheeler's "A House in the West End of London" (1,597) is a very mechanically drawn and coloured elevation, looking rather like the outer frontispiece of a box of bricks made in Germany, but it has the merit of being simple and unaffected in style, and in good taste.

Mr. W. A. Aickman's "Corner of Exmouth-street, Clerkenwell" (1,600) is a good bit of street architecture of a practical kind; it has a green-tinted ground story (probably glazed bricks, with brick walls above; though very simply treated, the spacing and grouping of the windows has been carefully considered, and the treatment of the double inverted arch over the yard entrance, making practically a kind of strut between the two blocks, is effective. A plan was hardly required, as this is merely the street screen of a row of shops. Mr. Castle's "House at Pilning" (1,605) is just a water-colour sketch of a bit of picturesque effect, got by massing upright half-timber work on a brick base; no plan.

"A Country House" (1,615), by Mr. Oswald Milne, is a design of some originality and worth attention; the plan shows a central parallelogram with two wings (not identical) added at an oblique angle, though picturesque character is evidently aimed at, the plan has been carefully studied; the plans of the rooms are agreeably varied and the question of aspect has not been overlooked; a north point (rare addition to an Academy drawing plan) is given. The exterior treatment is in red brick, with a strip faced white under the eaves. This would be a pleasant house to live in, and has a good deal of internal interest and variety. "Alms-houses in Northamptonshire" (1,625), by Mr. A. A. Carder, is a pleasant homely little block, random-coursed stone on the ground story, while rough-cast above; a small plan is given. Mr. Tanner's "House at Beckenham" (1,630) is a nicely-planned little house illustrated in a very poor pen drawing with scrawls to indicate trees;

drawing is not architecture, but still one likes to see it better than this. Mr. A. C. Blomfield's "Hollington House, Newbury" (1,636), is a picturesque country house of the rambling type, shown in a good line drawing; no plan.

Mr. E. Guy Dawber's "Juniper Hill, Surrey" (1,637), is hung too high to see the plan well; the drawing shows the garden front, with a formal garden laid out at one end of the house; the open arcade or loggia in the ground story at one angle is a pleasant incident, and the gabled finish of the chimney-stacks is pretty and piquant. "House at Winchfield" (1,648) is one of Mr. Ernest Newton's studiously plain and unpretending exteriors which seem to have a sort of architectural cachet about them, more than many houses which have pilasters and everything proper; it is just the question of the little more or the little less that does it. We wish it had been made complete by the addition of a plan. The "New Music-room, Hatchlands" (1,652) by Mr. R. Blomfield, is a very fine clean line drawing by the architect, in which a difficult bit of perspective is skilfully handled; the drawing is little shaded, and depends for its effect upon good design in line, with nothing to carry it off. It shows a room with columned bays at each end, the centre lighted by a domed light, the base of which is marked out by a modillion cornice with a garland frieze. Altogether one of the best exhibits in the room. Both plan and section are given. No. 1,655, "King's Lynn Grammar School," by Mr. Basil Champneys, appears to have been inspired by a desire to see how poor a skeleton of a drawing the R.A. would consent to hang; it is a brown-ink outline elevation with apparently a studious endeavour to avoid showing any of the effect of the building, and having no plan is of course nearly unintelligible, except that one gathers that there is a central hall with large round-arched windows, which stands back and rises above the rest of the buildings. We have no love for sensational or pretentious drawings; but such an *envoi* as this is going rather too much in the opposite direction. The effective pen drawing of Mr. Leonard Stokes's "Littleshaw, Woldingham" (1,663) has the rather unfortunate appearance, from some defect of perspective, of the building as well as the ground-line running down hill. A small plan is shown and a north point given; the dining-room has a large west window running across the whole width of the room—not a promising arrangement for diners on a warm summer with a nearly level sun, though the exterior appearance of this bay, with this window and a similar one above it, and the arched recess with garden seat underneath, is very pleasant; the chimneys are characteristically treated and the whole drawing excellent, except that there seems to be something irregular about the vanishing point.

Mr. J. W. Simpson's "Board Schools at Brighton" (1,667) is a frame of nice line sketches of bits of the building, but nothing, either in plan or another way, to show how it pieces together. "A Country Inn at Market Harborough" (1,674), by Messrs. Costes & Johnstone, is a very pretty specimen of its kind; bays with rough-cast (?) faces, on a background of red brick, carrying an overhanging upper story in rough-cast, with three small windows and three small gables over. Mr. Harold Cooper's "Cowhouse and Stud Farm, Porter's Hall, Shenley" (1,676), is an exhibit of a humble but not uninteresting kind, especially as regards the cowhouse, a low building round a quadrangle, showing on the exterior widely projecting eaves and battering buttresses, with very small windows between; a building that makes a nice sketch: plans of both are given. Another building of a plain and practical nature, but not without architectural character, is Messrs. Forsyth & Maule's "Flour Mill, Stedham" (1,681), a square block with a stone ground story with small windows, and a brick superstructure with flat buttresses up to the eaves, and larger windows between; there is no attempt at anything but the plainest treatment, but nevertheless this is a mill that has a certain architectural interest and character about it, and one is glad to find a structure of this kind treated so as to redeem it from mere commonplace. "London Wall Buildings Finsbury-circus" (1,689), by Messrs. Gordon & Gunton, brings us back to the domain of Classic precedent and of the order and rustication, but this is an effective piece of street architecture of its kind. The

centre projects into an *avant-corps* decorated with an order and a massive broken pediment with a sculptured figure in the centre; beneath the entablature is a semi-dome alcove or apse, in which opens the principal entrance. The rest is pretty ordinary detail of rusticated windows &c.; but an effective front of its type, and just suited to the *locale* of Finsbury-circus.

## ARCHITECTURAL ASSOCIATION SUMMER VISITS:

HEATHFIELD, SUSSEX.

THE first summer visit of the current session was made to Heathfield, in Sussex, by a party of twenty members on Saturday last, June 13, when some recent work at two houses in the district was inspected.

Heathfield House was first visited, and the party was conducted throughout the building by the owner, Mr. W. Alexander, and also by the architect, Mr. Reginald Blomfield, who spared no pains to explain the evolution of the re-building by various plans, sketches, and old prints.

Plans and other illustrations, together with an historical description of the house, appeared in our issue of February 20, 1893, but it may be of some interest to recall briefly that the structure, although possessing new tiled roofs and red brick fronts, is practically an eighteenth-century brick house adapted and re-arranged internally and enlarged at the east and west ends. The Corinthian loggia on the south elevation shows the length of the original house, and was taken down and re-built centrally with this front; the entrance was transferred from the south to the north side; new staircases and a drawing-room have been introduced and broad terraces laid out on the south side.

The offices of the establishment are located in the basement, and form a well-lighted and workmanlike set of apartments. Two features of considerable interest, showing the early existence of a dwelling on this site, were seen in a stone-vaulted chamber below the loggia, and an old stone doorway in the kitchen. The ground-floor apartments are lofty, rectangular chambers, typical of eighteenth century English design, heavy in detail, and it was noticed that the new parts of the house were built in close character with the old. On the first floor, however, some varying levels were met with, owing to the greater height of the old rooms on the floor below, and it was felt that a certain amount of dignity was lost. The top story is roof accommodation lighted throughout by dormer windows.

The architect has well overcome the difficulties which are usually met with in altering or adding to a Classic house of this period, and he has been successful in arranging the rigid lines of the fronts with the irregular interior with very little sacrifice of practical requirements.

The elevations, although based upon the original lines, are designed in Mr. Blomfield's well-known manner; the window openings have quoins and arches in "rubbers," and are filled in with double hung sashes, the detail of which is in scale with the stone quoins and other features; the wood cornice, however, which is carried round the whole building, is very coarse, and out of scale with all the detail seen in conjunction with it. The fronts of the original house, as seen in the print previously referred to, possessed parapets, and by their omission in the rebuilding an opportunity for obtaining increased breadth and dignity in the elevations appears to have been lost.

A visit was afterwards made, by kind permission of the owner, Mr. H. Y. Hare, to North Down, a small eighteenth-century house situated on the highest part of the ridge upon which the village of Heathfield is scattered. The history of the house is a usual one in this locality—a seventeenth-century cottage rebuilt and enlarged in the following century. It is a two-storied dwelling of 9 in. external walls and a good oak-framed roof covered with tiles; the south front is further covered with ornamental hanging tiles of considerable age. The interior has recently been altered, and the whole made habitable. New windows were opened out to obtain the fine view to the north, and to admit light to the centre of the house, where none previously existed. The works also include a small formal garden at the west end laid out in three parts, divided by low brick walls, and the whole is surrounded by stone walls of local material. The head of a



existing well has been raised, which, together with a small open brick water tank in a corresponding position, forms a feature in the design. The lawn on the south front, bordered on three sides by thick hedges, is separated from the house by an entrance drive, which has been enclosed by a brick screen to produce a courtyard effect, and to provide a boundary to the fourth side of the lawn. This screen consists of a low wall, with square brick piers, 7 ft. 6 in. high, built at 9-ft. intervals, and spanned by fir lintols; climbing plants will be trained up the piers and be carried along the beams.

Much interest was taken in the drainage work, carried out upon the lines advocated by Dr. Poore. Earth closets are in use, and the usual disposal resorted to; but the dirty water from the sinks, bath, and lavatory, and the bedroom slops from the external slop sink, are carried some 25 ft. away from the house in open, glazed-channel pipes into a long, open filtration gutter, through which the liquids eventually find their way into the porous soil of the site. This work has been carried out by Mr. Mephan, builder, Heathfield, from the designs and under the supervision of Messrs. Forsyth & Maule, architects, London.

#### ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS.

AN Eastern Counties District meeting of the members of the Association of Municipal and County Engineers was held at the Town Hall, Sudbury, on Saturday, June 13. Mr. T. H. Yabicom, C.E., of Bristol, President of the Association, presided, and there were present Messrs. W. Weaver (Kensington), Nisbet Blair (St. Pancras), Howard Smith (Westminster), Chambers Smith (Sutton), J. T. Eayrs (Birmingham), Metcalfe (Newmarket), E. Buckham (Ipswich), W. Dawson (Leyton), and others.

At the outset the Mayor offered the members a hearty welcome to the town.

The President acknowledged the welcome giving to the Association.

A vote of condolence was passed with the family of the late Mr. Sasse, Borough Engineer of Chelmsford, who had died after sending a letter expressing regret at his inability to attend the meeting owing to illness.

Mr. T. W. A. Hayward, A.M.Inst.C.E., Borough Surveyor and Engineer, read a paper on "Six Years' Municipal Work at Sudbury." He said that Sudbury lay in the valley of the river Stour, which separated Suffolk from Essex, part of the borough being in Suffolk and part in Essex. It could be approached by water from the North Sea by means of the river Stour, which is navigable as far as Sudbury. The population in 1901 was 7,109, the rateable value 21,000l., and the area 2,093 acres. The rateable value was very low, and this was where any expenditure was most keenly felt, a penny rate only producing approximately 80l.

Under a private Act of Parliament a loan for 10,000l. was taken up for street improvement, and was still owing, none of the principal sum being repaid, as was now usual. The loans under sanction of the Local Government Board for works of water supply, street improvement, sewerage and sewage disposal, refuse destructor, and other public works still outstanding amounted to 33,740l. The water supply of the borough had a somewhat unique history. In 1870 the Town Council were served with the order from the Local Government Act office to provide a proper supply of water within six weeks from the date of the order. The Council refused to comply, and Mr. Hinnell, C.E., of Westminster, was appointed by the Home Secretary and carried out the work at a cost of 7,500l. Originally there was an abundant supply of water, but this had fallen off considerably since the earthquake of 1884, which by some means reduced the supply by about one-half. For many years prior to his appointment the water question had been a cause of considerable anxiety to the Corporation. They had obtained expert advice, had deepened the well, extended the boring, and had done various other things to try to increase the supply, but without any satisfactory results. Gaugings were taken as to the inflow of water into the well through the bore-tube, and it was found that the supply at that time was sufficient for the reasonable needs of the borough. Attention was next given to the distribution, when it was found that an average of twenty-five gallons per head per day was being sent from

the storage-reservoir into the town. This being high, some investigations were made, and the Corporation purchased some Deacon waste-detecting meters, when several large leakages were detected which had probably been going on in the mains for a great number of years. When the leakages were stopped it was found that a continuous supply of water could be given, whereas previously it had been shut down for seven hours every day. The author had prepared a scheme which, by increasing the storage capacity at the bottom of the well, would permit the pump being driven at a normal rate continuously throughout the day, and it was expected that during the night the inflow from the bore-tube would raise the water to its normal level. This scheme had been accepted by the Town Council, and approved by the Local Government Board. With reference to the sewerage scheme, it was at first decided to lay new sewers in the main streets only, leaving out the low-lying and properties otherwise difficult to drain. This scheme was, however, incomplete, and when it was reported upon by Mr. J. T. Eayrs, M.Inst.C.E. (whom the Council consulted), this cheseparing policy was abandoned. Mr. J. T. Eayrs, however, approved the general design of the scheme so far as it went, and after receiving his Report the Committee gave the author directions to prepare a complete scheme as recommended. Sewers were to be laid in all the streets, and also through private lands and premises where necessary, so as to take the sewers as close as possible to the backs of the premises which had to be drained, in order to minimise the expense of private connexions. The Council further decided to put in connexions to the boundaries of all properties free of cost to the owners.

The main sewers were laid in water-logged ground, the subsoil being gravel and sand, the water rising to within about 3 ft. of the surface. Under these circumstances it was deemed advisable to use iron pipes in the worst places; in less treacherous ground Hassall's patent double-lined jointed pipes and Ames-Crosta patent double-seal jointed pipes were used, and had given entire satisfaction. The collecting-tanks were constructed in water-logged and unstable ground, and great difficulty was experienced owing to the enormous quantity of water met with. The wells in the district for miles around were drained, and during a period of six months a quantity of not less than 60,000 gallons of water per hour was raised from the contractor's sump. The walls and floor of the collecting-tanks were constructed of concrete composed of 1 part of Portland cement, 4 of fine shingle, and 1 of sand. The walls were 6 ft. thick at the bottom and 3 ft. at the top. The floor, which was 4 ft. thick, was lined with 9 in. of blue brickwork set in cement mortar, and was constructed in the form of an inverted arch. A layer of expanded metal was embedded in the centre of the concrete, and a collar joint, 1 in. thick, of neat Portland cement was formed between the concrete and brick lining. It was anticipated that some difficulty would be experienced in making the tanks watertight; but at the present time they were absolutely so. The sewage, on reaching the collecting-tanks, would pass through a screening-chamber, where a specially designed screen was fixed, and the solids taken from this screen would be burned in the refuse destructor. The storage capacity of the tanks was about 50,000 gallons, or more than the average estimated dry-weather night flow of ten hours. The sewage disposal works were designed on the septic-tank and double-contact system. The works were situate on sloping land 9 acres in extent, about half-a-mile from the pumping station. The rising main, of cast iron and 11 in. in diameter, was laid at such a gradient, and was provided with sluices so that it could be completely emptied at any time. From the inlet chamber the sewage flowed through two specially trapped inlets into duplicate grit chambers, where sand and other heavy mineral matters and debris would settle. The water level in these chambers was retained by means of weirs which formed the inlets to the biological tanks. The tanks were built in duplicate, each being 45 ft. long, 20 ft. wide, and 7 ft. deep, having a storage capacity of 40,000 gallons, or 80,000 gallons in the two; this was more than half the estimated dry-weather flow for twenty-four hours. From the biological tanks the liquefied sewage passed over the outlet weirs into a feed channel, and

was conveyed on to the "coarse" beds by means of Adams' patent timed feed inlet siphons. The sewage was so distributed by means of wooden troughs that each part of the bed would be filled at the same time. After a sufficient contact in the "coarse" bed the first filtrate was discharged through Adams' patent automatic timed discharge siphons, on to the "fine" bed, the filtrate being distributed as in the case of the "coarse" bed, and after proper contact the final filtrate was discharged by means of a second and similar discharge siphon into the effluent channel. In the original scheme the author made provision for conveying the effluent from the land to the river and discharging it into deep water, but the Local Government Board thought that after treatment upon land was unnecessary, and suggested that the effluent should be discharged into the nearest water-course, although it was a very sluggish one—in fact, practically dead level.

The President, in moving a vote of thanks to Mr. Hayward, said he would like to know whether the water supply in the neighbourhood was affected also by this earthquake in the same way as the supply was affected at Sudbury.

Mr. J. T. Eayrs, Birmingham, said he also was much struck by the falling-off in the supply of water owing to the earthquake. It was the first time he had heard that reason given for a deficiency in a supply of water. He would like to know the effect upon the neighbouring wells. He considered Mr. Hayward was to be congratulated in having reduced the consumption of water by one-half. It was a constant supply, the public had whatever they liked, and twelve gallons per head per day seemed to be sufficient.

Mr. W. Weaver, Kensington, referred to the financial difficulties that beset the town, and, looking at the loans to rateable value, he was not at all surprised that the Local Government Board would not allow them to raise any more money. If Mr. Hayward could not find an outlet for all his clinker in the bacteria beds he might press it into blocks mixed with a little Trinidad asphalt, and pave his streets with the refuse of the dustbins at a very cheap rate.

Mr. E. Buckham, Ipswich, expressed himself as pleased at the utilisation of the heat from the destructor for pumping at the sewage works.

Mr. A. D. Greatorex, West Bromwich, said Mr. Hayward had done very good work in detecting the waste of water. The sewage scheme he had designed was thoroughly up-to-date in every respect. He would like to utter one word of warning against the use of clinker from the destructor for the bacteria beds. His objection to the use of clinker was that it broke up into dust, and the beds lost 50 or 60 per cent. of their capacity in a very short time. There was a saving of money in the long run by using a hard material in the beds. He did not agree with the principle adopted in Sudbury of the Council paying half the cost of making up private streets. That was one of the faults of the 1892 Act, and to his mind was quite sufficient to prevent any Corporation adopting it. It was not fair to the ratepayers to be called upon to pay half the cost of making up streets for owners of property.

Mr. Chambers Smith, Sutton, said the sewerage scheme seemed to be very efficiently carried out. He noticed that flints were used in the coarse beds. Flints were extremely good in their way, but if they could get a good hard vitreous clinker, it was better than washed flints. If they could get their destructor refuse thoroughly well burnt and vitreous, it was the best material they could use; but unless it was thoroughly well burnt, he would advise them not to use it. He was taking out burnt ballast because of its tendency to disintegrate.

Mr. Ryley agreed with Mr. Greatorex as to the filtering media to be used in the beds. He did not think it advisable to use clinker.

Mr. W. Nisbet Blair, St. Pancras, referred to the very important reform Sudbury had carried out in regard to its house-refuse system. The system of ashpits holding one, two, or three months' refuse was about as abominable as anything that could be devised, and the sooner it was entirely abolished the better. The effect of that system was evidenced by the statement that the death rate was 18 per 1,000 per annum. That struck him as very high for a small town in a healthy part of the country. The death rate should not be more than half that, and



probably they would find when they adopted the portable dust-bins and the weekly removal of refuse, that the death rate would go down considerably. Sudbury was to be congratulated on altering the system.

Mr. Brown did not agree with Mr. Greateorx as to the use of clinker in the bacteria beds, as he believed a good vitreous clinker to be as good a material as could be obtained.

Mr. Caperd, Epsom, asked whether the Local Government Board sanctioned the plan for turning the effluent from the beds direct into the stream.

Ald. Wheeler: Yes.

Mr. Goodyear, Colchester, said he was much surprised to hear of the falling off in the water supply from the earthquake of 1884. At Colchester it increased the water by 36 ft. head in the well. But since then it had been gradually going down about 4 in. a year, and was now below the normal level.

Mr. Hayward, in reply, said with regard to the earthquake, he understood that what they had lost at Sudbury they gained at Colchester, so there was no material loss to the community generally. And the water was coming back to Sudbury. They had a rather better supply now than they had four years ago. The rainfall in the eastern district was very much below the average rainfall for England—it was under 20 in. With regard to the water consumption of 25 gallons per head, they had about one-third of the houses using water-closets. As a result of the detection of waste they had saved about 4,000 gallons of water per hour. With regard to private streets, he advised the Corporation to make the full charge, but was overruled, and the members of the Corporation were now sorry they did not take his advice. The scheme provided for the taking of the effluent over the land and discharging it in the deep part of the river. The Local Government Board thought it would be a waste of money to carry the effluent into deep water, and they struck it out and allowed it to be discharged direct into a sluggish water-course. Mr. Weaver asked as to the rateable value and the rates. The fact of the rates being heavy was not the fault of the Corporation, as the poor rate was three times what it was six years ago.

The Mayor entertained the members to luncheon, and the afternoon was given up to visits to the various works.

#### THE INSTITUTION OF CIVIL ENGINEERS: ENGINEERING CONFERENCE.

OPENING ADDRESS OF THE PRESIDENT, MR. J. C. HAWKSHAW, M.A., ON WEDNESDAY.

We have met here to-day to open the third Engineering Conference. The first was held in 1897, six years ago, and the second in 1899, so that four years have passed since the last Conference. If these Conferences are held at short intervals there may perhaps be some danger of exhausting the interest in them, and, indeed, their actual usefulness. But whatever be the interval between them, might it not be possible for the Institution to enjoy some further benefit from these Conference Committees, dealing with their various sections of its work, if they were to meet once or twice between the actual Conferences for the consideration of questions touching intimately their respective branches? For example, they might consider and recommend to the Council what subjects, in their respective departments, it would be desirable to have discussed at the Institution during each session, and to suggest names of persons who might be applied to to contribute papers on these subjects. By such means it is possible that the subjects of the papers brought forward for reading and discussion at the Institution meetings might be benefited through their selection by a committee of experts in their respective departments.

Although four years have passed since the last Conference was held, many of those attending here to-day will have availed themselves of the opportunity of discussing engineering questions afforded by the International Engineering Conference at Glasgow two years ago. Much may happen in these days in engineering in so short a period as two years. Engineering does not stand still, and striking developments are taking place, more especially in the electrical branch of the profession. Some great works

have been completed in the last two years: to name two only, both connected with the distribution of water—the Nile dams for irrigation purposes and the Coolgardie water-supply. For the latter, water is pumped up 1,200 ft. and conveyed over 300 miles inland in steel pipes.

The last two years have been marked by the work done by the Engineering Standards Committee, work of which it is impossible to overrate the importance to the trade of this country. This Committee, which began its work in April, 1901, is the outcome of a Committee appointed by the Institution of Civil Engineers at the suggestion of Sir J. Wolfe Barry. It has been supported actively and financially by the five leading technical societies and by the Government, who, on the recommendation of the Board of Trade, have made a grant of 3,000*l.* towards the necessary expenses. Sir F. Hopwood, in conveying to the Standards Committee the decision come to by the Treasury, said that the Board of Trade regarded the work undertaken by the Committee of the highest value to the country at large. Some idea of the magnitude of the work undertaken may be gained from the following figures:—There are twenty-three committees and sub-committees, made up of 296 members, of whom twenty-four are Government representatives. So far only one Committee, that on Building and General Bridge Construction, and one Sub-Committee, that on tramway rails, have issued the result of their decision, but the conclusions of all are now in an advanced stage.

You will have no lack of interesting subjects for discussion during the next two or three days, as you will see from the programme of the meetings, giving the subjects to be brought before you at the meetings of the sections. You will have an opportunity of discussing the question of the position of apprenticeship in engineering education—a condition specifically required for a prescribed term by the Institution rules, although the latter admit as an alternative to pupillage training as an assistant, provided the experience covers work both in the office and in or upon works. The precise manner of the fulfilment of the condition referred to is left open by the Institution to meet the variations involved by the many different branches of engineering.

No subject at the present time attracts or deserves to attract so much notice as education. The Education Act of 1902 is now in force, and every County Council, together with the trustees and managers of every elementary school throughout the country, are at work making new arrangements in accordance with the Act.

The education and training of engineers is no new subject to our Institution, which has been occupied, first, during the last fourteen years, on the question of the requisite preliminary education of civil engineers; and, secondly, during the last seven years, on the question of engineering training. Under the able guidance of our past-President, Sir J. Wolfe Barry, the Chairman of the Education Committee of the Council, with the aid of such authorities in various branches as Sir William White, Sir Guilford Molesworth, Dr. Kennedy, Professor Unwin, Mr. Siemens, and others who are well qualified to deal with the question of engineering training, much has been done. Examinations are held twice a year for the admission of students and Associate Members, and arrangements are also made for examining those abroad, in the colonies, in India, and elsewhere. The syllabus of our subjects for examination has been altered from time to time as the need for change became apparent. The subjects of examination in force at the Universities, and other educational establishments at home and abroad, have been carefully considered, and the degrees and certificates only of such bodies as came up to our requirements, which have been laid down with care, have been allowed as qualifying for admission into our Institution. The result has been that many important teaching institutions at home and abroad have already modified their curricula and the standard of their examinations to accord with the Institution practice, and others are preparing to do so. The requirements of the Institution, both as regards preliminary education, scientific attainments, and specific practical training, have been drawn so as to be applicable to the cases of all who seek to prepare themselves to become proficient civil engineers in whatever branch of the profession they propose to practise chiefly. Thus the

work done by the Council has had a stimulating effect on the training of engineers throughout the country.

The education of officers for the Navy and for the Army is being reorganised. At our annual dinner Lord Selborne, in a speech of the greatest interest to us engineers, gave us his views on the education of naval officers. In future, he told us, the men who command our ships, our squadrons, and our fleets must have the same corresponding knowledge of steam, electricity, and hydraulics, and the other forces employed in the modern battleship, as they have of the art of navigation or the science of gunnery, or the use of the torpedo. The men, in fact, who have to direct and control modern battleships, the most complicated aggregations of machinery in existence, will not in future be wanting in the necessary engineering knowledge. The Navy will now offer a career to engineers, or to their sons, for those who would join must join young, in which, though they must be sailors first, they must also be one and all engineers if they would be masters in the finest of all professions.

Not only at sea does the Admiralty offer a career to engineers, but on land also in the Admiralty Works Department. Appointments to the staff of that department are made, moreover, at a much later age than for the sea service. The limits of age are twenty-three to twenty-eight years for Assistant Civil Engineers, and the entry is by open competitive examination held by the Civil Service Commission. The variety and great importance of the works carried out at our great naval stations at Portsmouth, at Keyham, at Gibraltar and Malta, and elsewhere should make the opening an attractive one for our younger engineers.

There would appear to be reasons why the education of engineers for our profession and of officers for the Navy should be carried out on somewhat the same lines. In both professions the duties may become highly specialised, and yet the training for all branches should at first be the same. What branch is more specialised than that of the electrical engineer? and yet he has to deal with the same problems as the railway engineer in questions of transport and locomotion, as the gas engineer in questions of lighting, as the chemical engineer in questions of the application of electricity to industries, and so on. The engineer who would reach the highest position in his profession should have a knowledge of organisation, of administration, and of finance, besides the necessary knowledge of the branch to which he specially devotes himself. And so it is in the Navy. Besides the officer's knowledge of his special branch, be it navigation, gunnery, torpedo work or engineering, he must have a general knowledge of engineering in which all his movements and his means of offence and defence depend, and however perfect he may be in his special branch, he cannot dissociate himself altogether from the other special branches, and if he would rise to the highest position, he too must have capabilities for organisation and administration.

In my address at the beginning of this session last November, I took occasion to refer at some length to the question of our timber supply. Since then the Committee appointed by the Board of Agriculture to inquire into and report on British forestry—which I noticed as then sitting—has issued its Report. The recommendations in that Report are chiefly educational. Valuable and necessary as the recommendation as to the necessity of educating the different classes occupied in forestry, the Report is, to my mind, disappointing. More should have been said of the necessity of doing something to encourage planting. It is useless training foresters unless you provide work for them to do. At present the local authorities distinctly discourage planting by rates and otherwise. In my own county of Sussex, one of the best wooded in the country, a sporting rate is to be imposed, which is a direct tax on planting, planted land being rated at five times the amount of the rate on unplanted land.

In London many problems remain to be solved which require the assistance of the engineer. We have dealt with the sewage question, and remove some millions of tons of sewage daily by water underground, but we have yet to grapple with the removal of the solid matter, with which we daily pollute, not only the atmosphere of London, but that of the country for many miles round. Many of the



fine old trees for which the neighbourhood of London was noted, have gone, and moreover, an ever-widening area must follow. The destruction of the fine collection at Kew is only a question of time. Sir W. Thistleton-Dyer, after a week's fog, found a deposit of tarry matter on the greenhouses at Kew at the rate of six tons to the square mile. Dr. W. N. Shaw, at the Sanitary Congress at Manchester, estimated, roughly he admits, that it takes seven million tons of air a day to carry away the smoke, compared with one million tons of water a day required to carry away the sewage. A bad fog may cost 5,000l. a day for light alone, and the estimate made of the cost of smoke pollution to London, which puts it at as much as five millions a year, is probably below the mark.

Another question which becomes yearly more pressing in London is that of the means of locomotion and transport. Like smoke pollution, our neglect to deal with it is yearly costing the growing population of London a large sum. The King, recognising the importance of this question, has been pleased to appoint a Royal Commission "to report as to the measures they deem most effectual for the improvement of the same, by the development and inter-connection of railways and tramways, on or below the surface, by increasing facilities for other forms of mechanical locomotion, by better provision for the organisation and regulation of vehicular and pedestrian traffic or otherwise; and further to report as to the desirability of establishing some central authority or tribunal to which all schemes of railway or tramway construction of a local character should be referred, and the powers which it would be desirable to confer on such a body." The terms of reference are very wide, and it will tax the powers of even so able a body as the Royal Commission which has been appointed, to find a satisfactory solution. The more facilities you give for travelling and locomotion, the more persons you encourage to travel and take advantage of the better means of transport and locomotion, so that the application of the remedy tends in some measure to spread the disease. Decentralisation is what is wanted, and if facilities for transport and locomotion encourage this, it will be a distinct gain to London, especially if it affects factories and workshops, the greatest offenders, with slow and obstructive traffic and smoke pollution. I know of one firm of manufacturers of machinery who have recently removed their long-established works from London to the country, and were enabled by doing so to reduce their prices by 20 per cent., which enables them the better to compete in foreign markets.

As regards the best means of passenger transport, we have had experience of how the advent of railways checked the progress of canals and also of motors, which were far advanced nearly a century ago. It is to be hoped that tramways will not again check the progress of motors, and their use, not only for private, but for public service. Tram-lines render roads less suitable or serviceable for all other kinds of traffic. It is well worth considering whether it would not be advisable to make roads suitable for motor traffic of all kinds, and let motors serve public as well as private purposes. Railways afford greater facilities than canals, but motors offer greater facilities than either railways or tramways, and though all three are necessary, nothing should be allowed to check the legitimate development of motor traffic.

To one who observes the changes which are taking place on many country roads it is obvious that the question of their making and their maintenance will have to be considered, and that very soon. On Whit Monday, one of our members tells me he had the curiosity to count the number of machines passing on the Brighton Road near Horley. In eleven minutes 209 motors and motor or other cycles passed, taking those going in one direction only. Probably few of the persons using them had contributed anything to the making or maintenance of the road.

**WESLEYAN CHAPEL, SUNDERLAND.**—The new halls and club-rooms at the Sans-street Wesleyan Chapel, Sunderland, were opened on the 10th inst. The new buildings, which have cost about 3,000l., include on the ground floor three vestries, and on the second floor a hall 50 ft. by 20 ft. and a vestry. The workmen's club is on the west of the main building. The whole of the building is heated with hot-water radiators, placed under the windows. Messrs. W. & T. R. Milburn are the architects.

## Illustrations.

### DESIGN FOR LIVERPOOL CATHEDRAL.

**W**E illustrate this week the design submitted for Liverpool Cathedral by Messrs. Austlin & Paley, of Lancaster, whose name is so well known in connexion with church architecture.

In explanation of the design we reprint the architects' Report sent in with the drawings, which is as follows:—

"In this Report the Elevations, &c., will be described as if they faced with the usual Orientation.

The accompanying design has for its main features a nave, choir, and transepts, all 62 ft. in width exclusive of aisles. The transepts are short, being 33 ft. long, and at the crossing a partly octagonal lantern with a projecting gallery and large windows is planned. Towers about 38 ft. square open with wide and lofty arches into the ends of the transepts.

It is probable that western towers would detract from the length of the cathedral as seen from the west, which has a very important approach; and it is thought that the lofty towers as planned would group well with the central lantern and dome, and in perspective it is found that these form a satisfactory and commanding group or mass; the west end, which above the porches is slightly octagonal on plan, is, however, flanked by large 20-ft. octagonal turrets at each angle.

The aisles generally round the nave and choir are not intended for seats, but would be used as passages and for monuments, arched recesses in the outer walls being introduced for this purpose. The space behind the chancel screen at the west end of choir might also be reserved for monuments.

The length of the cathedral exclusive of west porch is about 450 ft. and the height of the nave groining is 102 ft., the choir being 2 ft. 6 in. higher. The width of the central lantern arches is 54 ft. in the clear, which is about 4 ft. in excess of those under the dome of the cathedral at Florence, but much less than those under the dome of St. Sophia (Pergamon). The walls are 9 ft. in thickness, and the arches have most ample abutment, the lantern walls over the points of the arches being comparatively light. The weight on the lantern piers at the base would be about 24 tons per foot, and on the nave piers 20 tons per foot. The nave and choir columns are 35 ft. high, and the height to ridge of nave roof is 139 ft., to the cross on dome, 204 ft., and the height of the towers is 240 ft. from the floor line.

The choir being of unusual width allows of the stalls being placed quite within its space and 11 ft. from each side wall, with a surrounding low screen and gates instead of the usual high screen, thus ensuring the choir being in close proximity to the congregation under the lantern. The high open screen enclosing the sanctuary would begin immediately east of the choir stalls, and be continued behind the reredos, as shown on plan. Lecterns are shown on each side of the choir adjoining the lantern space so as to be near to the congregation. In the case of general daily services the inner aisles adjoining the choir stalls would be available for the worshippers, the number of sittings including those in the choir and stalls being 380.

With regard to the 3,000 worshippers required it appears that the area taken up by each choir, including its proportion of passage room, is 7 ft. superficial; on this basis the 102-ft. square under the dome of St. Paul's Cathedral would seat 1,500 persons, and at a distance of 155 ft. from the pulpit, including the nave and transepts to this extent, but exclusive of the choir (which is not commanded by the pulpit) 2,250 persons can be seated in St. Paul's. In this plan for Liverpool Cathedral at the same distance of 155 ft. from the preacher 2,500 persons can be seated under the lantern, in transepts and towers, and in the portion of nave as shown, with an additional 500 in the choir and its inner aisles, as this space would be commanded by the pulpit, making in all 3,000 convenient sittings with no pillar obstructing, within 155 ft. of the pulpit, and with ample passage space. Of these, 2,700 would be within 130 ft. of the pulpit. The pulpit is well backed by the large wall space of the lantern pier. A very large proportion of the 3,000 would be immediately in view of the east end.

The morning chapel is placed on the north side of the choir, and is correctly orientated, but owing to the dimensions of the site cannot be of great length. It has, therefore, aisles on each side, and would have 300 sittings. Both its aisles as well as its nave have entrances from the choir aisle. Immediately within the church at the west end two lofty columns with arches are carried up to the groining vault, so as to break up the extreme width and also aid the acoustics. The space so obtained is utilised for a baptistry on the north side. A special section shows this feature of the design. The organ is placed in galleries on each side of the choir, and continued into large organ transepts with lofty arches, and with extra openings for sound on their western sides. The galleries would be constructed on male piers and female arches. In the northern gallery would be placed the manuals, with the great, swell, and pedal organs, and in the

southern gallery the choir organ and other stops, with space for a supplementary orchestra. The organ area on north side is 800 ft. superficial, and on south side 600 ft.

The chapter-house (with monument-room under) is placed at the south-east angle of choir, separated from the choir by a vestibule. The vestries for the bishop and clergy, and also the choir vestries and sacristy, are arranged on the south side, and vestries for churchwardens and vergers are on the north side, all within easy access from the choir aisle. The western open porch is shown to extend the full width of the nave. There are porches at west end of each aisle, also at junctions of aisles and transepts, and the one near the east end to the chapter-house would be used for easy access to the morning chapel. Separate entrances are provided for the clergy and choir. The western porch is approached by a carriage-drive of easy gradient, and which is continued as far as the chapter-house and bishop's entrance, passing through arches in the tower buttresses. A walk for pedestrians is also provided at a lower level, as shown. A covered way and steps are provided from St. James's-road, opposite the transept porch, with open archways across the carriage-drive and lower terrace walk. The portion of the cemetery grounds, coloured blue on the site plan, provided with a main entrance, is not required in this scheme, and the present road and entrances would remain. Some amount of excavation in front of the cathedral steps at the west end would be required. The church floor-line is 6 ft. higher than the proposed level at foot of steps, and 12½ ft. above the bench mark on cemetery wall at angle near the mortuary-chapel. The site generally would be squarer than the present one. A cloister, with a walled-in garden, is provided in connexion with the chapter house, and which would actually face south.

The sculptured figures adjoining the western porch arches would represent the Twelve Apostles, and the upper panels would contain sculptures of the Miracles of our Blessed Lord. The figures on each side of the west window might be from the Prophets, and the gable central figure would be the patron saint of the cathedral. Other sculpture in niches, &c., would require to be determined in detail.

A peal of bells might be placed in one tower, and a single very large bell in the other.

The roof and dome are to a great extent constructed of steel, the dome as well as its flèche being covered with copper. The nave and choir roofs are designed so as to reduce any extreme height in the roofs caused by the width of the building, and the transept roofs are of low pitch, to allow of the great north and south windows of the lantern.

The stone proposed is the yellow and pink free-stone from Darley Dale, in Derbyshire, and possibly flecked Runcorn stone would give an effective interior. These are all good bearing stones. Devon marble might be used for the organ galleries and choir and sanctuary screens, the reredos being for the most part of Pavonazzo marble.

The heating-chamber is placed under the north tower and transept, with a sloping approach for coal-carts, &c. The system proposed is by means of steam calorifiers and low-pressure hot-water pipes and coils, arrangements being made in clear-stories and lantern for an upper system of pipes.

The abutments of the central lantern are so planned that either the choir or nave, with the transepts and lower portions of the lantern towers, could be built at any one time separately.

### COMPETITIONS.

**LIVERPOOL CATHEDRAL.**—A meeting of the General Committee of Liverpool Cathedral was held on the 12th inst. at the Church House, Liverpool, to receive the report of the Executive Committee. Lord Derby presided. Mr. R. A. Hampson read the Report of the Executive Committee, which stated that the Committee had approved of the selection made by their advisers, and had appointed Mr. Bodley, R.A., and Mr. G. Gilbert Scott the joint architects for the new cathedral, thus securing the experience of the greatest modern exponent of Gothic architecture and the brilliant talent of Mr. Scott, so conspicuously displayed in his drawings. The Building Committee had instructed their architects to prepare the plans for the new cathedral with such modifications as they might think desirable; also to provide a morning chapel to seat 300, a chapter-house, and most commodious vestries. They had also been requested to submit plans for the foundations for the chancel by October 1 next, which the Committee trusted might enable them to arrange to have the foundation-stone laid during the spring of next year. The principal dimensions of the cathedral, taken from Mr. Scott's drawings, were as follows:—Total length over all, 450 ft.; total length of nave, 224 ft.; total width of nave between the piers, 50 ft.; total length across transepts, 198 ft.; total height of nave vaulting, 116 ft.; total width of north façade, 196 ft.;



LIVERPOOL CATHEDRAL

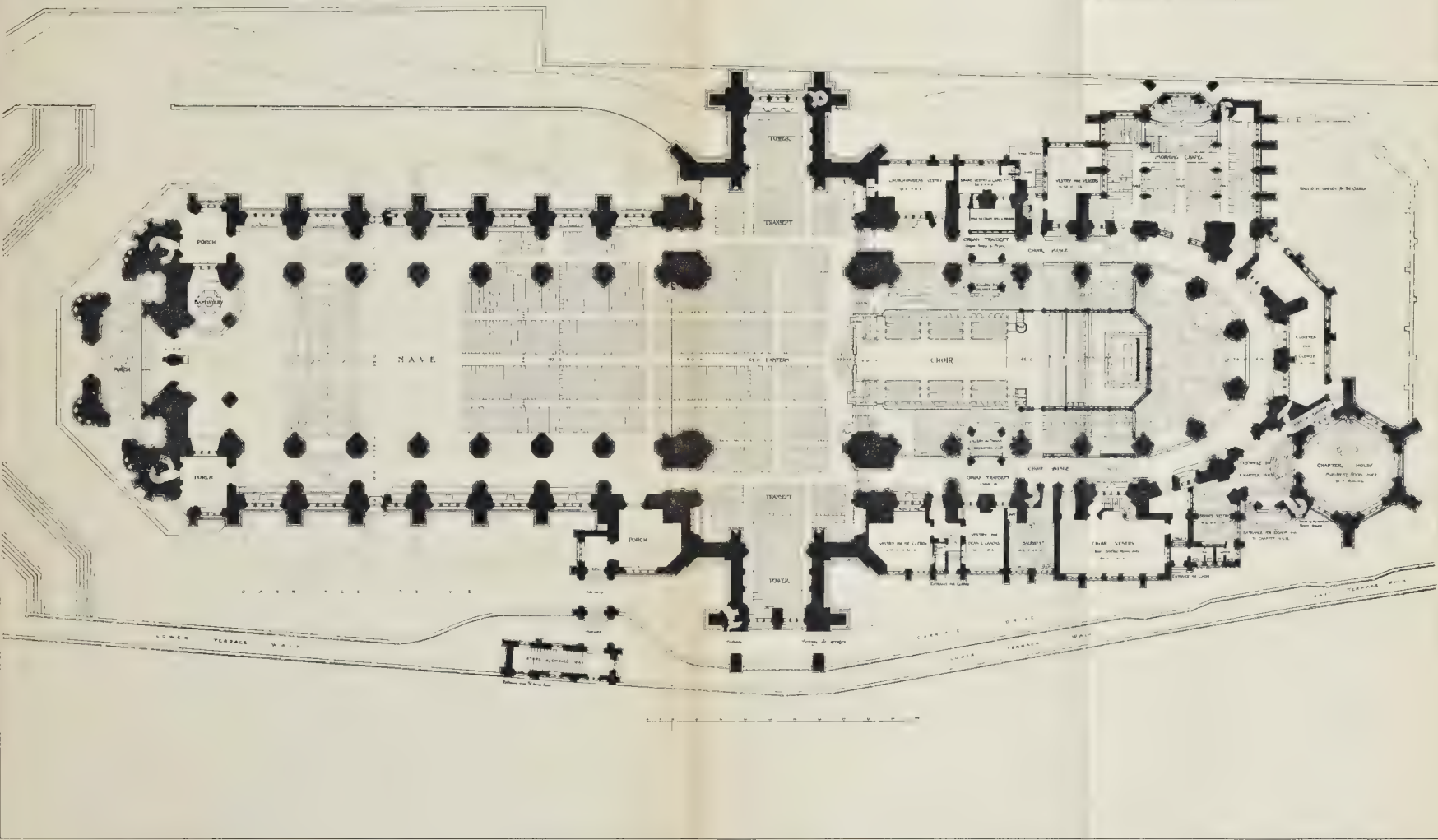


PHOTO. THE SPRAGUE & CO. LTD. 4 & 5 EAST HANOVER STREET LONDON E.C.

LIVERPOOL CATHEDRAL COMPETITION.—Design by MESSRS. AUSTIN & PALEY.







LIVERPOOL CATHEDRAL.

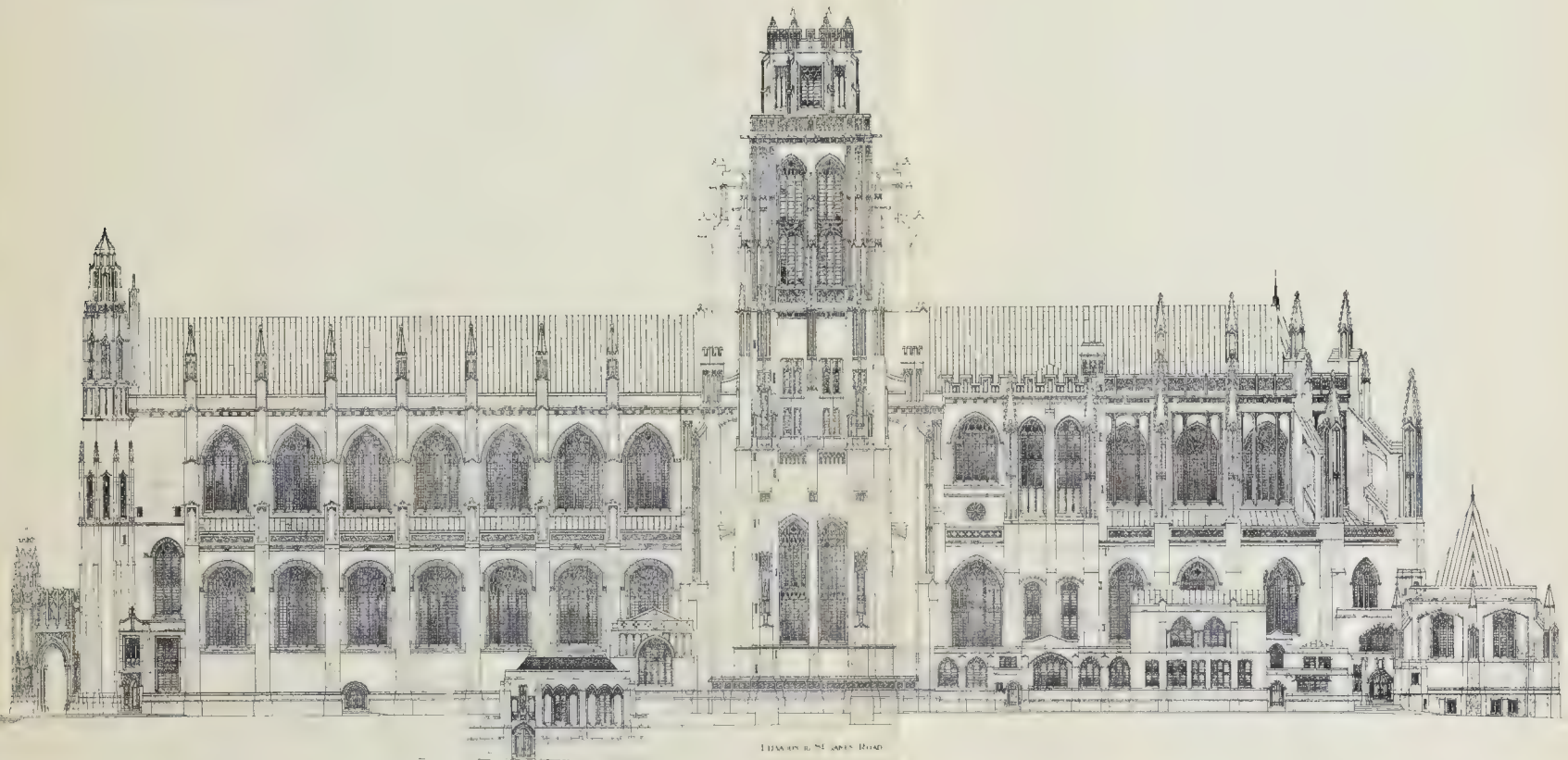


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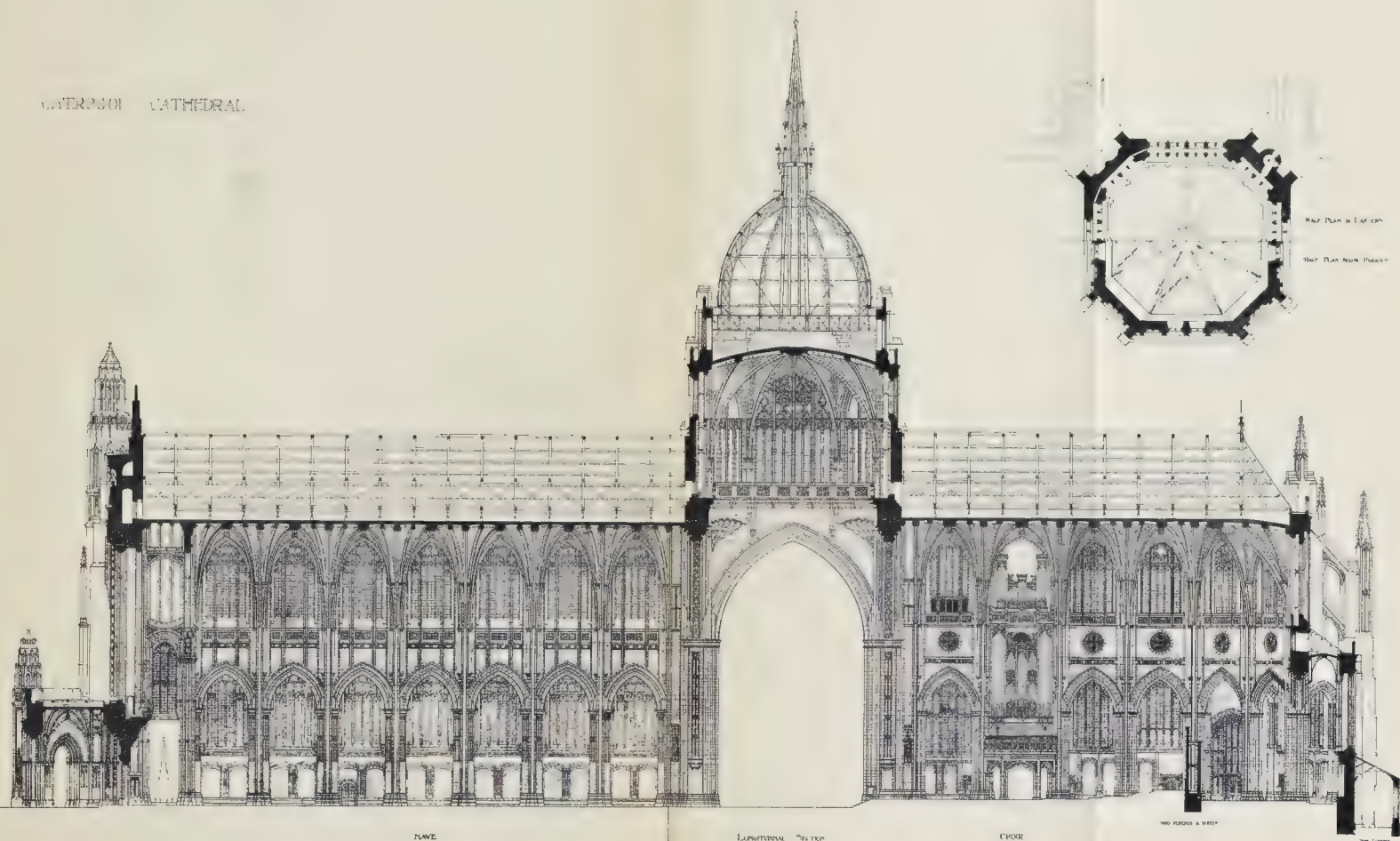
LIVERPOOL CATHEDRAL COMPETITION DESIGN BY MESSRS AUSTIN & PALEY.







LIVERPOOL CATHEDRAL



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LIVERPOOL CATHEDRAL COMPETITION.—DESIGN BY MESSRS. AUSTIN & PALEY.







LIVERPOOL CATHEDRAL



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total height of towers, 260 ft.—The Bishop of Liverpool seconded the resolution. The edifice would be placed on one of the highest and most picturesque sites of the city, and would be a landmark for many miles around.—The resolution was adopted.—In reply to the Rev. Dr. Porter, Sir William Forwood said Sir William Emerson's plans, prepared sixteen years ago, were for the site occupied by St. John's Church adjoining St. George's Hall. It was a classical design which the Committee thought would be wholly unsuited for the site now selected. In the new cathedral room would be provided for 3,000 persons to see and hear, and a much larger number could be accommodated for a ceremonial purpose.

**TOWN HALL EXTENSION, HULL.**—The first premiated design in this competition was sent in by Messrs. S. B. Russell, Cooper & Davis, & C. E. Mallows, 11, Gray's Inn-square, W.C. The second premiated design was by Messrs. Treadwell & Martin, 2, Waterloo-place, Pall Mall, S.W.; and the third by Mr. A. Bramwell Thomas, 5, Queen Anne's-gate, Westminster, S.W.

### ARCHITECTURAL SOCIETIES.

**LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.**—The first summer excursion of this Society took place on Saturday, the 13th inst., when the members visited the new St. Anne's (R.C.) Cathedral now in course of erection in Cookridge-street, Leeds. The visitors were met and conducted over the works by the architect, Mr. J. H. Eastwood, to whom a vote of thanks was accorded on the motion of Mr. Butler Wilson, President of the Society. The members then inspected additions to Messrs. Spark & Son's Printing Works, where a new system of fireproof flooring, known as the "Fram," has been introduced into Leeds by the architects, Messrs. Butler Wilson & Oglesby. The party afterwards journeyed to Seacroft, where a new Infectious Diseases Hospital is in progress from the Designs of Mr. Edwin T. Hall.

### Correspondence.

#### A SUGGESTION FOR THE INSTITUTE OF ARCHITECTS.

**SIR.**—On Monday next will take place the sixteenth general meeting of the Royal Institute of British Architects for this session, when the gold medal will be presented. On Tuesday occurs the annual dinner, and on Wednesday a meeting of the presidents of the eighteen allied societies by invitation of the President of the Institute. These facts have suggested to me the establishment of an annual R.I.B.A. week (in London and elsewhere as might be determined), as is the custom obtaining with other institutions.

A special week of this nature could be made a distinct benefit and attraction to members of the Institute. Promoters of special exhibitions, dealing with matters connected with architecture and the kindred arts, would quickly find it to their interest to make their displays coincide as to time and place with such an event. No doubt, further proposals may accrue, but for the nonce a rough programme suggests itself to my mind:—

**Monday.**—Exhibition of Prize Drawings. Visits to Exhibitions and Displays of Handicraft, Materials, &c. General Meeting. Presentation of Gold Medal.

**Tuesday.**—Visit to Buildings completed or in course of erection. President's At-home.

**Wednesday.**—Meeting of Presidents of Allied Societies with President of the Institute. Special Papers and Discussions. Annual Dinner.

**Thursday and Friday.**—Excursions to Places of Interest.

BUTLER WILSON,  
President, Leeds and Yorkshire  
Architectural Society.

#### THE LIVERPOOL CATHEDRAL PLANS.

**SIR.**—Mr. Tapper, in his report printed in your last number, says:—"Most careful consideration has been given to the question of a central vaulted space, but it is obvious from the fact that the area underneath the dome of St. Paul's Cathedral, 110 ft. diameter, only accommodates some 1,250 people, anything in the nature of a vaulted space with a floor area capable of accommodating more than

twice that number is unpractical from an artistic and constructional point of view."

Taking the area of Mr. Tapper's nave and dividing it by 3,000, the required accommodation gives not quite 7 ft. super per head. The space under the dome of St. Paul's at this allowance gives nearer 1,800 than the 1,250 Mr. Tapper mentions, practically 50 per cent. more. But the dome is not all the church. The transepts and the western portion alone of the nave are capable of seating 1,200, so that St. Paul's seats, within reach of the pulpit, the number Mr. Tapper says is unpractical.

If the pulpit was brought forward some 20 ft., all in the transepts, as well as those in the nave, could see it; no one would be farther away than in Mr. Tapper's plan, and St. Paul's would have the great advantage of having very few of the congregation behind the pulpit, against the half in Mr. Tapper's plan.

The simple parallelogram is seen all at once, and lacks the mystery of the cross plan. Transepts with the pulpit at the crossing have also the advantage of grouping the congregation nearer the preacher, and if the angles are cut off, as at St. Paul's, the nave will have the nucleus of the best type of plan that has been produced as yet.

W. J. H. LEVERTON.

#### THE TERM REBATE OR RABBET.

**SIR.**—In Parker's "Glossary of Terms used in Grecian, Roman, Italian, and Gothic Architecture," fourth edition, 1845, the following quotations are given under "Rabate, Rabbet."—"Et solvit Wilhelmus Blyth pro le rabbyng et factura stayk-falholis, et replacione corandem, ijs. ijd." Comp. Fr. de Fynkhal, 1488-9. Priory of Finchale, p. cccxlxxiii.; and "The mending of the rabbets of the windowes." Reparations done within the Kings Town of London, temp. Hen. VIII. Bayley's History of the Tower, App. vol. I, p. xviii. [1st edit.] D. M.

\* \* \* The quotations are interesting, but quotations of that date prove nothing as to proper spelling, as there was no rule whatever about spelling; otherwise we might take it as a proof that "reparation" was correct. We feel quite sure that "rebate" is the truly constructed and derived word for modern English.—Ed.

#### "ARCHITECTURE AT THE ROYAL ACADEMY."

**SIR.**—In the otherwise excellent review of the architecture at the Royal Academy your critic last week surely exaggerates a little when, in referring to Design No. 1,513, he says, "both dining-room and kitchen have a south-west aspect—exactly the worst they could have, and that the kitchen window is in a corner of the room on the opposite side from the fireplace." That is to say, the best possible aspect for a dining-room is the north-west. Surely a dining-room that has the sun soon after nine o'clock till sunset cannot have much the matter with it. As to the aspect of the kitchen, I am not one of those architects who believe that, where the kitchen is used also as a living-room by the servants, they require no sun. Your critic also omits to state that there is a second window to kitchen in the wall on the left of the fireplace, giving it a left-hand light.

W. J. DAVIES.

\* \* \* We must apologise to our correspondent as to the fire-place light for the kitchen; we see there is one, but the plan is so very small it escaped our notice. As to the rest we fear Mr. Davies's letter is only another example of the entire ignorance of many architects as to the very meaning of considerations of aspect. To place a kitchen, which must have a fire even in hot summer weather, facing the sun, is simply cruelty to the servants. In a dining-room the direct south sun at luncheon time, and still more the direct and level west sun at dinner time (in summer), is a most serious inconvenience and discomfort in the use of the room. A dining-room aspect should be eastward or toward the east, so as to get the morning sun into it, and have no direct sun into it at meal times. If Mr. Davies ever sits down to dinner on a summer evening in a dining-room facing west he will find this out. His letter shows that he has never thought about it at all. His little drawing is charming; but plan comes before drawing.—Ed.

#### METROPOLITAN ASYLUMS BOARD.

THE ordinary fortnightly meeting of the Managers of the Metropolitan Asylum District was held at the office, Victoria Embankment, on Saturday, Sir R. M. Hensley in the chair.

Among a number of letters received from the Local Government Board was one requesting that the Managers would reconsider their proposals regarding the erection of sanitary annexes at Caterham Asylum, with a view to a reduction being made in the cost. The works Engineer letter from the same Authority enclosed copies of an order authorising the Managers to expend an additional sum, not exceeding 243*l.*, in connexion with the alteration to the Caterham Asylum laundry, and an additional sum, not exceeding 40*l.*, in the erection of a gate, porter's lodge, and other works at the Northern Hospital.

Mr. Helby moved that the following resolution passed by the Board on March 7 last be rescinded:—

"That the Board hereby approve the steps being taken for pulling down the wood structures at the North-Eastern Hospital and for completing the construction of the hospital in permanent materials, and that the whole matter be referred to the Works Committee with instructions to prepare a scheme for the consideration of the Hospitals Committee."

Mr. Helby said that the resolution was carried without anything having been said as to the cost. He was strongly of opinion that all schemes of that character, when brought before the Board should be accompanied by the approximate cost. In this case a sum of 150,000*l.* had been voted away without the slightest comment. In the Hospitals Committee's Report the only reason given for that expenditure was the risk of fire. As had been pointed out on several occasions, the risk involved at the temporary fever hospitals was but small. The only justification for such expenditure was that it would provide additional permanent accommodation, and as to that he contended that the present permanent accommodation was ample.

On a division Mr. Helby's motion was lost by 38 votes to 21.

The Works Committee reported that they had accepted the following tenders:—For the re-building of a portion of the boundary wall of the Grove Hospital.—Mr. J. C. Mason, Camberwell, 146*l.* 12*s.* 6*d.* For the provision of a tank to hold 15,000 gallons of water at the High Wood School.—Messrs. McCormick & Sons, 490*l.* The Committee reported that they had instructed the Engineer to prepare plans of the proposed alterations and additions to Southfield House, Joyce Green, with a view of converting it into a residence for the Medical Superintendent of the Joyce Green Hospital. They submitted the plans and recommended that the Managers approve of the proposed repairs, alterations, and additions to Southfield House, Joyce Green, at an estimated cost of 48*l.*, and that the plan prepared by the Engineer to the Board showing the alterations and additions be forwarded to the Local Government Board for their formal sanction under seal.

This was agreed to.

The Committee further reported that the Engineer had reconsidered the plans, prepared by the late Surveyor, of the proposed cottages for married attendants at Levensden Asylum. The original estimate for their erection was 5,210*l.*, but the lowest tender received was nearly 2,000*l.* above that estimate and considerably in excess of the amount sanctioned by the Local Government Board. As amended, the plans show the cottages face to face, and in order still further to reduce the cost the drainage from them will be carried into the asylum drainage system. It was agreed on the Committee's recommendation to approve the plans. The revised estimate is 5,950*l.*

The Asylum Committee recommended, and it was agreed, "That authority be given for the employment of labour and the purchase of materials for the renewal, at an estimated cost of not more than 1,200*l.*, of two beds of gas retorts and furnaces at the Darent Asylum gasworks, under the supervision of the Asylum Engineer." At a previous meeting of the Board it was decided to obtain tenders for the work on estimates prepared by the Engineer, but the lowest tender sent in was considered to be excessive.

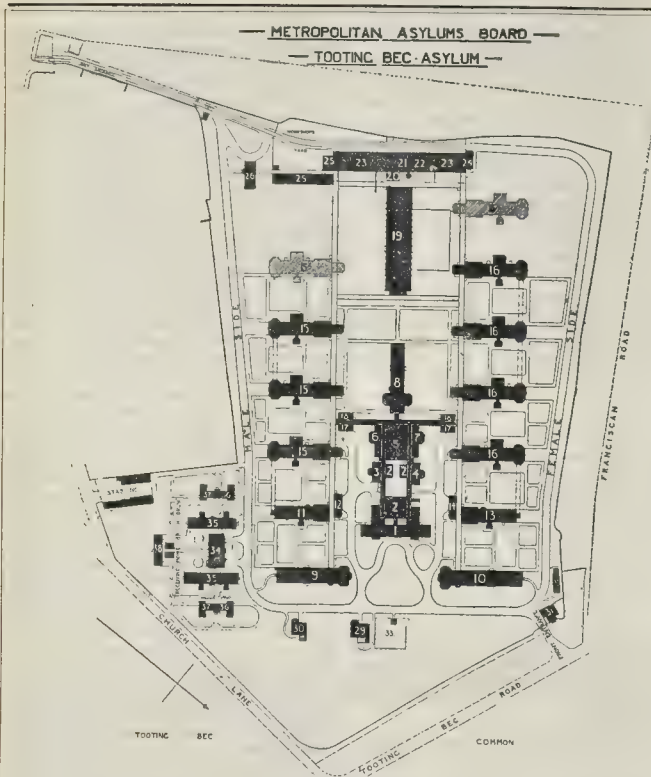
The tender of Messrs. Rosser & Russell, Ltd., 22, Charing Cross, S.W. (1,689*l.*), for the fixing of fire hydrants, &c., at the Levensden Asylum, was accepted, and a further tender of 1,611*l.* for the fixing of hydrants at Caterham Asylum was also agreed to.

The following tender was accepted for the construction of surface-water drains at the Joyce Green Hospital in accordance with the plans and specification of Messrs. A. & C. Henson, architects. The architects' revised estimate was 962*l.*—Alex. Wilson, 4, Vulcan-road, Brockley, S.E. 69*l.* 11*s.*

The following tender was also accepted for re-pointing certain brickwork at the Park Hospital:—T. Robinson, 14, St. George-square, Regent's Park, 276*l.* 12*s.* 5*d.*

The Hospitals Committee reported upon the letter from the Local Government Board, in which that body stated that they were not prepared to sanction the proposal of the Managers to provide additional accommodation for ambulance nurses at the South-Eastern Ambulance Station, on the ground, apart from any other, that the cost appeared to be altogether disproportionate to the amount of accommodation which would be obtained, and they further asked the Managers to consider whether it was necessary to provide at the ambulance stations an amount of accommodation of this kind, based on exceptional experience such as the recent epidemic of smallpox. The Managers had agreed that the accommodation was necessary, as the amount of cost they now pointed out that the accommodation given would consist of eight nurses' bedrooms, two cubicles for female servants, a messroom and chaperon room for nurses, lockers for nurses, together with bathroom and lavatory accommodation for both nurses and female servants. The estimated cost was 2,950*l.*, and the provision of the such accommodation necessitated a good deal of work which would otherwise be unnecessary, including





Block Plan of the New Asylum, Tooting Bec.

## Reference.

1. Offices and Staff Quarters.
2. Stores.
3. Dispensary.
4. Needle-room.
5. Kitchen.
6. Attendants' Mess-rooms.
7. Nurses' Mess-rooms.
8. Domestic Block.
9. Attendants' Block.
10. Nurses' Block.
11. Males' Probation Block.
12. Males' Receiving-rooms.
13. Females' Probation Block.
14. Females' Receiving-rooms.
15. Male Patients' Blocks.
- 15A. Male Patients' Future Extension.
16. Female Patients' Blocks.
- 16A. Female Patients' Future Extension.
17. Visitors' Rooms.
18. Attendants' Rooms.

19. Laundry.
20. Cashouse.
21. Boiler-house.
22. Dynamo-house.
23. Coals.
24. Disinfectant-house.
25. Workshops.
26. Mortuary.
27. Weighbridge.
28. Meter-house.
29. Steward's House.
30. Foreman of Works' House.
31. Porter's Lodge.
32. Greenhouse.
33. Rain-water Reservoir.

## Receiving Home for Children.

34. Staff.
35. Imbecile Blocks.
36. Ringworm.
37. Ophthalmia.
38. Isolation Block.

new piers in the basement, girders to carry the projecting chimney rests, &c. Having regard to all the circumstances the Committee did not consider the Architect's estimate of 2,050*l.* was excessive. They recommended accordingly, and also recommended that a copy of the Report be sent to the Local Government Board. This was agreed to.

## THE NEW ASYLUM, TOOTING BEC.

THE accompanying small block plan shows the general arrangement of the several buildings. The asylum forms the principal feature with its central group of administrative buildings, male wards to the left, and female wards to the right. The entrance is from Tooting Bec Common, but there is a second entrance from Church-lane, for bringing in coal and heavy stores and removing refuse, for which purpose a granite tram-road has been laid through the workshop yard to the several coal-stores, and a weighbridge fixed.

The asylum has been designed to afford accommodation for 906 patients, but, for the present, two blocks have been omitted, reducing the number to 802. Staff accommodation has been provided for seventy men and 105 women. The infirmary blocks are three-story buildings, and on each floor there is a dormitory for twenty-four beds, and smaller dormitory for six beds, and two single rooms. The dormitories provide for each patient a lineal wall space of 6 ft., a floor area of 72 sq. ft., and a cubic space of 936 ft. At the further end of, and separated from the main dormitory by a dwarf partition, is a large dayroom. Each floor is self-contained and separately approached from the staircase. It forms,

in fact, a flat for thirty-two patients. At the entrance end are two single rooms, linen and day clothing rooms, broom recess, bathroom, and ward kitchen, with inspection window overlooking the large ward. The sanitary annexe is near the centre of the east side of the ward, and connected by covered bridges with cross ventilation. The staircases are formed of concrete with steps 3 ft. wide, in short, straight flights, encircling a brick central shaft, which contains a hand-power lift for raising coals, &c. At the rear ends the blocks are coupled on the first and second floors by means of bridges formed of concrete and steel, which afford a ready means of escape in case of fire, and in suitable weather serve as ambulatories for the use of patients. On each floor of the staircase is an enclosed recess for the dirty linen basket, opening direct to the external air.

The floors throughout are of concrete and steel construction, without voids of any kind, and the spaces below the ground floors have been solidly filled in. The ward floors are finished with polished oak, with terrazzo margins and curved skirtings. Other floors are finished with terrazzo. The walls are plastered with Barrow septic cement and have curved internal angles. The large dormitories are warmed by Hendry & Pattison's central air-chambered stoves with descending flues, and the dayrooms and small dormitories by similar side stoves. In addition, there are hot-water radiating coils and radiators in the smaller rooms and offices. The windows have double-hung sashes and fan sashes with glazed hopper cheeks, and below each ward window is a grating with a valve for the admission of fresh air at a point at which it will

impinge upon the hot-water coils. In the smaller rooms the air is admitted to the base of the radiators.

The probation blocks are somewhat similar to the infirmary blocks, but provide on each floor day and night accommodation for twenty patients only. A receiving-room adjoins each of these blocks. Two of the single rooms in each block have been padded by Pocock Bros.

The central group are administrative buildings and the front portion contains the offices and quarters of the chief officers and the committee-room.

The kitchen is 43 ft. by 32 ft.; scullery, 43 ft. by 22 ft., with vegetable washing-room, cooks' store, larder, &c. Both kitchen and scullery are lit by windows on three sides and by lantern lights, the floors are paved with siliceous stone, and the walls lined with opalite. They are fitted with steam-jacketed boiling pans in central groups, beef tea and milk pans, steam ovens, gas ovens, hot plates and grinders, and a bakers' oven for pastry. The contract for these fittings was undertaken by Messrs. Moorwood, Sons, & Co., Ltd., and Messrs. H. Smith & Son built the oven.

The arrangement of the laundry is a new departure initiated by the Managers. It has been customary hitherto to divide the asylum laundries into four separate departments, each practically a complete laundry for male and female patients, and male and female staff respectively. This, of course, involved expense in building, and rendered supervision difficult. Acting upon the Managers' instructions the architects have much simplified this building, and it now has but one washhouse and one ironing-room for the whole of the work. There are separate receiving-rooms and packing-rooms for staff and patients, a steeping-room for foul linen, and four drying-closets. The laundry has been fitted up with the most modern and approved machinery and fittings under the supervision of Mr. W. T. Hatch, M.I.M.E., Engineer to the Board. It is electric driven, and the drying-rooms are fitted with horses, the drying being effected by hot air on the Plenum system. The contractors for this work were Messrs. Entwistle & Gass, of Bolton.

The mortuary is near the back entrance, and consists of a dead-house, fitted with a cabinet; a friends' room, post-mortem-room, and pathological-room. A disinfectant-room is being built at the west end of the boiler-house block, and will be fitted with a Lyon's steam disinfectant, with vacuum apparatus. At the rear of the laundry is the boiler-house, with steam coal store, gas-house, dynamo-house, and cellroom, and in continuation of the same block two large stores for house coal in immediate connexion with the side covered ways. All these buildings open into an enclosed workshop yard.

The buildings generally are built of stock bricks, faced with Lawrence's red bricks with blue Staffordshire plinths, and they are covered with Bangor slates. The boundary-walls are built with pressed Leicester red bricks and blue Staffordshire plinths and capping. Next Tooting Bec Common the land is enclosed by a wrought-iron fence, 8 ft. 6 in. high, supported by cast standards. The corridors have concrete flat roofs covered with asphalt, the covered ways have glass roofs, on Rendell's system, carried upon iron columns, and the floors which cover the pipe ducts are of concrete asphalted. The water-supply is from the mains of the Lambeth Waterworks Co. For fire purposes, a 6-in. main is run to, and through, the main ducts, forming a ring with 6-in. and 4-in. branches. For the domestic supply, two cast-iron tanks, each upwards of 25,000 gallons capacity, have been erected over the staircases of the two central blocks at a height of 80 ft. These tanks are connected with the fire main, so that in case of a temporary stoppage of the company's supply the water in the tanks will be available, and the pipes are so arranged that one tank may serve the whole building while the other is being cleaned. The rain-water is collected in an underground reservoir of 120,000 gallons capacity situated in front of the main building, this being the lowest part of the site. The reservoir has a wash-out pipe and an overflow to the drainage system, and the water is pumped by an electric pump to the laundry-tank for use in the laundry and as feed-water for the boilers, the pump being controlled by a switch in the boiler-house.

There are three steam boilers of the Galloway type, with Green's economiser and mechanical stoker by the Underfeed Stoker Co., the forced draught for which is furnished by a Sturtevant blower driven by an electric motor. These boilers form the heat centre for the whole building, supplying steam for warming purposes, for heating water, for laundry and kitchen, and for steam-supply mains are carried through the several ducts, and the water of condensation is brought back to the hot well next boiler-house, and re-used as feed water. The hot-water pipes and radiators in the several blocks are worked by Royle's calorifiers with automatic control attachments, which regulate the supply of steam to the quantity necessary to maintain a suitable temperature. The hot water for baths, lavatories, sinks, &c., is heated by means of a similar calorifier in the basement of each building, with circulating pipes to the several fittings.

The lighting installation consists of about 2,300 glow lamps of 8 c.p. or 16 c.p., and twelve arcs for



lighting the laundry, and has been carried out on a novel principle devised by the consulting engineers. This system, which may be called the draw-through concentric system, consists in running on the surface of the walls, but not in the plaster, small brass pipes varying from 5-16 in. to 7-16 in. internal diameter, and drawing into them a single (or in the case of a three-wire circuit, two) insulated conductors, the pipe serving at the same time as a channel for, and a protection to, the cable, and as the return conductor for the current, one pole being thus connected to, and at the same pressure as the earth; it is impossible to accidentally obtain a shock, and only half the usual amount of wire is required. The lamps are supplied at 120 volts on the three-wire system, and, there being a complete ring main, there are four circuits available for the current, rendering it practically impossible for any break-down of the main cable to put out more than half the lights at once. Each separate block has its own service box and main switch, by which it can be disconnected at any time from the ring mains, and all the fuses are grouped in distribution fuse-boards in the passages, there being not more than ten lights on a circuit. The electric generating plant marks a new departure in any practical installation, the motive power being supplied by power gas instead of the more usual steam. The engine-room contains three gas-engines, each giving a maximum of 70 B. H. P. at about 210 revolutions per minute, and driving by belt a shunt-wound dynamo, giving 140 amperes 250 volts, at 550 revolutions. As a general rule, two engines are in use, the third being a stand-by. In addition to the three dynamos there is a battery of accumulators, consisting of 132 L. B. 9-Tudor cells, capable of discharging at 56 amperes for ten hours at 240 volts, or in other words of supplying 1,000 16-c. p. lamps for ten hours.

The boilers and the electric generating plant and wiring were carried out by the most experienced contractors from designs prepared by Messrs. Handcock & Dykes, and under their supervision:—Boilers, Messrs H. & T. Danks; generating plant, Messrs. Crompton & Co.; wiring and main cables, Messrs. R. Dawson & Co.

Gas is supplied by the Mitcham and Wimbledon District Gas Light Company for cooking purposes, and for the plate warmers and hot plates in the ward kitchens. The soil and surface-water drainage discharge into the sewers of the Wandsworth Borough Council. The branch drains are disconnected from the main drains, and these in their turn disconnected from the sewer. An electric fire alarm system has been installed with thirty-six call boxes, ten alarm bells, and two indicator boards. There is also telephonic communication between the various departments through an "exchange" at the porter's office. This work was done by Messrs. Julius Sax & Co. Ltd.

Messrs. W. Johnson & Co. carried out the main contract, which included steam mains, hot-water engineering, tanks, &c., together with road-making and ground work. Their contract amount was 204,523s., but owing to saving effected on the laundry building and in other matters, the work was finished for about 2,000l. less. Mr. J. T. Rees acted as clerk of works.

The architects are Messrs. A. and C. Harston.

#### BOOKS RECEIVED.

ESTIMATING: A METHOD OF PRICING BUILDERS' QUANTITIES FOR COMPETITIVE WORK. By George Stephenson. (E. T. Balford, 43, 6d.)  
NEW SERIES: THE VALUE OF LANTHERNE AND PERRANABULOE. (The Homeland Association, 6d.)

TECHNICAL ARITHMETIC AND GEOMETRY. By C. T. Mills, M.I.Mech.E. (Methuen & Co. 3s. 6d.)  
PROCEEDINGS OF THE ONTARIO ASSOCIATION OF ARCHITECTS. Third Annual Volume, 1903.

DOUBLE ENTRY, OR THE PRINCIPLE OF PERFECT BOOK-KEEPING. By Ernest Holah. (Eflingham Wilson, 2s.)

#### GENERAL BUILDING NEWS.

ST. JAMES'S UNITED FREE CHURCH, KILMACOLM.—The new church which has been erected in Kilmacolm for the St. James's United Free congregation, is now ready for occupation. The church, which is situated on the rising ground in Dunchal-road, has been designed by Mr. William Leiper, R.S.A., Glasgow. The general plan is a nave with wide aisles and chancel, and the building is constructed of stone, internally as well as externally. The nave is divided from the aisles by arcades of three bays, the piers and arches being tiled. Above these are clerestory windows filled with tracery. A moulded stone arch divides the chancel from the nave, which has a hammer-beam roof open to the ridge. Accommodation, without galleries, is provided for about 600 sitters. The choir seats and stalls for the elders are in the chancel, and, along with the pulpit, which is at the north pier of the chancel, are of oak. The communion-table is in the centre, in front of the stalls. An organ chamber, with arched openings to the chancel and aisle, is at the south-east, and the vestry is at the opposite side. A feature in the design is a tower, which rises to the height of

120 ft., and is finished with a saddle-back roof and fleche. There is an angle stair turret giving access to the bell-chamber and the parapet over the belfry. A hall and various church offices complete the design. The various contractors are:—Mason, Wm. Steel, Greenock; joiner, James Grant, Glasgow; roof, tiles, &c., Charles Wallace, Paisley; plumber, D. McIlwraith; plasterer, Allan Hamilton; carving, James Young and Geo. Gregory; heating, Boyd & Co., Paisley; painting, John Hatrick; floor tiles, Kean & Wardrop; leaded glass, George Hunter; and electric wiring, Kemp & Co., Glasgow. The clerk of works was Mr. James Murray. The organ was built by the firm of Brindley & Foster.

CHURCH, DEAN, EDINBURGH.—A new parish church has just been erected at Dean, Edinburgh. The plans were prepared by Messrs. Dunn & Findlay, architects. There are 935 sittings, about 300 more than in the former church. The estimated cost of the building is 9,500l.

PARISH CHURCH, HARTSHORNE, DERBYSHIRE.—Hartshorne Parish Church was reopened recently after being restored and enlarged from the designs prepared by Mr. G. F. Bodley, R.A. The enlargement includes a new chapel vestry, north aisle, east window, and the opening out of the tower. The Perch mill, which was removed to the west door, the floor paved with wood blocks, the aisles laid with York stone, and the church provided with chairs, seating accommodation being afforded for 250. A new pulpit and lectern have been introduced, the organ has been built in the gallery, and choir stalls have been erected opposite the altar. The cost has been 2,600l.

ROMAN CATHOLIC PAROCHIAL HALL, GLASNEVIN.—A new Roman Catholic parochial hall has been erected in the grounds of the Chapel of Our Lady of Dolours, Glasnevin. The hall, which will be capable of accommodating about 500 people, has been designed by Mr. T. A. Coleman, of the firm of Messrs. Ashlin & Co., and the contract has been carried out by Mr. D. Daly, builder, of Drumcondra.

METHODIST CHAPEL, ST. GEORGE, BRISTOL.—The foundation-stones of a new Methodist chapel to be erected in Church-road, St. George, were laid recently. The length of the building will be 68 ft., the width 40 ft., and the height inside will be 32 ft. Two main entrances will be provided, and a side entrance to the minister's vestry. The building will be of Pennant stone, with Bath stone dressings, and the inside fittings of the chapel will be polished pitch-pine. A gallery will run all round the interior, and accommodation will be provided for 600 people. Messrs. Howdill & Howdill, of Leeds, are the architects.

NEW TRAPESE AND ORGAN, CHURCH OF ST. JOHN THE BAPTIST, BELFAST.—A new transept and organ have recently been dedicated at this church. Mr. G. Benson, of Manchester, supplied the organ; Mr. D. M. Henry, of Mosside, Donmurry, was the general contractor. The improvements have been carried out from the designs of Mr. Close, architect, of 20, St. George's-road.

METHODIST SCHOOLS, HUCKNALL, NOTTINGHAMSHIRE.—The foundation-stones were laid on the 2nd inst. of new Sunday-schools, to be erected at Hucknall Torkard at a cost of 3,000l. The new schools, for which Mr. A. H. Goodall, of Nottingham, prepared the plans, are immediately at the rear of the chapel. Every available foot of land has been utilised to give space for a central hall and classrooms, the chief entrance being from the 9-ft. roadway on the north side of the chapel, and this will communicate with a church parlour, 31 ft. long by 21 ft. wide, providing accommodation for 120 persons. On the ground floor there will also be an infants' room, 22 ft. by 21 ft., with a gallery for 110 children, two classrooms, kitchen, and lavatories. Two staircases, for boys and girls respectively, will afford access to the assembly hall on the first floor, and this will measure 44 ft. by 36 ft. A gallery on three sides of the hall will contain provision for 200 persons, and with room on the ground floor for 320 the hall will accommodate a total of 500 people. In addition there will be three classrooms on the east side and two on the south, which, when desired, can be thrown into the hall by removing folding screens, the upper part of which will be glazed. From the gallery five more classrooms will be accessible, and when these ten classrooms are opened out accommodation will be found for 754 adults. In addition, two classrooms will be constructed on the north-east angle of the site, and altogether there will be eighteen classrooms, giving space for 582 scholars. The heating is to be by hot-water pipes and radiators. Mr. J. A. Munks, of Hucknall, is the contractor.

WESLEYAN SCHOOLS, LOUGHBOROUGH.—The memorial-stones were laid recently at the new Wesleyan schools to be erected in connexion with the Wesley chapel (Methodist New Connexion), Woodgate, Loughborough. The plans, prepared by Messrs. Barrowcliff & Alcock comprise a main schoolroom, 33 ft. by 25 ft., at the street end of which are two classrooms, and at the other end a kitchen. The building will be heated with hot water. The contract has been placed in the hands of Messrs. T. Barker & Sons.

RE-OPENING OF RODBOURNE CHURCH, WILTSHIRE.—The Church of the Holy Rood, Rodbourne, has been restored and reopened. The undertaking, under the superintendence of Mr. Brakspear,

architect, was commenced in October last, and Messrs. Downing & Rudman, of Chippenham, were the contractors. There is an open timber roof; the north wall was thoroughly repaired, and the south wall and porch were practically rebuilt. A wooden floor has been laid. Originally the chancel floor was lower than that of the nave, but it is now raised, and brought a step above the floor of the nave. The old screen remains, and a curious ancient stone seat, which had many years ago been taken away and found in a farmyard, has been restored to its former place in the chancel.

BLEDLOW CHURCH, BUCKINGHAMSHIRE.—A fund is opened for the restoration, at an estimated cost of 800l., of the tower and belfry of the parish Church of Holy Trinity, Bledlow. About forty years ago 1,400l. was expended upon the reparation of the body of the church, which is constructed of flint and stone, and has a chancel, a nave of four bays, and aisles, with a south porch and west tower. The style is mainly Late Norman of the Transitional period, the windows and clerestory being Decorated.

WESLEYAN CHAPEL, BISHOP STORTFORD.—A Wesleyan chapel has just been opened at Bishop Stortford. The new chapel has been erected from the design of Messrs. Gordon & Guntton, of London, by Mr. Hy. Feast, of Haddenham, at a cost of about 5,500l. It is in the Gothic style, and built of red brick, with Bath stone facings, and will hold a congregation of 600. It contains a rostrum and choir stalls, and a space has been reserved for vestry organs. A lobby extends the width of the building, from the body of which it is separated by a tinted glass screen. At the rear are two vestries. The interior woodwork is of pitch-pine, and the floor is paved with maple wood blocks. The floor of the lobby is paved with mosaic work. There are five windows of cathedral glass on the south, four on the north, and a Gothic window in the east.

METHODIST BUILDINGS, WALLSEND.—The foundation stones of new buildings for the Methodist New Connexion community of Wallsend have just been laid. A site has been procured at a cost of 1,000l. for a new church and schools facing Wallsend Park. The new church will have seating accommodation for 500 persons, and will have a small gallery at the west end and transepts. The organ recess is at the east end, and accommodation is provided for a choir of forty. The schools will hold over five hundred children, and will consist of a central hall with eight classrooms of the same. There are also a church parlour and a minister's study. The building will be heated by hot water. The church is Gothic in design, and will be treated in red brick with stone dressing and red tiled roof, with tower and spire. Mr. Benjamin F. Simpson, Newcastle, is the architect, and the contract has been let to Mr. W. T. Weir, of Willington Quay. The entire cost will be over 6,500l.

WESLEYAN CHURCH, WEST KIRBY, CHESHIRE.—On the 10th inst. the foundation-stones were laid in connexion with the new Wesleyan Church, Westbourne-road, West Kirby. The total cost of the church will be about 3,600l. The new church, which has been designed by Messrs. John Wills & Sons, of Derby and London, will be 58 ft. long by 41 ft. inside, with seating accommodation for 345 persons, or a mixed congregation of 400. The design is Gothic, and the exterior facing will be local rock stone with ashlar dressings round the windows and doorways. The pulpit, seats, and ceiling are of pitch pine. The work of building is being carried out by Mr. Samuel Fowler, Bootle.

CHURCH RESTORATION, BASSALEE, MONMOUTHSHIRE.—The ancient tower of Bassalee Church, for some months past been undergoing restoration, including new lead flat, new beams and floors, rehanging of bells, opening out of the arch between tower and nave, with the addition of an oak screen; the clock altered and repaired, &c. The church has now been handed over to the contractors for thorough restoration, which will include new roofs inside and out, new glazing of windows, decoration of the interior, new heating apparatus, &c. The work is being carried out by Messrs. S. Shepton & Son, of Cardiff, from designs by, and under the supervision of, Mr. C. B. Fowler, Cardiff.

ST. BARNABAS' NEW CHURCH, ROCK FERRY, CHESHIRE.—The foundation-stones of the new church for St. Barnabas' district, in connexion with the Church of St. Peter, Rock Ferry, was laid on the 11th inst. The new building occupies a position at the corner of Russell-road and Bedford-place, and between New Chester-road and the Mersey. It is to be Gothic in style, 120 ft. long, 50 ft. wide, and 32 ft. in general height from floor to ridge, the height of the belfry-tower at the west end rising to 45 ft. It is to be a grey-brick building with terra-cotta dressings and stone interior dressings. A feature of the interior will be pitch-pine roof and seating, with wooden-block flooring. It will include nave and chancel, choir and clergy vestries, a centre aisle, and two side aisles. The new building will cost between 4,000 and 5,000l., in addition to the site. The architects are Messrs. Grayson & Ould, Liverpool, and the contractor Mr. Richard Allen, of Birkenhead.

CHURCH, GOWNA, IRELAND.—On the 11th inst., at Gowna, Co. Cavan, the foundation-stone was laid of the new church. The new edifice will be capable of accommodating 800 people. The con-



tractor for the building is Mr. Thos. Fee, of Longford, and the architects are Messrs. Hague & McNamara, Dublin.

**SCHOOL BUILDINGS, COSELEY, STAFFORDSHIRE.**—The memorial stone has just been laid of the new school for girls, cookery, laundry, and woodwork centres, at Mount Pleasant, Coseley. The new girls' school is for 350 scholars, and is placed with its chief elevation to Mount Pleasant-street. It has a large central hall and seven classrooms, together with cloak-room, lavatory, and other conveniences. The central hall is lighted by clearstory and dormer windows, and the classrooms with arched windows. A central flèche is placed upon the main roof. The block containing the cookery and laundry centres is situated upon the Ivy House-lane side of the site. There will be a room for sixty cookery students, with scullery, cloakroom, and lavatory attached, and another similar room for the accommodation of sixty scholars in the laundry department. This is provided with a drying-room and other requisite appliances. Upon the south-east, or boys' side of the site, the centre for the teaching of woodwork is placed. This contains a workshop, with cloak and lavatory accommodation. The existing mixed and infants' school will be converted into a boys' department and infants' department. The materials employed are brick and stone, relieved by moulded brick strings, and pressed arches and quoins. There will be tile roofs, and wood-block and granolithic floors. The interior will have glazed brick dados. The ventilators are those of Messrs. Walters, of Wolverhampton, and the low-pressure heating apparatus is being installed by Messrs. Glydon, of Birmingham. The contractor is Mr. Henry Gough, of Wolverhampton, the amount of whose tender is £8,394. The work is being executed from the designs and under the personal superintendence of Mr. S. Henry Eachus, architect, of Wolverhampton.

**SCHOOL, ABERFAN.**—A new mixed school, to accommodate 350 children, has been erected for the Merthyr School Board at Aberfan, Merthyr Vale. The building occupies the north end of the site, having a frontage of about 130 ft. towards Moy-road, and a depth of 60 ft. the offices being placed along the back boundary wall. The design has been based upon the central hall principle, with all classrooms opening out thereon. The central hall is 50 ft. by 20 ft., and may be divided into two parts by means of a glazed folding partition, each portion being used as a classroom for fifty infants, if necessary. When not so required the hall may be utilised for drill or general assembly purposes. There are six classrooms in addition, two 22 ft. by 23 ft., and four 22 ft. by 24 ft. 8 in., and accommodating fifty infants each, with a large cloakroom at either entrance. There is also a room for the headmistress and the teaching staff, with book store, &c., attached. The works have been carried out by Messrs. E. R. Evans & Bros., contractors, Cardiff (the contract price being £4,671. 13s.), from the designs and under the superintendence of the Board's Architect, Mr. J. Llewellyn Smith, Mr. Gwilym Jenkins acting as clerk of the works.

**BOARD SCHOOLS, YNYSHIR, GLANORGANSHIRE.**—A new school for the Rhondda Board has just been opened at Ynyshir. The school has been built on the mountain side, and the preparation of the site alone cost about £3,000. It has a frontage of 172 ft. The contract price was £11,600, and the school provides accommodation for 354 girls and 420 infants, including a cookery room for fifty-four pupils. In the basement there is a covered playground 67 ft. long by 24 ft. and the infants' department, which is on the ground floor, comprises seven classrooms, a marching hall, 68 ft. 6 in. by 25 ft., and a cloak-room. On the upper floor, with accommodation for girls, there are seven classrooms, separated by glass partitions, and a marching hall. In all the departments private rooms have been provided for the teachers. The building has been designed by the board's architect, Mr. Jacob Rees, Pentre, who has also superintended the work. The contract was carried out by Messrs. Jenkins & Son, Pentre.

**SCHOOL, HOLYSTONE, NORTHUMBERLAND.**—The foundation-stone of this new school was laid on the 10th inst. The buildings are to be built of red brick with grey slate roof. The school is planned to accommodate 400 children, and comprises both mixed and infants' departments, including a central hall to the mixed school and a marching corridor for the infants to exercise in. The work is being carried out by Mr. Nichol Ritchie, builder, Whitby, from the designs and under the supervision of Messrs. Oliver, Leeson & Wood, architects, Newcastle-upon-Tyne.

**DEVON COUNTY ASYLUM EXTENSIONS.**—The following tenders have been received for carrying out further extensions at the Devon County Asylum, Exminster—Davies, Cardiff, £2,500; Westcott, Austin, & White, Exeter, 30,799; Pethick Bros., Plymouth, 36,711; Blake, Plymouth, 34,183; Dart, Crediton, 30,877; Collins & Godfrey, Tewkesbury, 35,726; Stephens & Sons, Ltd., Exeter, 20,875; 10s.; Laphorn & Co., Plymouth, 32,177; Wakeman Bros., Plymouth, 32,021; Coles, Plymouth, 33,416. The tender of Messrs. Stephens & Sons has been accepted.

**"TECHNICAL INSTITUTE, RICHMOND."**—In reference to the paragraph under this heading which appeared in our last issue, the name of the town

was incorrectly given. The new building is situated at Wimbledon, not Richmond.

**BANK, GLASGOW.**—A new building at the corner of Glassford-street and Tron-gate, Glasgow, has been erected by the directors of the National Bank of Scotland, Ltd., as a branch office. The ground covered by the new building is about 40 ft. square, and the bank office occupies the whole of the street and basement flats. The upper floors are to be occupied by Messrs. Munroe & Co. The design is treated with horizontal bands of masonry, each angle being marked by corner turrets with a lofty dormer window between, flanked by sculptured figures, and the whole crowned with a steep pyramidal roof having a wrought-iron cresting. The stone has all been obtained from Pleau Quarry, and the whole contract has been carried out by Messrs. A. Muir & Son, builders, Nithsdale Drive. The sculpture work was executed by Mr. Birnie Rhind, A.R.S.A., the electrical elevator by the Otis Co., the steel work by Messrs. P. & R. Fleming, the safe by Messrs. Chiswood & Co., and the floors by Mr. Stofert. The electric installation is by Messrs. W. Bryden & Son, heating by Messrs. Mackenzie & Moncur. The architect was Mr. Thomas P. Marwick, Edinburgh, and the clerk of works Mr. John Currie.

**ORPHANAGE, IPSWICH.**—The Hope House Orphanage, Ipswich, is to be enlarged from plans prepared by Messrs. Eade & Johns. The contract has been placed in the hands of Mr. C. Roper, Ipswich.

**SCHOOL SWIMMING BATHS, BRADFORD.**—On the 11th inst. the new swimming-bath, laundry, and cookery-rooms recently built in connexion with the Faversham-street Board School, Leeds-road, Bradford, were opened. The buildings have cost about £6,000. The swimming-bath is 56 ft. long by 18 ft. wide, with dressing-rooms and gallery above. There is also an instructor's room, and a manual training-room, laundry, and cookery-rooms, each of the two latter being 28 ft. long by 34 ft. wide. Mr. Mawson, of Messrs. Mawson & Hudson, was architect.

**CONGREGATIONAL CHURCH AND SCHOOL, LITTLE ILFORD.**—The tender submitted by Messrs. F. Gough & Co., Hendon, has been accepted. The block comprises church to accommodate about 724 adults, and the usual vestries, &c., also a two-story school, the main hall being on the upper story, and the classrooms and small hall on the ground floor. The buildings are faced externally with red bricks, and the dressings are of white Costessey work. A tower forms a prominent feature at the corner. The contract amounts to £4,351. The architects are Messrs. George Baines & R. Palmer Baines, Clement's Inn, Strand, London, W.C.

**OPEN-AIR THEATRE, PORT SUNLIGHT.**—On the 13th inst. an open-air theatre was inaugurated by the Mayor of Bolton at Port Sunlight. The permanent building contains a stage 50 ft. by 35 ft., and dressing and other rooms. The auditorium is 158 ft. 6 in. long, by 95 ft. wide, and is formed of concrete, with a large centre area rising gradually to the back, and with stepped galleries all round, the end being octagonal. This area will be covered with benches, which will seat nearly 3,000 people. The audience will be sheltered from the weather and sun by a steel-framed roof carried upon iron columns, over which will be stretched strong waterproof canvas, the sides being clad in white of same material. The ironwork has been supplied by Messrs. E. F. Bleakley & Co., and the builders' work has been carried out by the building department of Messrs. Lever Brothers, from the designs of Messrs. Grayson & Ould, Liverpool.

**DURHAM COLLEGE OF SCIENCE, NEWCASTLE.**—At a meeting of the Council on Monday last, Mr. W. H. Knowles was appointed architect, and Mr. J. P. Allen, quantity surveyor, in connexion with the completion of the college buildings.

#### MISCELLANEOUS.

**PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.**—Mr. Gordon P. G. Hills, architect, has removed his office from 4, Adam-street, Adelphi, to 7, New-cour, Carey-street, Lincoln's Inn, W.C.—Messrs. E. C. & J. Keay, iron-rod contractors (Birmingham), have appointed Mr. Louis Marshall, of St. James's Chambers, 38, Church-street, Sheffield, as their sole agent for the counties of York and Lincoln. With reference to the notification in our issue of the 13th inst. as to Mr. Bertram Blount having removed from No. 2, Broadway, Westminster, to 76 and 78, York-street, Westminster, we are requested by Mr. R. H. Harry Stanger, son of the late Mr. W. Harry Stanger, of the firm of Messrs. Stanger & Blount, to state that he, having succeeded to his father's business, is carrying on the testing works and chemical laboratories at 2, Broadway, Westminster, in his own name.

**FOUNTAIN, DARTMOUTH.**—At Dartmouth, recently, the Mayoress opened an ornamental fountain on the New Ground. The fountain, as reconstructed and improved, has been designed by the Borough Surveyor (Mr. A. Smith).

**ROMANIAN MINER TRADE.**—It appears from official returns that the annual value of the exports of timber from Galatz has risen in the short space of three years from 110,000 to 720,000. As far as supply is concerned there would seem to be no

reason why the export should not go on increasing, for the Rumanian forests are said at present to comprise 746,688 acres of pine and fir; 1,306,476 of beech, alone or mixed with fir; 1,662,293 of oak, alone or mixed with fir; 1,712,224 of oak, alone or predominant; 244,356 of poplar, and other soft white woods, and alder.

**WINDOW GLASS MAKING IN CALIFORNIA.**—One of the latest industries to be established in the Western States of America is that of window glass making. A factory has been opened at Stockton which turns out about 45 tons of glass a week. Stockton was apparently selected as the site of the factory on account of its natural position within easy communication by water with San Francisco, plenty of fuel handy, and a specially good quality of sand being found close at hand in the surrounding districts. The Stockton factory (according to an official report made by the English Consul) will probably in the immediate future supply the whole of the glass used on the Pacific slope. To-day it is hardly able to meet all the calls made upon it. The British glass trade, so far as California is concerned, has long since been killed, and the Belgian is being seriously cut into. The labourers work on an eight-hour shift, forty hours constituting a week's work. The blowers are paid from 6 dols. 50 c. a day upwards. The fuel used is oil. Glass blowing is almost a close corporation in America, the men belonging to a union that adjusts its own grievances and gains them higher pay than is received by any other body of working men. It is known as "The Window Glass Workers' Association of America," and is probably the most exclusive on record. Only sons and brothers of glass-blowers are permitted to join, so that a son of a glass-blower with but rare exceptions follows in the footsteps of his father. He usually begins at the age of eighteen to be what is known as a snapper. He works at this a year or more, according to his skill, when he becomes a gatherer. It usually requires three years' experience at this before he can become an expert blower. It is said, however, that the American Window Glass Company have produced a machine which will work with delicacy and turn out three times as much work in a given time as a glass-blower. It is believed that this machine will revolutionise the industry.

**COURT OF COMMON COUNCIL.**—At the last meeting of the Court of Common Council, Mr. Morton, as Chairman of the Streets Committee, in answer to a question by Mr. Pridmore on the subject of the Building Acts Amendment Bill, said that the Committee had asked for a draft copy of the new Bill which would be discussed at a meeting of the County Council early next month. The Committee would endeavour to arrange a conference with the County Council on the subject as soon as possible afterwards.—Mr. Luck asked Mr. Deputy Pannell, the Chairman of the Epping Forest Committee, a question as to a proposal by the Local Authority of Leyton to erect a hospital for diphtheria and other diseases in the near vicinity of Epping Forest. Mr. Deputy Pannell said the Local Authority at Leyton had discussed a proposal for the erection of such a hospital. They had expressed a wish to interview the members of the Committee on the subject, and a deputation would attend accordingly.

**THE METROPOLITAN WATER BOARD.**—At a meeting of the Metropolitan Water Board, held on the 13th inst., under the chairmanship of Mr. R. M. Beachcroft, it was decided to appoint Mr. Albert B. Pilling, at present Town Clerk of Devonport, to be Clerk of the Board, at a salary of £1,500 a year. The estimated expenditure of 30,000, in connexion with the arbitration proceedings, was passed, and it was decided to retain Mr. Fletcher Moulton, K.C., Mr. J. D. Fitzgerald, K.C., Mr. Freeman, K.C., Mr. Honorary Lloyd, and Mr. A. B. Shaw as counsel, and Sir Alexander Binnie, Mr. G. F. Deacon, and Mr. E. Brough Taylor as advising engineers in relation to the same proceedings.

**MARBLE HILL, TWICKENHAM.**—At their meeting on June 6, the Richmond Town Council approved an agreement which has been provisionally arrived at on the part of their General Purposes Committee. Sir John Whittaker Ellis, and representatives of the London County Council, whereby a controversy that threatened to result in an untoward dispute is happily determined. Certain covenants have been drafted whereunder only one dwelling-house may be erected within a defined line at the back of Cambridge open gardens, while the remainder and portion of the Haversham Grange Estate are to be protected from any further buildings other than conservatories and similar garden structures. That arrangement will, in the opinion of the two Councils, fully secure the view from Richmond Hill and the amenities of the immediate neighbourhood. The house and grounds of Marble Hill, Twickenham, which has been the residence of the house of Bute since 1791, and was the residence of the Duke of Devonshire, was built, at the charges of Frederick, Prince of Wales, for the Countess of Suffolk, Mistress of the Robes to Queen Caroline of Anspach, and afterwards became the residence of Mrs. Fitzherbert, Richard first Marquis of Wellesley, and General Peel, son of the distinguished statesman. It was erected from designs by Henry, Earl of Pembroke and Montgomery, the Boreham and great staircase being constructed of Honduran mahogany. Pope, it is said, laid out the gardens. The adjacent cottage, standing within the grounds, and formerly known as Spencer-grove, the



home of Kitty Clive and of Lady Diana Beauclerk, has been pulled down. The new riverside park extends over an area of 66 acres, with a frontage of 670 yards to the Thames. Building operations on part of the land were begun in July, 1901, but, at the instance of the Commons Preservation Society, the London County Council took action in the matter, under their General Powers Act of 1892, in order to prevent or regulate the erection of buildings which might be detrimental to the view from Richmond Hill, and to preserve and improve the estate.

**PROSPECTIVE MANUFACTURE OF CEMENT IN RHODESIA.**—Information has been received at the office of the Board of Trade from the British South Africa Co., to the effect that specimens of different calcareous rocks in the Bubi district of Southern Rhodesia have been forwarded to Bulawayo, for experimental purposes, with a view to producing cement. One specimen was experimented upon in 1895 and the result was declared equal to Portland cement. As, however, the rebellion broke out shortly after, no further steps were taken in the matter. If the opinion arrived at in 1895 should be confirmed, a profitable industry, it is thought, will result in the near future.

**KING'S WEIGH HOUSE CHURCH, MAYFAIR.**—Designs have been made by Mr. J. Annan Bell for the proposed stained-glass windows in the north chancel, above the communion-table, with a brass tablet beneath them. The windows will commemorate several deceased ministers of the church, which was originally established at East Cheap. Amongst them are Dr. Binney, the Rev. John Knowles, Fellow of St. Catherine's College, Cambridge, the Rev. Thomas Kenish, who was parish priest of the church from 1821 to 1858, and the rectory at Overton in Hampshire, and the Rev. Samuel Slater, who before the passing of the Act of Uniformity, 1602, had been for forty years chaplain of the Collegiate Chapel of St. Katharine-by-the-Tower.

**GRECIAN MARBLE.**—The output of the marble quarries belonging to Maronitis Ltd. (a British company), in the Pircus and other parts of Greece, in the year 1902 amounted to 5,201,427 cubic metres, as compared with 4,386,843 in the year 1901. There is a very considerable demand for the marble in the Greek market, and a great deal of it is now also sent abroad. For example, during the year 1902 the shipments to Hamburg comprised 310,889 cubic metres of Pentelicus marble, 72,233 of Styra marble, 16,272 of Tinos marble, and 32,411 of Skyros marble. To New York the shipments were 40,415 cubic metres of Pentelicus, 57,636 of Styra, 17,639 of Tinos, and 126,388 of Skyros; whilst to London were sent 54,822 cubic metres of Styra, 41,428 of Tinos, and 83,083 of Skyros, there were also considerable exports of marble to Trieste, Leghorn, and Antwerp. Although Germany appears in the return as taking by far the larger quantity, it is probable that some of the marble sent to that country finds its way to the United Kingdom in a more finished state.

**CIVIL ENGINEER APPOINTMENTS IN THE ADMIRALTY.**—The Civil Service Commissioners have announced that an open competitive examination for four appointments as Assistant Civil Engineer in the Department of the Director of Works of the Admiralty will be held in July next. Forms of application for admission to the examination, together with a copy of the regulations, may be obtained free of charge on request by letter to the Secretary, Civil Service Commission, Eurlington-gardens, London, W. The forms of application must be returned so as to reach the Civil Service Commission not later than July 2. It is understood that the salary commences at 200*l.* a year, and that Assistant Civil Engineers are eligible for promotion to higher grades.

**ROYAL COMMISSION ON LONDON TRAFFIC.**—On Friday, last week, evidence was given by Mr. G. L. Gomme, the Clerk to the London County Council, before this Commission. Witness gave a history of all the railway undertakings affecting London, and pointed out the great defects resulting from the want of some central authority to carry out an arranged policy. He complained that extensive interference had been permitted with streets by railway bridges, level crossings, open cuttings, embankments, &c. Passing on to the question of the obstacles to street locomotion, he expressed the opinion that the present evils, arising from the continual breaking-up of streets, were due in a large measure to the practice of the street widening adopted by Parliament in giving to private companies powers with regard to the breaking-up of streets which in effect over-ride the early legislation on the subject. To illustrate the extent of the evil, he quoted figures from six Borough Councils. Thus, in Kensington there were 2188 openings in the streets in the year 1901; in the practice 12,832 square yards were disturbed; in Hammersmith, in twelve months there were 1,538 openings and 8,716 superficial yards disturbed; in 1901-2 there were 2,250 street openings in Fulham; in sixteen months in Southwark, from November, 1900, to March, 1902, there were 3,491 street openings, but during this period the gas company relayed their mains in certain streets, which accounted for a great many of the openings; in Paddington, in 1900-1, there were 3,393 street openings, and in Woolwich during the same period 3,088. He advocated that there should be some

general control over the breaking-up of streets in London by a central authority, but thought the present evils might be minimised to some extent by giving the Council further powers with regard to subways.

**THE INTERNATIONAL FIRE PREVENTION CONGRESS.**—The opening of the congress has been fixed to take place at 11.45 a.m. on Monday, July 6, by the Lord Mayor of London, who will open the congress in State and will be accompanied by the Burgomaster of Brussels. The first congress conversation will take place on the Monday evening, July 6. The general and sectional discussions will take place on the Tuesday, Wednesday, and Thursday forenoons, July 7, 8, and 9. The testing operations and inspections are fixed for the afternoons of these days, and there will be entertainments for the visitors of an evening. The congress banquet has been fixed for Wednesday, July 8.

**SEPTIC TANKS.**—On Tuesday, in the House of Commons, Sir John Rolleston asked the Secretary of State for the Home Department whether his attention had been called to explosions of septic tanks at Exeter during the experimental stages, at Walton-on-Naze in December last, and at Sheringham in Norfolk on May 1 last, the last of which caused the death of three people and injuries to several others; and, if so, whether in view of the numerous septic tanks which have lately been erected throughout the country, he would consider the advisability of making these tanks subject to a special licence. Mr. Long, in reply, said that he was aware of the unfortunate explosion at Sheringham, and had received some information as to the other two cases referred to. The Royal Commission on Sewage Disposal were at present investigating the different methods and appliances for the disposal of sewage, including septic tanks, and he understood they had caused special inquiry to be made into the circumstances of the accident at Sheringham. Legislation would be necessary to give effect to the suggestion contained in the question, but it would seem to be desirable to await the Report of the Commission, before determining whether any legislation should be undertaken on the subject.

**THE SANITARY INSTITUTE.**—At an examination in practical sanitary science, held in York on June 12 and 13, 1903, four candidates presented themselves. Only one of them, Mr. H. H. Oakes, was awarded a certificate.

**THE CEMENT TRADE IN CALIFORNIA.**—The quantity of cement imported at San Francisco in the year 1902, according to official statistics, was 162,122,186 lbs., as compared with 105,416,350 lbs. in the previous year. The details for the two years were as follows:—

	1902. lbs.	1901. lbs.
Belgium.....	81,651,784	63,198,082
Germany.....	75,975,005	42,198,477
United Kingdom.....	4,195,999	22,800
Ecuador.....	1,000,000	—
Japan.....	1,460	—

The stocks of cement in warehouse on January 1, 1902, amounted to 230,000 barrels; the imports in 1902 were equivalent to 426,637 barrels, and 63,000 barrels were produced locally, making a total of 719,637 barrels; the estimated stocks in warehouse and on board ships in port on January 1, 1903, amounted to 110,000 barrels. The consumption of cement in northern and central California in 1902 was 600,627 barrels. These figures show that, roughly speaking, the consumption was about 100 per cent. greater in 1902 than the average consumption of the previous five years. British cement made a better show than in 1901, but no longer enjoys the ready sale it did. Prices ruled at about 8*s.* 10*d.* per barrel in February, advancing as the stock decreased to 11*s.* 10*d.* in 5*d.* in autumn, when the market weakened under an increased supply, closing about 8*s.* 10*d.* to 10*s.* according to quality. The new cement plant at Suisun commenced operations towards the end of August, and has since been producing about 600 barrels per day of excellent quality. This concern has secured a contract to supply 30,000 barrels for the construction of the new dry dock at Mare Island Navy Yard, and the proprietors are so well satisfied with the undertaking that they are arranging to increase the output to 1,000 or 1,700 barrels daily. A new factory is also being erected at Napa Junction, California, and will almost immediately begin operations; its capacity will be from 1,400 to 1,500 barrels daily. It is asserted that both these plants—Suisun and Napa—are running to their full capacity they will be able to supply all the requirements of Northern and Central California, and Mr. Bennett, the British Consul-General, observes that "the opinion so frequently expressed that foreign cement would be entirely excluded from this market seems to be approaching realisation." This view is confirmed by Mr. Vice-Consul Mortimer, who writes from Los Angeles: "American and foreign cement has almost driven the British cement out of the market in this district. I have two estimates of the amount of cement likely to be used in this district in 1903. These estimates range from 200,000 to 350,000 barrels. The latter is, I think, nearer the mark. About half will be domestic, and the remainder from Germany, Belgium, and the United Kingdom." The Vice-Consul at San Diego reports that the imports of cement in 1902 amounted

to 17,428*l.* 4*s.*, about the same as the previous year; of this the United Kingdom supplied to the value of 9,082*l.* 16*s.*, the remainder coming from Belgium and Germany.

**GRAMMAR SCHOOL, NEWARK-ON-TRENT.**—It is proposed, subject to the necessary funds being forthcoming, to add to this school new buildings, which will embrace a laboratory, art-room, workshop, swimming-bath, headmaster's house, and accommodation for at least 150 boys, including 30 boarders. The present school, in the Appleton-gate, was founded in 1529 by Dr. Thomas Magnus, archdeacon of the East Riding, Yorkshire, who bequeathed to his native town an estate yielding about 2,700*l.* per annum for the maintenance of "a school of grammar and a school of song" and for other purposes on behalf of local charities and benefits. The governors of the school invite competitive designs for the new buildings.

## CAPITAL AND LABOUR.

**THREATENED STRIKE AT SUNDERLAND.**—On Saturday last a meeting of Sunderland ship and house-joiners was held in the Central Coffee Tavern Hall to consider the wages question. The ship joiners are asking for an advance of 2*s.* per week, and the men in the building trade have put a request for an increase of 4*d.* per hour, bringing the rate up to 10*d.* In connexion with the house joiners it appears that four years ago, when the men asked for an increase to 10*d.* per hour, the masters succeeded in bringing about an agreement for three years at 9*d.* per hour, but last year, when the men sought to have the agreement renewed, the masters refused. The meeting on Saturday was in favour of a strike.

## LEGAL.

**BERMONDSEY BOROUGH COUNCIL AND SURREY COMMERCIAL DOCKS CO.**

At Southwark Police-court on Friday last week, Mr. Paul Taylor resumed the hearing of the summons taken out by the Bermondsey Borough Council against the Secretary of the Surrey Commercial Docks Co. for failing to give a building notice in accordance with Section 74 of the Metropolitan Management Act, in respect of a new structure within the gates of the docks. The defence was that the Company was, by reason of their last Special Act which gave them power to enlarge the docks and erect new buildings, &c., exempt from this section, the two being inconsistent. Mr. Ryall, town clerk, appeared for the Borough Council and Mr. Glen, barrister, defended. Mr. Paul Taylor said that his view was that the cases quoted by Mr. Glen—The City and South London Railway v. London County Council, and The London County Council v. The London School Board—were ample authority for saying that a specific Act repealed a general Act, except upon a question of drainage. In regard to this new building there was no drainage except the carrying off of roof water into the docks, and therefore he thought the Dock Co.'s Special Act overruled Section 74 of the Metropolitan Management Act in this case. Mr. Ryall contended that there was nothing inconsistent in the Dock Co.'s Special Act with the proviso for giving the Local Authority a building notice. He quoted several cases in support of this point. Mr. Paul Taylor reserved his judgment.

## POINT UNDER SECTION 150 OF THE PUBLIC HEALTH ACT, 1875.

The case of The Urban District Council of Stratford v. The Manchester South Junction and Altrincham Railway Co. came before the Court of Appeal, composed of Lords Justices Vaughan Williams, Romer, and Stirling, last week on the appeal of the defendants from a judgment of the Vice-Chancellor of the County Palatine of Lancaster.

It appeared that the railway company had purchased under their compulsory powers, on which in the year 1894 they constructed, a road called Elnor-road, Old Trafford, leading from Sydenham Grove, as an approach to the defendants' Old Trafford station, the approach being a slope parallel to and adjoining the station. The plaintiffs, the Urban District Council, in March, 1900, under Section 150 of the Public Health Act, 1875, served the defendants with the usual notices to "frontagers" to make up the road as being a "street" within the meaning of the Act. As defendants did not comply with the notice, plaintiffs made up the road and served defendants with notice, under Section 257, that 35*l.* 1*s.* 9*d.* was due from defendants for the expenses incurred by plaintiffs in the following year served the defendants with a demand for immediate payment. The defendants denied liability, alleging that the road never was, prior to March, 1900, laid out as a street, nor had even been dedicated to the public, it being only used by the public by leave of the defendants. Defendants also said that before the works were commenced they gave the plaintiffs notice that the road was not a "street" and that plaintiffs were not entitled to give the notice of March, 1900, or to execute the works in



question. Defendants also said that the plaintiffs, in executing the works, had wrongly altered the width of the road. The plaintiffs then commenced the present action, claiming a declaration that the expenses incurred in making up the road, together with interest thereon and the costs of the action, were a charge on the defendants' premises in Elsinore-road, and to have such charge enforced by the appointment of a receiver. The Vice-Chancellor at the trial gave judgment in favour of the plaintiffs, declaring that the amount claimed was a charge upon the defendants' premises. Hence the present appeal of the defendants.

In the result their Lordships upheld the decision of the Vice-Chancellor, and dismissed the appeal with costs.

Mr. Haldane, K.C., Mr. Clarkson, and Mr. Mark Romer were counsel for the appellants; and Mr. Astbury, K.C., and Mr. A. Grant for the respondents.

## PATENTS OF THE WEEK:

### APPLICATIONS PUBLISHED.\*

6,400 of 1902.—G. F. THOMSON: *Manufacture of Artificial Stone and Apparatus therefor.*

The process of manufacturing artificial stone, consisting in running an artificial stone mixture in a liquid condition into moulds arranged in such a manner that the flagstones or other articles to be cast are on edge, applying pressure to the upper edges of the said flagstones or other articles, and allowing the artificial stone mixture to set.

11,372 of 1902.—R. STANLEY: *Manufacture of Earthenware Sanitary Pipes, Cable Conduits, Ridge Tiles, Roofing Tiles, and Other like Objects.*

The mould employed consists of a fixed cylindrical core of somewhat greater length than the pipe to be moulded, and equal to its interior diameter. Surrounding this, leaving a space sufficient for the thickness of the intended pipe, is a cylindrical mould, equal in length to the core. A cylindrical plunger works up from below and another down from above within the said space, so that the material, after being introduced therein, is compressed between the two plungers by the descent of the upper one, and is raised for delivery in a moulded state by the ascent of the lower one in conjunction with the outer mould to slightly above the core of the mould. The inner wall of the mould and the outer surface of the core are preferably kept lubricated, resulting in a smooth polish upon the outer and inner surfaces of the pipe. The latter being moulded to the exact length required, no cutting devices for such purpose are needed, but grooving devices are provided for socketed pipes or conduits. The requisite pressure for working the plungers is obtained by two hydraulic rams, which, for the sake of convenience and safety, it is preferable to employ.

11,890 of 1902.—C. TONGES: *Means for Controlling the Flow of Liquids from or to Chambers, Pipes, and other Receptacles.*

Means for preventing the escape of liquids from chambers, pipes, or the like, consisting in the outlet aperture of the said chambers, pipes, or the like being covered with a permeable substance such as fine wire-netting, silk gauze, or the like, which material allows the liquid to pass when pressure is exerted thereon, but on the pressure or suction action being removed does not allow any air to pass through it, thereby preventing the liquid contained in the vessels from moving either forwards or backwards.

2,544 of 1903.—J. A. WILKIE: *A Combination Fireproof Draw-in System of Electric-light Wiring and Tubing.*

A combination fireproof "draw-in" system of electric-light wiring and tubing, whereby the tubes or other mechanical protection of the conductors are so arranged and twined with cord or wire that the conductors may be drawn into or withdrawn from the tubes at any time from either end of the tube.

2,577 of 1903.—C. E. JEFFCOCK and W. H. YARDLEY: *Apparatus for Breaking or Crushing Pulverulent Substances.*

In toggle plates used in apparatus for breaking or crushing pulverulent substances, in combination, a nose part, a sleeve part, and shearable pins, the nose part being located and adapted to slide within the sleeve part, the nose and sleeve parts being formed with holes adapted to register, and the pins of a definite shearing resistance being adapted to engage with such holes when in register and to locate the nose and sleeve parts in operative condition, so that upon such resistance being exceeded the nose part will recede within the sleeve part.

2,587 of 1903.—W. F. WILMOT, E. I. SMITH, and S. GOLLIER: *Fireproof Floors, Ceilings, and the Like.*

In the construction of floors and ceilings of buildings, vault covers, and the like, the provision of suspender rods and centre-piece supporting beams hung thereon.

5,978 of 1903.—F. HENNERIQUE: *Process or Method of Making Pipes, Conduits, Columns, Casings, or the Like of Cement Beton or other Agglomerate Material.*

A process or method of making pipes, conduits,

columns, casings, or sheaths of cement beton or other like agglomerate material, strengthened or not with metal rods and the like, said process consisting in charging the said beton or agglomerate into a tubular metallic or other receptacle, the internal surface of which has the form of the external surface of the pipe or sleeve to be obtained, in closing the ends of the receptacle (after the foundation or lining of metal rods has been previously embedded in case the pipes to be made are formed of strengthened beton), and in then subjecting this receptacle to a rotary movement, which under the action of centrifugal force uniformly moulds and compresses the material placed in the interior against the surface of the mould and expels water and air.

1,461 of 1902.—A. ASHWORTH: *Cowls for Ventilating Shafts and Chimney Tops.*

In a ventilating cowl or hood, a funnel-shaped adjunct having its produced axis below the centre of the exit, and provided with internal helical blades and means for directing wind into the channels between the blades.

18,037 of 1902.—D. G. EDNIE: *Windows.*

A window having one or both sashes hung by weight-cords or chains whose ends are pivotally secured in keyhole slotted plates fitted in the sashes.

4,951 of 1903.—O. WALL and R. G. HUGHES: *Locks for Sashes and the Like.*

This consists in the combination with a sheet-metal casing, and a depending plate, of a staple secured in said plate, a spring-urged bolt in said casing, a depending hasp on one end of the bolt to take over said staple, a loose collar on and a roller in the opposite end of the said bolt, a supplementary bolt parallel to the main bolt and held in straps forming one piece with the base plate of the casing.

6,997 of 1903.—A. JANKIEWICZ: *Door-closing Apparatus.*

A door-closing apparatus comprising a bracket fixed to the door and carrying a drum formed with a portion of a high-pitch screw-thread which latter effects the closing of the door by acting upon the friction-roller of a weighted lever also fixed to the door, and controlled by adjustable means secured to the door-post, or case, and whereby the said screw-drum is held stationary (or practically so) in its bracket.

6,980 of 1903.—A. W. ZETTERBERG: *Sign Boards, Glass Ceilings, or the Like.*

This relates to sign boards, glass ceilings, and the like of glass, which consists of one or more glass plates and one or more glass transparent plates arranged behind the said glass plates and having letters, ornaments, or the like cut in them, the arrangement that the letters, ornaments, and the like are formed by holes or openings in the said non-transparent plates, and that the bottoms of the said holes or openings consist of reflecting-plates coloured in the same manner as the edges of the said holes or openings.

## MEETINGS.

FRIDAY, JUNE 19.

Institution of Civil Engineers.—Engineering Conference, concluded.

SATURDAY, JUNE 20.

Architectural Association.—Visit to the Building Trades Exhibition. 3 p.m.

Incorporated British Institute of Certified Carpenters.—Visit to the Building Trades Exhibition, Royal Agricultural Hall. 3 p.m.

MONDAY, JUNE 22.

Royal Institute of British Architects.—(a) Special general meeting to confirm, in accordance with Clause 33 of the Charter, the resolution passed at the special general meeting of June 8, viz.—"That, subject to the sanction of the Lords of the Privy Council, the words 'during the five years from the date of approval of this provision by the Privy Council' be omitted from the proviso of By-law 9." (b) Sixteenth general meeting (ordinary) to present the Royal Gold Medal for the Promotion of Architecture, conferred by His Majesty the King, to Mr. Charles Follen McKim, of New York, for his executed works as an architect. 8 p.m.

TUESDAY, JUNE 23.

Royal Institute of British Architects.—Annual dinner, Whitehall Rooms, Hôtel Metropole. 7, for 7.30 p.m.

WEDNESDAY, JUNE 24.

Royal Institute of British Architects.—Meeting of the President of the Allied Societies.

Junior Institution of Engineers.—Visit to Messrs. Spiers & Pond's model laundries, art dyeing and chemical cleaning, and steam carpet-beating department, 140, Battersea Park-road, S.W. 6.30 p.m.

Builders' Foremen and Clerks of Works' Institution.—Half-yearly meeting of the Directors. 8 p.m.

THURSDAY, JUNE 25.

London Master Builders' Association.—General Purpose Committee. 3 p.m.

Incorporated Association of Municipal and County Engineers.—Thirtieth Annual General Meeting, Kensington.

FRIDAY, JUNE 26.

Junior Institution of Engineers.—At the Finsbury Technical College (by permission of the authorities, and on the invitation of Mr. R. P. Howgrave Graham) Mr. Graham will deliver a lecture, illustrated by experiments, on "High-Frequency Electric Discharges." 7.30 p.m.

Incorporated Association of Municipal and County Engineers.—Annual General Meeting, continued.

SATURDAY, JUNE 27.

Incorporated British Institute of Certified Carpenters.—Visit to the new Marlborough Theatre, Holloway-road. 3 p.m.

Incorporated Association of Municipal and County Engineers.—Annual General Meeting, concluded.

## SOME RECENT SALES OF PROPERTY:

### ESTATE EXCHANGE REPORT.

June 3.—By G. TROLLOPE & SONS (at Farm).	
Great Elm, Somerset.—Elmhurst and 2 a. 1 r. 2 p., f. p. ....	£900
Newland's Farm, 9 a. 2 r. 8 p., f. y. r. 45s. ....	765
June 4.—By MADDISON, MILES, & MADDISON (at Bungay).	
Karsham, Norfolk.—The Duke's Head, p.-h., f. p. ....	750
Worwell, Norfolk.—Four freehold cottages and 2 a. 1 r. 38 p. ....	160
By W. H. SHINER & WINTER (at Bristol).	
Wrighton, Somerset.—Leigh Hole Farm, 184 a. 2 r. 28 p., f. ....	5,200
Four freehold cottages and 2 a. 1 r. 14 p. ....	150
Various enclosures, 16 a. 2 r. 38 p., f. ....	1,440
June 5.—By SPELMANS (at East Dereham).	
Gressenhall, Norfolk.—The Barn Lands, 21 a. 1 r. 9 p., f. and c. ....	400
Farmhouse and 111 a. 1 r. 24 p., f. and c. ....	1,425
An occupation farm, 73 a. 1 r. 29 p., f. and c. ....	1,175
June 6.—By SPELMANS (at Norwich).	
Tivetshall, Norfolk.—The Railway Farm, 99 a. 0 r. 23 p., f. ....	1,100
East Carlton, Norfolk.—Freehold double cottage, w. r. 10 p. ....	120
By ELWORTHY SON (at Wisbech).	
Christchurch, Cambs.—Freehold farm, 152 a. 0 r. 14 p. ....	6,000
By BRADY & CO. (at Gloucester).	
Sandhurst, Gloucester.—Wallingford Court and Brawn Farms, 575 a. 1 r. 31 p., f. y. r. 65s. ....	11,200
June 8.—By ALFRED C. FROST.	
Barnes.—106, Chiswick, 1. 36½ yds., g. r. 10l. 5s., c. r. 70l. ....	550
Streatham.—Equity of redemption of 61, 63, and 65, Eastwood-st., ut. 98 yds., g. r. 18l., y. r. 102l. ....	150
By KEMURDISE.	
Chigwell Row.—Great House and 33 a. 0 r. 10 p., f. p. ....	5,100
The Uplands and 14 a. 3 r. 30 p.; also Chapel cottages, f. y. r. 71l. 17s. ....	300
Main rd., freehold cottage and ½ acre ....	300
By THOMAS, PEYER, & MILLS.	
Eaton Socon, Beds.—The Eaton Socon Brewery and six licensed houses, f. ....	2,825
By ALFRED RICHARDS.	
Tottenham, 100, Stamford-rd., ut. 51 yds., g. r. 21l., y. r. 21l. ....	210
By ROBERT & HINES.	
Piccadilly.—5, Airst., ut. 15 yds., g. r. 10l., y. r. 150l. ....	2,900
Belgrave.—100, Ebury-st., ut. 19½ yds., g. r. 6l., y. r. 90l. ....	800
33, Chesham-st., ut. 16½ yds., g. r. 21l., y. r. 175l. ....	1,510
Mill Hill.—Hale-la, freehold building land, 5 a. 2 r. 27 p. ....	2,190
Islington.—Caledonian-rd., &c., l.g. r. 3 140l., ut. 44 yds., g. r. 15l. ....	2,000
Sutton-rd., l.g. r. 50s., ut. 42 yds., g. r. 16l. ....	720
By WIGLEY & TEDDER.	
Dulwich.—26, Carlson-rd., ut. 87 yds., g. r. 10l. 10s. ....	560
By PROTHROBE & MORRIS (on the estate).	
Clacton-on-Sea, Essex.—King's Parade, &c., 77 plots of freehold building land (in lots) ....	1,360
June 9.—By DAVID BURNETT & CO.	
Spitalfields.—37½, Gun-st. (warehouse), area 2,100 ft., f. y. r. 100l. ....	2,000
By DIXON & CO.	
Balham.—Bedford Hill, Ashmere, ut. 73 yds., g. r. 16s. y. r. 60l. ....	450
By FAREBROTHER, ELLIS, & CO.	
Hanover-sq.—No. 9 (S), f. y. r. 37s. ....	12,750
Ealing.—12, 13, 14, 15, 19, and 25, Kirchen-rd., ut. 55 yds., g. r. 31l., y. r. 174l. ....	1,510
By JAMES WILSON.	
Caiford.—75 and 77, Caiford-hill, ut. 60 yds., g. r. 47l., c. r. 68l. ....	635
By GEO. YEATES & SONS (at Worcester).	
Elmley Lovett, Worcester.—The Moat Farm, 134 a. 1 r. 12 p., f. (in lots) ....	2,465
June 10.—By BAXTER, PAYNE, & LEVER.	
Westham Hill, Kent.—Main road, two enclosures of land with farm buildings, 3 a. 3 r. 31 p. ....	450
By DRYSDALE, NURSE, & CO.	
Stamford Hill.—72 and 76, Daleview-rd., ut. 55 yds., g. r. 12l. 6s., y. r. 64l. ....	560
By W. W. HOLLS.	
Finchley.—Cavendish-av., Lamorton, Westholme, and Parkdene, f. y. r. 135l. ....	1,790
Hendon-la., Hirstleigh, f. y. r. 94l. ....	1,650
Dulwich.—43 and 49, Oakhurst-g. r. 75 yds., g. r. 20l., y. r. 70l. ....	680
By F. JOLLY & CO.	
Leyton.—Lea Bridge-rd., two plots of building land, f. ....	250
By MATTHEWS, MATTHEWS, & GOODMAN.	
Hampstead.—40, Agincourt-rd., ut. 84 yds., g. r. 74s., c. r. 100s. (including mortgage) ....	550
By MIDDLETON & CRACKNELL.	
Hampstead.—74, Gayton-cres. and plot of land in rear, part f. and part ut. 65½ yds., g. r. 6l., c. r. 8s. ....	1,700
By RUSHWORTH & STEVENS.	
Notting Hill.—Norland-sq., f.g. r. 30l., reversion in 39 yrs. ....	890
Anerley.—Beverley-rd., &c., l.g. r. 275l., reversion in 61 yrs. ....	6,610
By C. P. WHITELEY.	
South Mimms, Middx.—New-rd., the Wash Farm, 70 a. 3 r. 32 p., f. y. r. 110s. ....	3,250

\* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.







## COMPETITIONS, CONTRACTS AND PUBLIC APPOINTMENTS.

(For some Contracts, &amp;c., still open, but not included in this List, see previous issues.)

## COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
*Machinery for Lifting Boats .....	Austrian Government .....	10,000 Kronen, 7,000 Kronen, and 5,000 Kronen .....	Mar. 3, 1904 .....

## CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c., supplied by	Tenders to be delivered.
*New Laundry, &c., at Smallburgh Workhouse .....	Smallburgh Union .....	F. Davies, Solicitor, North Walsham .....	June 20 .....
*Small Mission Church, New Malden .....	Truro Guardians .....	V. Davison, Architect, New Malden .....	June 22 .....
Additions to Workhouse .....	Truro Guardians .....	F. Trussott, Board Room, Workhouse, Truro .....	June 23 .....
Villa, Stoddard, near Elgin .....	Weston-super-Mare U.D.C. .....	H. Nettleton, Surveyor, Town Hall, Weston-super-Mare .....	do. .....
Six Shops, Cudworth, near Barnsley .....	do. .....	C. C. Dolg, Architect, Elgin .....	do. .....
Additions to Goods Shed, Clippenham .....	do. .....	T. Elliott, Wombwell .....	do. .....
Paving Works .....	Great Western Railway Company .....	G. E. Mills, Paddington Station, London .....	do. .....
Road Works .....	Tipton U.D.C. .....	W. H. Jukes, Surveyor, Public Offices, Tipton .....	do. .....
Street Works .....	Sowerby Bridge U.D.C. .....	Town Surveyor, Sowerby Bridge .....	do. .....
Cast-iron Pipes .....	Wedgebury Town Council .....	E. M. Scott, Borough Engineer, Town Hall, Wednesbury .....	do. .....
Sewers, &c., Villa road .....	Wedgebury Town Council .....	E. M. Scott, Borough Engineer, Town Hall, Wednesbury .....	do. .....
Sewers, &c., Wharf-side street .....	Lanchester R.D.C. .....	F. Barker, Surveyor, 14, Bank-street, Carlisle .....	do. .....
Sewers, &c., Alum Rock road .....	Wedgebury Corporation .....	G. W. Westgarth, Surveyor, Lanchester .....	do. .....
Sewers, &c., Edentown .....	Burningham Corporation .....	E. M. Scott, Borough Engineer, Town Hall, Wednesbury .....	do. .....
Pier Works, Large Pier .....	Glasgow & S. W. R. Company .....	J. Price, City Engineer, Birmingham .....	do. .....
Sewers, &c., Chatterton and elsewhere .....	Ramsbottom (Lanes) U.D.C. .....	H. P. Fowler, Architect, The College, Durham .....	do. .....
House, Castle-street, Tredgar .....	The Trustees .....	J. H. Gilles, St. Enoch Station, Glasgow .....	do. .....
Road Metal, &c., Tankerton Estate, Whitstable .....	do. .....	J. Diggle, Civil Engineer, Hill-street, Heywood .....	do. .....
*Erection of University College, Sheffield .....	The Committee .....	T. Jones, 50, Commercial-road, Tredgar .....	do. .....
*New Floor Surface Drainage, &c. .....	City of London Union .....	Gibbs & Pockton, Architects, 15, St. James's-row, Sheffield .....	do. .....
Chapel, Leeming, Bedale .....	do. .....	do. .....	do. .....
Additions to Club Premises, Ellergrey-road, Leeds .....	do. .....	do. .....	June 21 .....
Additions to Chapel, Nelson, Wals .....	do. .....	do. .....	do. .....
Pair of Villas, Skircoat, Halifax .....	do. .....	do. .....	do. .....
Drainage Works at Workhouse, Damer's-road .....	Dorchester Guardians .....	do. .....	do. .....
Asphalting Play Grounds at Schools, Fairfield .....	Enfield U.D.C. .....	do. .....	do. .....
Road Works, Garfield-road, and others .....	Stroud U.D.C. .....	do. .....	do. .....
Underground Convenience, George-street .....	Lanark County Council .....	do. .....	do. .....
Water Supply Works, Blackwood .....	Colwyn Bay U.D.C. .....	do. .....	do. .....
Additions to Gas Works .....	Salford Town Council .....	do. .....	do. .....
Paving Works, Sewage Works, Waste .....	Elford, Yorks, U.D.C. .....	do. .....	do. .....
Chimney, Low Fields .....	Tottington (Lanes) P. O. Tipton .....	do. .....	do. .....
Road Works, Holcombe-road .....	do. .....	do. .....	do. .....
Tower, St. Luke's Church, Mow Cop, Staffs .....	Belfast Corporation .....	do. .....	June 25 .....
Hospital, Purlysouth .....	do. .....	do. .....	do. .....
Additions to Holy Trinity Schools, Barnstaple .....	do. .....	do. .....	do. .....
Works at Greenhouses, &c., at St. Margaret's Cemetery .....	Rochester Town Council .....	do. .....	do. .....
Additions to Workhouse .....	Lutterworth Guardians .....	do. .....	do. .....
Villa, &c., at Retort House, Gaythorn .....	Manchester Corporation .....	do. .....	do. .....
Ten Houses, Upper Rushton-road, Thornbury, Yorks .....	do. .....	do. .....	do. .....
Schools, Georgetown .....	do. .....	do. .....	do. .....
Additions to Schools, Dowdalls .....	do. .....	do. .....	do. .....
*Erection of the City Mills, Morley, Yorks .....	Canook (Staffs) R.D.C. .....	do. .....	do. .....
Bridge, Saredon .....	Luton Town Council .....	do. .....	do. .....
Street Works, &c., Cooper-street .....	Lewes Town Council .....	do. .....	do. .....
Broken Granite, &c. (1,200 tons) .....	Salford Corporation .....	do. .....	do. .....
Additions to Gas Works, Albion-street .....	North Walsham (Norfolk) U.D.C. .....	do. .....	do. .....
Granite Road Metal .....	Oldbury Town Council .....	do. .....	do. .....
Sewers, &c., Moor-road, Wals .....	Rochdale Corporation .....	do. .....	do. .....
Car Shed, Bridge-fold .....	Stockport Corporation .....	do. .....	do. .....
Street Works, Pitt street, &c. .....	Ealing Town Council .....	do. .....	do. .....
*Stabling & Cart Sheds at Central Depot, Longfield-st. .....	Pointe-à-Pic R.D.C. .....	do. .....	do. .....
Sewerage Works, Ferrybridge .....	Goring-on-Thames Water Co., Ltd. .....	do. .....	do. .....
Water Supply Works .....	The Committee .....	do. .....	do. .....
House, Mex-lane, Cliffe End, Long Wood .....	The Trustees .....	do. .....	do. .....
Stabling, &c., Leys, Tamworth .....	Newton-in-Makerfield U.D.C. .....	do. .....	do. .....
Chapel, Pontygwath, Wales .....	Thrapston (Northants) R.D.C. .....	do. .....	do. .....
Two Cottages, Newton-le-Willows, Lanes .....	Royton U.D.C. .....	do. .....	do. .....
Water Supply Works, Brigsteet .....	Badersea Borough Council .....	do. .....	do. .....
Granite Setts, &c., near Oldham .....	Mears, Wormald Bros., & Co. .....	do. .....	do. .....
Tiles .....	Stockton-on-Tees Corporation .....	do. .....	do. .....
Six Shops, Eccleshall street, Armagh .....	do. .....	do. .....	do. .....
Underground Conveniences, High-street .....	do. .....	do. .....	do. .....
Bridge, Blinworth-road .....	do. .....	do. .....	do. .....
Road Materials, &c. (1,600 tons) .....	do. .....	do. .....	do. .....
Works at Market Hall .....	do. .....	do. .....	do. .....
Water Supply Works .....	do. .....	do. .....	do. .....
Macadam .....	do. .....	do. .....	do. .....
Sewers, &c. (2½ miles) Kelly .....	do. .....	do. .....	do. .....
Slab Road Metal .....	do. .....	do. .....	do. .....
*Quarter Sessions and Police Court Buildings, &c. .....	do. .....	do. .....	do. .....
*New Electric Power Station .....	do. .....	do. .....	do. .....
Road Works .....	do. .....	do. .....	do. .....
Refuse Destructor .....	do. .....	do. .....	do. .....
*Iron Staircases at Edmonton Workhouse .....	do. .....	do. .....	do. .....
*Cleaning Painting, &c., of Town Hall .....	do. .....	do. .....	do. .....
*Making-up and Paving Keston road .....	do. .....	do. .....	do. .....
*New Church, Walton-le-Dale .....	do. .....	do. .....	do. .....
Sewerage Works .....	do. .....	do. .....	do. .....
Sewers Works .....	do. .....	do. .....	do. .....
*Furnishing of Schools at Parkton .....	do. .....	do. .....	do. .....
*Pipe Trenches, &c., at S. W. Hospital, Stockwell .....	do. .....	do. .....	do. .....
*Roadmaking in Townmead-road, &c. .....	do. .....	do. .....	do. .....
*Two-storey Building .....	do. .....	do. .....	do. .....
*New Orphanage .....	do. .....	do. .....	do. .....
*New Coast Guard Buildings, West Bay .....	do. .....	do. .....	do. .....
*New Cottage and Alterations to Police Station .....	do. .....	do. .....	do. .....
Station Buildings, Leith, N.B. .....	do. .....	do. .....	do. .....
*Hot-water Warming Apparatus .....	do. .....	do. .....	do. .....
*Additions to various Depots .....	do. .....	do. .....	do. .....
*A-halter Pavine, Windsor-place, &c. .....	do. .....	do. .....	do. .....
*Fire Dust Vats, &c. .....	do. .....	do. .....	do. .....
*Making-up, &c., Laidlawdale road, &c. .....	do. .....	do. .....	do. .....
*Alterations to 403-405, Mile End-road .....	do. .....	do. .....	do. .....
*Enlargement of Post Office, Portsmouth .....	do. .....	do. .....	do. .....
*Making-up Roads .....	do. .....	do. .....	do. .....
*90-foot Wireless Steam Pipes .....	do. .....	do. .....	do. .....
*Quarries, thence, &c., Granite .....	do. .....	do. .....	do. .....
*Block of Tenement Dwellings, Edgware-road .....	do. .....	do. .....	do. .....
*Four Blocks of Dwellings in Fulford-street .....	do. .....	do. .....	do. .....
*Four Houses, North-street, Milton .....	do. .....	do. .....	do. .....
*Business Premises, Oxford-place, Norwich .....	do. .....	do. .....	do. .....
*Twenty Coke Ovens at Collieries, West End, Batley .....	do. .....	do. .....	do. .....
*Deepening Shaft, &c., Northwarran, Yorks .....	do. .....	do. .....	do. .....
*Additions to Office, St. Peter's Close .....	do. .....	do. .....	do. .....
*Roller Blinds at Cottage Homes, Croydon .....	do. .....	do. .....	do. .....
*Restoration of St. James's Church .....	do. .....	do. .....	do. .....

[See also next page.]



## PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*Assistant Civil Engineers (H.M. Naval Establishment)	Council Select Committee	Not stated	July 2
*Surveyor to Inspect Elementary Schools	Staffordshire County Council	300l. &c.	July 15
*Teacher or Master of Painting School	Nat. Assn. Master House Painters, &c.	Not stated	No date.

Those marked with an asterisk (\*) are advertised in this Number.

Competitions, lv.

Contracts, lv. vi. viii. x. &amp; xxiv.

Public Appointments, xxi.

## PRICES CURRENT (Continued).

## JOISTS, GIRDER, &amp;c.

In London, or delivered.

Railway Vans, per ton.

	£ s. d.	£ s. d.
Rolled Steel Joists, ordinary sections	6 5 0	7 5 0
Compound Girders	8 15 0	9 5 0
Angles, Tees and Channels, ordinary sections	7 17 6	8 17 6
Fitch Plates	8 5 0	8 15 0
Cast Iron Columns and Stanchions, including ordinary patterns	7 2 6	8 5 6

## METALS.

Per ton, in London.

£ s. d. £ s. d.

Iron—

Common Bars 7 10 0 | 8 0 0 |

Staffordshire Crown Bars, good merchant quality 8 0 0 | 8 10 0 |

Staffordshire "Marked Bars" 10 10 0 | 10 10 0 |

Mild Steel Bars 8 15 0 | 9 5 0 |

Hoop Iron, basis price 9 0 0 | 9 5 0 |

" " galvanised 10 0 0 | 10 5 0 |

" " " upwards, according to size and gauge.

Sheet Iron, Black 10 10 0 | 10 10 0 |

Ordinary sizes to 20 g. 9 15 0 | 10 0 0 |

" " " 20 g. and 24 g. 10 10 0 | 10 10 0 |

Sheet Iron, Galvanised, flat, ordinary quality 12 5 0 | 13 0 0 |

Ordinary sizes, 6 ft. by a ft. to 3 ft. to 20 g. 12 15 0 | 13 0 0 |

" " " 20 g. and 24 g. 13 0 0 | 13 5 0 |

Sheet Iron, Galvanised, flat, best quality 14 5 0 | 15 0 0 |

Ordinary sizes to 20 g. 16 0 0 | 16 5 0 |

" " " 20 g. and 24 g. 16 10 0 | 17 0 0 |

" " " 24 g. and 28 g. 18 0 0 | 18 5 0 |

Ordinary sizes, 6 ft. to 8 ft. to 20 g. 18 15 0 | 19 0 0 |

" " " 20 g. and 24 g. 19 0 0 | 19 5 0 |

" " " 24 g. and 28 g. 20 0 0 | 20 5 0 |

Best Soft Steel Sheets, 6 ft. by a ft. to 3 ft. by 20 g. 11 15 0 | 12 0 0 |

" " " thicker 12 15 0 | 13 0 0 |

" " " 20 g. and 24 g. 12 15 0 | 13 0 0 |

Cat mills, 3 in. to 6 in. 9 5 0 | 9 15 0 |

(Under 3 in. usual trade extras.)

LEAD, &c.

Per ton, in London.

£ s. d. £ s. d.

LEAD—Sheet, English, 3 lbs. & up. 14 2 6 | 14 2 6 |

Sole in coils 14 12 6 | 14 12 6 |

Pipe 17 2 6 | 17 2 6 |

Copper Pipe 17 2 6 | 17 2 6 |

ZINC—Sheet 17 5 0 | 17 5 0 |

Vielie Montagne 17 5 0 | 17 5 0 |

Silesian 17 5 0 | 17 5 0 |

COFFER 17 5 0 | 17 5 0 |

Strong Sheet 0 10 1/2 | 0 10 1/2 |

Thin 0 11 1/2 | 0 11 1/2 |

Copper nails 0 11 1/2 | 0 11 1/2 |

BRASS 0 10 10 | 0 10 10 |

Strong Sheet 0 10 10 | 0 10 10 |

Thin 0 11 1/2 | 0 11 1/2 |

Tin—English Ingots 0 1 5 | 0 1 5 |

SOLDER—Plumbers' 0 0 6 | 0 0 6 |

Tinmen's 0 0 8 | 0 0 8 |

Blowpipe 0 0 9 | 0 0 9 |

ENGLISH SHEET GLASS IN CRATES.

per ft. delivered.

15 oz. thirds 24d. | 24d. |

" " " " " 24d. | 24d. |

16 oz. thirds 24d. | 24d. |

" " " " " 24d. | 24d. |

18 oz. thirds 24d. | 24d. |

" " " " " 24d. | 24d. |

20 oz. thirds 24d. | 24d. |

" " " " " 24d. | 24d. |

Fluted sheet, 15 oz. 3d. | 3d. |

" " " " " 3d. | 3d. |

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" " " " " 3d. | 3d. |

" " " " " 3d. | 3d. |

PRICES CURRENT (Continued).

VARNISHES, &c.

Per gallon.

£ s. d. £ s. d.

Fine Pale Oak Varnish 0 8 0 | 0 8 0 |

Pale Copal Oak 0 10 0 | 0 10 0 |

Superfine Pale Elastic Oak 0 12 0 | 0 12 0 |

Fine Extra Hard Church Oak 0 10 0 | 0 10 0 |

Superfine Hard-drying Oak, for Seats of Churches 0 14 0 | 0 14 0 |

Fine Elastic Carriage 0 12 0 | 0 12 0 |

Superfine Pale Elastic Carriage 0 16 0 | 0 16 0 |

Fine Pale Maple 0 16 0 | 0 16 0 |

Finest Pale Durable Copal 0 18 0 | 0 18 0 |

Extra Pale French Oil 0 10 0 | 0 10 0 |

Eggshell Flattening Varnish 0 18 0 | 0 18 0 |

White Copal Enamel 1 4 0 | 1 4 0 |

Extra Pale Paper 0 12 0 | 0 12 0 |

Best Japan Gold Size 0 10 0 | 0 10 0 |

Best Black Japan 0 16 0 | 0 16 0 |

Oak and Mahogany Stain 0 8 0 | 0 8 0 |

Brunswick Black 0 10 0 | 0 10 0 |

Berlin Black 0 16 0 | 0 16 0 |

Knottin 0 10 0 | 0 10 0 |

French and Brush Polish 0 10 0 | 0 10 0 |

TO CORRESPONDENTS.

A. H.—J. S. M. (Amounts should have been stated.)

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond new news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and giving addresses.

Any communication to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

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TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us not later than 10 a.m. on Thursdays. N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under 100l., unless in some exceptional cases and for special reasons.

\* Denotes accepted. † Denotes provisionally accepted.

CORK.—For rebuilding portions of premises, Nos. 65, 66, and 67, Patrick-street, Cork. Mr. Arthur Hill, architect, 22, Georges-street, Cork.—

For Woodford, Bonnes, Guy & Co. & Co.

Hegarty & Sons.....£2,000.....£270

Delany & Co.....2,900.....280

Wm. O'Connell.....2,700.....225

E. & P. O'Flynn.....2,650.....225

S. Hill.....1,650.....225

COVENTRY.—For additional power-house, The Butts, for Messrs. Alfred Herbert, Ltd., machine tool makers.

Messrs. Tait & Herbert, architects, Leicester.—

J. Holmes.....£1,025.....£907

R. Wootton.....993.....Hancox & Co., Co-

Scurr & Jewett.....943.....ventry.....905

C. Garrick's Executors.....930.....

ENFIELD.—For the erection of a terrace of houses in Lincoln and Clive roads, Enfield, for the Freehold and Leasehold Investment Co. Mr. E. C. Beaumont, architect, 78, Fleet-street, E.C.1.—

A. H. Jones.....£9,360

FOLESHILL.—New messroom and extension to pattern shop at Edgewick Foundry, for Messrs. Alfred Herbert, Limited, machine tool makers. Messrs. Tait & Herbert, architects, Leicester.—

Mess-room. Pattern Store.

R. Wootton.....£750.....£390

Hancox & Co.....280.....225

I. O. Jewsbury.....549.....470

C. Garrick's Executors.....345.....215

Kelley & Son, Foleshill.....345.....308

HOLBEACH.—For additions to workhouse infirmary, for the Guardians. Mr. F. Burdett Ward, architect, Wisbech. Quantities by the architect:—

Pattinson & Son.....£3,374.....£3,374

Hinson & Co.....3,475.....3,475

Clarke & Sons.....3,458.....3,458

Rands & Son.....3,300.....3,300

J. Guttridge.....2,998.....2,998

† Accepted subject to the approval of the Local Government Board.

HOVE.—For the supply of materials, &c. Mr. H. H. Scott, Borough Surveyor, Borough Surveyor's Office, Town Hall, Hove:—

Street Masonry and Jobbing Works.

Parsons & Sons, Church-road, Hove, at schedule prices.

Ironmongery and Joiners' Ironmongery.

Reed & Son, North-street, Brighton, 27½ per cent. off schedule prices.

Gas and Water Pipes and Fittings.

Griffiths & Sons, Mesty Croft, Wednesbury, 4½ per cent. off schedule prices.

Paints, Varnishes, and Brushes.

W. T. Nye, Church-road, Hove, 2½ per cent. off schedule prices.

Stoneware Drain Pipes.

Staunton Colliery Pipe Co., Worthington, 5½ per cent. off schedule prices.

Hand-picked Hill Flints.

W. Hillman, North-street, Portlady, at 8s., 7s. 6d., and 6s. per yard.

J. W. Miller, Sackville-road, Hove, at 7s. 6d., 7s., and 6s. per yard.

G. H. Strivens, Shoreham, Sussex, at 8s. per yard.

External Painting of Town Hall.

Gates & Sons, North-road, Brighton.....£49 10

KIRKBY-IN-FURNES.—For the restoration of St. Cuthbert's Church tower, for Restoration Committee, Mr. J. Standen-Adkins, architect, 3, Maze-road, Kew:—

For reduced scheme.

Hatch & Sons.....£520.....£520

W. Waite.....443 10.....—

J. S. Balderson.....388 0.....£370 0

Ashburner, Ltd., Dalton

in-Furness.....389 13.....359 3

LEEK.—For the erection of an electric lighting station, Station-street, for the Urban District Council, Mr. John Taylor, architect, Leek and Longton. Quantities by architect:—

Dean & Co.....£6,741.....£6,490

Jos. Heath.....2,602.....J. Bagnall.....2,493

David Evans.....2,555.....W. Turner.....2,374

Tompson & Bet

telley.....2,513

LLANBEDR.—For new residence at Llanbedr, for Mr. Wm. Jones, Llymngwyn Chivell R.S.O. Mr. R. Lloyd Jones, architect, Carnarvon:—

Jones & Co.....£4,993.....£4,993

Jones, Roberts, & Williams.....£1,654.....£1,654

J. Adams.....1,634.....1,634

D. J. Pierce.....1,850.....Williams & Co., 1,639

J. Pierce.....1,600.....Edwards Bros., 1,600

Caeenydd.....1,800.....Lloyd Williams, &

Gth. Williams.....1,773.....Jones.....1,598

David Evans.....1,675.....W. G. Evans.....1,534

Jones & Davies.....1,669 12

[See also next page.]



LONDON.—For completing the electric light installation at the public library, Commercial-road East, Limehouse, E., for the Metropolitan Borough of Stepney. Mr. W. Jameson, Borough Engineer:—  
 Strobe & Co. .... £68 0  
 Tampion & Mackowski ..... 75 0  
 J. C. Christie ..... 68 15  
 Emerson & Sons ..... 52 0  
 Ward Bros. (informal) ..... 51 17  
 Barlow Bros., 237, Shaftesbury-avenue, W.C. .... 42 10

LONDON.—For alterations, additions, &c., to the Hatcham Arms and shop adjoining, 92 and 94, New Cross-road, S.E. Mr. William Stewart, architect, Newlyn House, 4 and 5, Aldgate, E.C.:—  
 W. Gladding ..... £1,507  
 J. & H. Cocks ..... 1,649  
 Harris & Wardrop ..... 1,639  
 Dorman & Co. .... 1,500  
 W. Wallie ..... £1,495  
 Todd & Newman ..... 1,410  
 W. Irwin ..... 1,300  
 W. Nash, New Cross ..... 1,389

LONDON.—For repairs to the Commercial-road (E.) Station, for the London Salvage Corps. Mr. Arthur F. Briggs, architect:—  
 Falkner & Son ..... £547  
 Mansfield & Son ..... 540  
 Ashby & Horner ..... 539  
 C. S. & Sons ..... £515  
 Hayward & Son ..... 492

LONDON.—For alterations, &c., at Nos. 5 and 6, Halkin-street, Grosvenor-place, S.W., for the Carl Oppermann Electric Carriage Co., Ltd. Mr. A. E. Mullins, architect, 48, Peckham-road, S.E.:—  
 Jackson ..... £947  
 Hoare & Son, Blackfriars-road ..... £668  
 Gowers ..... 925  
 Courtney & Fallbairn ..... 721

LONDON.—For the erection of 140 workmen's dwellings in Hawthorn and Beechwood roads, Hornsey, for the Hornsey Urban District Council. Mr. F. J. Lovegrove, Engineer and Surveyor, Southwood-lane, Highgate, N.:—  
 Abbot & Herriot ..... £18,725  
 B. E. Nightingale ..... £47,254  
 Charles Wall ..... 50,579  
 Dearing & Son ..... 49,375  
 McCormick & Sons ..... 49,376  
 Kilby & Gayford ..... 49,813  
 Haines & Co. .... 49,349  
 Sney & Son ..... 49,315  
 Peetless, Dennis, & Co. .... 48,428  
 Johnson & Co., Ltd. .... 48,660  
 Johnson & Son ..... 47,884  
 [Engineer and Surveyor's estimate, £49,385.]

LONDON.—For the erection of three houses, Craggan-road, Rosemount, for Mr. W. Baldrick. Mr. R. E. Buchanan, architect, Castle-street, Londonderry:—  
 Wm. Cooke ..... £420  
 A. Dunlop ..... 435  
 road, Derry\* ..... £395

MEIGLE (N.B.).—For additions to the public school, Messrs. Curver & Symon, architects, 34, Castle-street, Forfar. Quantities by architects:—  
 Masonry.—John Howie, Aylth\* ..... £500 0 0  
 Joinery.—W. McIntosh, Meigle\* ..... 219 15 0  
 Slating.—C. Crichton, Meigle\* ..... 38 4 5  
 Plumbing.—J. C. Laird, Blairgowrie\* ..... 69 17 0  
 Plastering.—David Masterton, Forfar\* ..... 24 0 0  
 Painting.—Robertson, Coupar Angus\* ..... 14 17 4

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RAUNDS.—For the erection of house on the Ringstead-road, Raunds, Norths., for Mr. N. Martin. Mr. Harry Knight, architect and surveyor, Rushden, R.S.O.:—  
 Harrison & Winsor ..... £365  
 James Lawrence ..... 362  
 Smith & Son, Raunds\* ..... £337

SHEFFIELD.—For the erection of six houses, Catcliffe. Mr. Edmund Winder, architect, Corn Exchange Chambers, Sheffield:—  
 R. Thorpe ..... £1,619 7 9  
 W. Grantham ..... 1,500 0 0  
 Lund & Swan ..... 1,490 0 0  
 Badger & Appleby ..... 1,421 15 0  
 Grey & Son ..... 1,370 0 0  
 Green & Co. .... 1,300 0 0  
 John Bishop ..... £1,274 0 0  
 Carpenter & Co. .... 1,273 0 0  
 I. Moran ..... 1,259 0 0  
 T. Forry, Treton\* ..... 1,150 0 0  
 J. Head ..... 990 0 0

SHEFFIELD.—For altering eight houses into seven sale shops, Spital Hill, Sheffield. Mr. Edmund Winder, architect, Corn Exchange Chambers, Sheffield:—  
 J. & H. Wheen ..... £1,319 0 0  
 Green & Co. .... 1,273 16  
 Badger & Appleby ..... 1,230 10  
 Wilkinson & Sons ..... 1,210 0  
 M. Grantham, Renard-road, Sheffield\* ..... £1,100 0

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**METCHIM & SON** 15, PRINCES STREET, S.W. and  
 28, CLEMENTS LANE, E.C.  
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# Supplement to The Builder,

JUNE 20, 1903.

## THE INTERNATIONAL BUILDING TRADES' EXHIBITION, ROYAL AGRICULTURAL HALL, ISLINGTON.

**T**HE Building Trades' Exhibition which has been open during this week at the Agricultural Hall is a very good one, and is well arranged, and well and systematically catalogued. Before entering on a review of it in detail, however, there are one or two suggestions that we should like to make in a more general sense.

The promoters of the exhibition have wisely given up, as we long ago advised, the attempt to hold such an exhibition every year—an attempt which could only result in having pretty much the same exhibits for two or three years together. The last was held two years ago; but is an interval of two years sufficient? We still seem to see a great many exhibits that we saw before, or at least just the same kind of articles with the same kind of merits. Our impression is that if the period were extended to five years it would be far better for the interests of the undertaking. In five years there is time for a good many new materials or methods to have been brought forward, which would result in giving a really new interest to each exhibition. But, concurrently with that extension of the interval, there should be an extension of the time during which the exhibition is kept open. To get together such a large collection of things and only keep it open for a week is really a pity; and moreover it prevents anything like the full and considerate public criticism and public attention which would be possible if the exhibition were open for a month instead of a week. We have taken a good deal of trouble to go through and describe the exhibition in this Special Supplement; but it is certainly a drawback to feel that the exhibition must close the day after these observations are published, thereby very much detracting from any value which they may have, for readers who see something described which they would be interested in examining, have only the one final day to do it in, on which day they may be engaged, or they may not see the *Builder* till the day after the exhibition is closed. In our opinion the whole thing would be a far greater success, and of far more real value, if it were held only once in five years, and then kept open for a month.

There is a minor matter in connexion with these exhibitions which the management ought to have reformed; we refer to the persistent and irritating touting of stall-keepers all over the place. No sooner is a visitor observed to look at anything with interest, and to be making a memorandum in his catalogue, than there are people at all the other stalls within sight, on the *qui vive* to buttonhole him and insist on the special excellence and value of their exhibit, and thrust their papers and prospectuses into his pockets. "The only perfect spring hinge made," said one exhibitor to a visitor. "That cannot be," was the reply, "as I have just been shown that at the other side of the Hall." This sort of thing does no good, if exhibitors would only believe it, since there are few visitors indeed who are so simple as to accept an exhibitor's valuation of his own work; it is very bad taste; it is calculated to drive people away; and it turns the whole show

into a kind of huge advertisement or bazaar, whereas it might be something better than that. To have some one there to explain things when asked is perfectly right and sensible; but attendants should be taught to wait till they are asked, and not beset visitors with information which they may be in no need of and papers which they do not want to read. If the managers of the exhibition took a strong line on this matter, and insisted that exhibitors were not to force themselves on the visitors, but to confine themselves to answering questions and giving information when asked, they would certainly raise the tone and character of the exhibition, and remove it more from the status of a bazaar.

In reviewing the contents of the exhibition, we have as far as possible classified them under certain comprehensive headings, adding a miscellaneous section for some things which could not well be classified.

### OPENING OF THE EXHIBITION.

The exhibition was opened on Saturday last week, the 13th inst., by an informal luncheon. The chair was occupied on the occasion by Mr. H. Greville Montgomery, and among those present were Colonel Edis, C.B., and Messrs. W. E. Riley, Superintending Architect of the London County Council, Max Clarke, H. O. Cresswell, Paul Hasluck, P. L. Marks, Ellis Marsland, Arnold Mitchell, E. R. Robson, E. O. Sachs, C. H. Shoppee, Lewis Solomon, B. Tabberer, and others—the company numbering about fifty.

After luncheon the toast of "The King" was honoured, following which

Colonel Edis proposed the toast of "The Chairman and Host, Mr. Montgomery." All those present were more or less interested in an exhibition such as that which had just been arranged, and Mr. Montgomery deserved their best thanks for organising such a successful exhibition. It was a matter of some importance to the profession which he followed that there should be brought together now and then a collection of the newest materials and appliances connected with the building trade which could be seen *coup d'œil*. In referring to the clay-working industry, the speaker said he had, during the course of a long practice, done all he could for the worker in clay. He was one of the first to use terra-cotta on a large scale, and he held the same opinion now in regard to terra-cotta that he did when he first commenced to use the material. He thought it was one of the best materials to use in large towns, especially if water were used now and then to clean the substance and restore it to its pristine state. He hoped the exhibition would be as successful as it deserved to be: all of them could learn something from such an exhibition by walking through it.

The toast having been honoured, Mr. Montgomery, in response, said he could have no better patrons of such an exhibition than architects and surveyors, and he was glad to see so many members of those professions present. He thought he might say that the present was the finest exhibition of the kind yet held. This year there was an art gallery, which was under the direction of Mr. Gilbert Wood, and a number of interesting drawings had been brought together. There was also a collection of Irish minerals which had been sent by the Department of Agriculture for Ireland—a very fine exhibit, which was placed in the small hall because the application for space was received too late to make it possible to arrange for the exhibit in the large hall.

The proceedings then terminated.

### THE IRISH GOVERNMENT EXHIBITS.

A prominent feature in the exhibition is the large collection of Irish building stones, marbles, slates, pottery, and other building materials, which may be found in the Minor Hall. The collection has been formed by the Department of Agriculture and Technical Instruction for Ireland, and is very complete. For some time past the Irish Government has been working hard to make known to architects, engineers, and builders the great richness of the country in building stones and marbles. There has been a permanent collection of these materials in Dublin for several years, but it was thought that they might be brought more into the light. The Government arranged a fine collection in Glasgow at the recent exhibition, also at Cork, and a few months since at the Imperial Institute. The authorities have evidently come to the conclusion that the Imperial Institute is in rather a secluded position for building materials to be easily visited by business men, so they decided to send the collection as it stood (with a few exceptions) to the Agricultural Hall. They could not have done better.

The one disappointing feature is that the specimens are not described at any length in the catalogue, though the courteous gentleman in charge is a mine of information. The special catalogue is meagre in the extreme. The department is evidently under the impression that these stones and slates can speak for themselves, and so they can to the expert, but not to the public. Particulars concerning price, and other business matters, are rightly regarded by the Irish Government as no concern of theirs, but they arrange that all inquiries shall be forwarded to the various exhibitors. The object of the exhibits is, confessedly, to promote a greater sale of Irish building materials in England, and the aim of the Government is, therefore, a purely commercial one—to assist the Irish stone and marble industry.

It is singular that whilst so little has been written, in book form, on the building stones of England and Scotland, there is quite a large literature on Irish stones. Unfortunately that literature is chiefly of a geological nature, and not of much use either to architects or builders. This collection at the Building Trades' Exhibition will do much to bring those interested in touch with what cannot be ascertained from books. There is no collection of Irish building stones in London, and, probably, in England that is so complete or up-to-date.

The granites of Ireland have long been located, but the bulk of them are not at all well known. Newry, Donegal, Wicklow, Wexford, Galway, and other districts produce some of the best granites that are to be found in the United Kingdom. Amongst those represented in the exhibition are the dark grey granite of fine grain from the quarry of the Earl of Annesley, at Castlewells, Co. Down; a polished slab of light grey hornblende-granite, also of fine grain, from the Moor Quarries, Newry, worked by Messrs. Campbell, Hugh, & Son; the Carlingford Granite Co. show a polished slab of coarse-grained dolerite; the material is principally used for paving purposes; a beautiful stone is the light pink granite from Shantalla, Co. Galway; it has white phenocrysts of orthoclase feldspar, the polished slab and pillars showing the material to great advantage. The Congested Districts Board have some polished samples of Barna (Co. Galway) granite, in which phenocrysts of pink orthoclase occur in a dark ground mass; the department of Agriculture exhibit a polished sample of dark green granite (dolerite) from Rostrevor; this material is quarried principally for road metal in the district; samples of polished and



rough granite of light grey tint and fine grain are shown by Mr. Chas. Ewan, from Newry; the South County Granite quarries of Carlingford send samples of paving setts apparently containing much hornblende, it is also used as road metal; a medium grained grey granite comes from Ballyknocken, co. Wicklow; and samples of light grey Newry granite are shown by the United Newry Granite Co. and Mr. W. J. Sturgeon. A striking granite is that from Glendoan, Carrickbrack, co. Donegal; it is light grey, with phenocrysts of yellowish-grey orthoclase; the slab shows the material in three dressings—namely, polished, axed, and rough.

A large number of slates are shown in this Irish exhibit; they are principally blue-black in colour, and for the most part look like serviceable materials. The Killaloe Slate Co.'s quarries are worked in strata of Lower Silurian age. According to Professor Hull, they lay open a vertical section of over 350 ft., and produce slates from 10 ft. square downwards, of a dull bluish grey colour and good quality, though somewhat rough. The examples in the exhibition do not exhibit much roughness, however. The Valentia slates, which are also represented, come from the Devonian beds; they are blue-black, but possess a slight green tinge. Other slates come from several localities in co. Cork and Waterford, and some from Kerry and Wexford. A curious slate, of olive green tint, is shown by the Victoria Slate Co., from Carrick-on-Suir, and a slab of light green slate comes from near Pilltown, co. Waterford.

The limestones of Ireland are very largely represented in the collection, but there is no necessity to describe them in detail. For the most part they are light and dark grey Carboniferous limestones of a crystalline character, and very durable. The Carboniferous limestone occupies a great portion of the surface of Ireland, and the formation is remarkable for its uniformity in grain and appearance over large areas. We do not mean to convey that the quality of the stone is the same throughout, nor that the colour is always uniform when traced over several miles; but there is a general similarity in these Carboniferous limestones over the country. Light bluish-grey in the rough, they become much darker when polished as may be clearly seen in many of the large worked blocks in the exhibition. The principal localities represented are at Mount Nugent, Aherla, Finglas, Longford, Bagnalstown, Ballisodare, Middleton, Skerries, Kinlarla, Nenagh, Foynes, Navan, Dromana, and Ballinasloe. One of the most striking examples of these hard, grey limestones is that exhibited by Lord Montagu, from Foynes, co. Limerick. It is a rough block in which a Celtic device has been carved.

Other limestones are exhibited to show the kind of materials from which some Irish lime is derived. They come chiefly from the north of Ireland, and some from co. Antrim remind us of the indurated chalk of that district. The chalk has been hardened by the intrusion of immense masses of igneous rock, chiefly basalt, and much of the limestone is almost crystalline by reason of the metamorphism.

The Irish exhibit is rich in marbles, as may have been expected. We do not intend to describe these in detail, however, as they are for the most part, if not entirely, the same specimens as were shown at the Glasgow Exhibition, and we gave a full description of them at the time they were at the last-mentioned city. The Connemara green is present in many fine slabs and other specimens. We had an opportunity not long since of visiting the principal quarry from which this beautiful marble is obtained, above the station of Recess in Co. Galway. The stone is cut, by means of wire, from the face of the quarry; it is not blasted, and every care is taken to select the patterns of the stones, of which there are an infinite variety. Cut in one direction, this opalcite marble is seen to be much contorted; in another direction plain light green streaks alternate with white, and so on. The stone is let down the hill-side by wire rope. This, which is probably the most characteristic of Irish marbles, and is certainly the best known in England, is practically unique in Great Britain, though we have seen some smaller quarries in other parts of Galway in similar material. It is not that we have no other opalcites in the country, but most of the latter have a tendency to be hard and flinty, and are otherwise objectionable. The most striking example of this green Conne-

mara marble we have seen occupies a prominent place in this exhibit.

Mr. E. S. Glanville, of Dublin, has a good exhibit of Irish marbles in large mounted slabs and in polished columns, including Galway black, Irish green, Cork red, Middleton red, pink, and dove, Erne fossil, Castleisland red, Clonowen fossil, specimens of mosaic in Irish and Italian marbles, a polished block of Dalkey granite, Donegal red granite, and several other stones used for decorative purposes. Mr. Richard Colles, of Kilkenny, shows amongst other marbles some slabs and columns of Irish black, black fossil, dark grey, Irish grey, Cork red, and a specimen of Irish limestone showing different styles of dressing and carved Celtic interlacing. Of the foregoing the black marbles from Galway and Kilkenny are, perhaps, the most remarkable. The Kilkenny marble takes a beautiful polish, and when first cut is quite black, but when the quarry water has disappeared white sections of fossils come to light. The Galway quarries are at Menlough and Anglimham along the shores of Lough Corrib. Blocks of 12 ft. to 14 ft. long and 4 ft. to 5 ft. wide, and about 1 ft. in thickness, are raised. Mr. Canty, of Michelstown, shows some black and white marble of that district, and there is a sample of dark grey marble from Middleton, Co. Cork, which takes a fine polish. The Congested Districts Board exhibits a specimen of Letterfrack white marble carved to show what the material is capable of. Judging from our experience of the stone on the spot, it seems to be a white marble of the Carrara character, but rather hard and with some extremely light veining. This rock is well worth further investigation. Mr. J. Rohan sends a sample of Ballinacorra red marble in the rough, whereby we do not get much of an idea of its qualities as an ornamental stone.

Several sandstones and freestones are shown, and there is a large collection of building stones from the different counties of Ireland, lent by the Council of the Royal College of Science, Dublin. There is nothing much to say about these latter. They are mostly of unknown origin so far as actual locality is concerned, and they form part of an old collection. It is probable that the majority of these stone cubes have come from quarries long since extinct, or are merely samples of surface stone sent for exhibition by the proprietors of estates with a view to attract attention to them. The various divisions of the Carboniferous have afforded most of these sandstones and freestones, especially, in regard to sandstones, the Millstone Grit and Coal Measures. The sandstones shown, outside the College of Science collection, are chiefly of a light brown tint, and are of light grain. They come from different localities in Leitrim, Tyrone, and Donegal.

The flags and flagstones are also of Carboniferous age, and are chiefly of bluish and light brown tints. They seem to be serviceable enough, and are fair stones of their kind. The principal exhibit in this connexion is that of Messrs. G. A. Watson & Co., of Lisnarnor, Clare, called "Shamrock" stone, which comes from the Carboniferous Millstone grit, and is used for landings, kerbing, channelling, steps, &c. It is a grey stone of very fine grain. The quarries are situated about 700 ft. above sea level. The top stone is without any visible signs of bedding, and is utilised for setts, kerbs, and as blocks for dock and bridge work. The stone below is bedded, and produces flags, landings, steps, &c. Resistance to crushing strength, as tested by Messrs. Kirkaldy & Son, is given as follows:—4-in. cubes in the rough were tested, and of three samples one came out at 2,214.5 tons per square ft., another at 1,782.3 tons per square ft., and the lowest at 1,711.8 tons per square ft. The chemical composition of "Shamrock" flagging is:—

Silica .....	84.90
Alumina .....	6.60
Iron oxide .....	3.60
Manganese oxide .....	.65
Lime .....	.90
Magnesia .....	1.26
Sulphuric acid .....	trace
Alkalies, &c. ....	.39
Water .....	1.70
	100.00

The specific gravity of the stone is 2.7.

The Irish collection at the exhibition also contains much paving material and macadam. Of these, all we need say is that close-grained granites and diorites seem to be chiefly em-

ployed for road materials, and that the flags are mainly of sandstone. Rocks suitable for surveyors' purposes are scattered all over Ireland.

A novel departure for a British Government Department is the testing of clays for the manufacture of bricks, tiles, terra-cotta, &c. The actual clays are not in the exhibit, but the samples have been sent to the Department and are now in process of being tested. However, many of the tests are now complete. The first series of articles made from the clays sent include domestic ware from Viscount Bangor's estate at Downpatrick. Some excellent results in terra-cotta have also been obtained from these clays and from some at Drogheda. A clay suitable for making faience has been found at Ballymacorney, near Clonmel, and china ware has been made from the Rostellan clay, of Aghada, Co. Cork.

The exhibit also includes some carefully-executed work in terra-cotta, bricks, pottery, della robbia ware, &c., all made from Irish clays. A particularly fine panel in red, carved, is an example of the work turned out by the Arklow Terra-cotta Brick and Tile Co.; and there are many other well-executed panels, chimney-pots, vases, domestic ware, and ornamental tiles, &c., in claywork from different parts of Ireland.

Only one exhibit of cement is shown, but it is a good one. It is sent by the Irish Portland Cement and Brick Co., of Dublin. It includes the cement as well as the raw materials from which it is manufactured. There are also some sands, a few of which are suitable for the manufacture of white glass, though we are afraid that so far as the glass industry is concerned, the deposits from which they came will mostly have to remain where they are for the present. Others are good builders' sands.

We cannot conclude this brief review of the Irish Government exhibit without expressing our opinion that the proprietors of stone and clay industries in Ireland are much to be congratulated for assisting the Agricultural Department in getting such an excellent collection together. Few English architects and builders know anything about the wealth of Ireland, in regard to the great variety of stone, marbles, and slate contained in the country, and such an exhibit as this cannot fail to be productive of much good.

In the Minor Hall there is an exhibit of the well-known "petit granit" from Belgium. This stone is light blue in colour, and is raised from the Carboniferous limestone series. It is extensively employed in Belgium for building purposes, pavements, bridge and harbour work, &c. It weathers well, and has a great reputation. The exhibit consists of a square fluted column surmounted by a carved cap, and some photographs of buildings in which the stone has been employed. The quarries are at Soignies and Ecaussines. Everybody who knows Belgium is acquainted with this stone, and there is hardly any important building in that country constructed in recent years that is not made of the Carboniferous limestone of the Ardennes, of which these stones from Soignies and Ecaussines are fine examples. Six thousand three hundred people are employed in and about the quarries.

The Basaltine Stone Co. have a number of their specialties in flagging, armoured kerbing, and channelling, sewer and water conduits, &c. In regard to the kerbing, the top face is also bevelled to suit the fall of the pavement. The egg-shaped conduits are made in sizes varying from 12 in. to 8 in. internal section, to 60 in. by 40 in. internal section. The Empire Stone Co., of Leicester, show a doorway entrance and two windows to imitate yellow Mansfield and Portland stone, together with flights of steps, flagging, and flooring. The British Paving and Granite Co. exhibit granite setts from Norway, Sweden, Wales, and Ireland, as well as dock-coping, macadam, &c.

The Enderby and Stoney Stanton Granite Co. have erected a small office, around which specimens of the stone are shown. The granite is dressed in the form of spur stones, kerbs, channels, and there are some setts, broken granite, and chippings. This material is too well known in London to need description. The Hopton Wood Stone Co., of Wicks-worth, in Derbyshire, have an exhibit of road-metal, kerbing, and specimens of paving and dressed stonework. This is a Carboniferous limestone—one of the few supplied in this country both rough and polished. It is very durable, and is extensively employed.



There is a selection of stones exhibited by the Quarry, all well known, and some samples of marble shown by the Equi Valley Marble Co., of Massa Carrara, Italy. One slab resembles the veined Sicilian, and others are breccias of some merit.

Messrs. William Griffiths & Co., of Hamilton House, Bishopsgate-street-without, E.C., show some excellent specimens of broken granite, setts, and kerbing from Guernsey and the Griffl (Leics), quarries, as well as setts from Norway and timber from Western Australia. The Hard York "Non-slip" Stone Co., of Halifax, have erected a small office in one of the bays in the gallery, and have put down some pavement, as well as erecting some stairs, &c. This artificial stone is light grey in tint, and looks remarkably well. The well-known Imperial Stone Co. have laid down some pavement, and there is a length of balustrading, some moulded and other work. Mr. James Runnalls, of Penzance, exhibits some specimens of Penlee stone. This stone is also well-known, and has been on the market in the West of England for many years. It is a basalt, and has a good reputation for its wearing qualities on roads. Messrs. Mackay & Davies, of Craig-yr-Hesry quarries, Pontypridd, show some samples of blue Pennant stone, flagging, setts, &c. The Pwllbepi Granite Co., of Runcorn, have some samples of granite paving setts, channels, kerbs, &c. This stone has proved very useful for surveyors' purposes. It is compact, fine-grained, contains many small phenocrysts of tridinic feldspar, some black mica and hornblende, and is not appreciably porous.

The Patent Victoria Stone Co. have a neat exhibit in a corner of the gallery. It consists of a large doorway supported by columns and carved caps in Victoria stone, trusses, cornice, &c. There is a short length of balustrading with vases at each end, also a moulded, bracketed, staircase, and a carved panel. This stone can now be produced in almost any tint desired, and there are several samples to illustrate this fact. The floor of the exhibit is laid with slabs of the stone, and there is one showing the adaptation of the material for stable-flooring purposes. One slab shown was laid down on London Bridge fourteen years ago, and does not seem much the worse for wear. The stone is a mixture of washed and crushed granite and cement carefully prepared, and steeped in a solution containing much colloidal silica. Other qualities of the stone are hardened by being submerged in tanks containing water.

The Patent Indurated Stone Co., of Millwall, exhibit some slab paving, sewer-tubes, moulded steps, grooved paving, &c. All these materials appear to be serviceable, and they have been tested by time in most cases.

#### OTHER EXHIBITS OF BUILDING STONES.

The exhibition is not very rich in building stones beyond those already described. Amongst the others, however, we may mention the stone from Weldon, in Northamptonshire. This stone, although used by architects during the Elizabethan period (and before), has not been much employed since except during the last few years. The excellent preservation of Kirby Hall, which is built of Weldon stone, seems to have attracted attention to the material, and the late Earl of Winchelsea caused quarries to be opened up near by. From a small beginning these quarries have now attained to considerable proportions, and the stone seems to be one of the best of the Lincolnshire limestone series. The exhibit at the Agricultural Hall is modest. It consists of a dated stone from Kirby Hall and large samples of the cream-coloured oolite now raised.

Another stone from the Lincolnshire Oolite formation which caught our attention was from Castle Blyth in the same district. The "bottom stone" is of light cream colour and very fine grained; large oolitic granules are scattered about amongst extremely small ones, and the whole are cemented together by calcium carbonate in a crystalline condition. The stone takes a fine surface and is devoid of large shells. It has been largely used for building purposes in the Midlands, especially at Leicester, Peterborough, Nuneaton, &c.

Clee Hill has provided samples of basalt road metal, sent by the Clee Hill Dhu Stone Co., and by the proprietors of the Titterstone quarries. This basalt has been used for many years by surveyors for macadam, setts, &c. It is a dark grey, and appears to be composed of hornblende and a tridinic feldspar. It breaks with a hackly fracture. The base of Clee Hill is

composed of Carboniferous rocks, and this basalt rises through them. The hardness and toughness of the basalt which caps the hill has led to the preservation of the latter. The specific gravity of the stone from the Dhu Stone Co.'s quarries is 2.88, and the resistance to crushing of three specimens of the stone, each 1½-inch cube, came out at between 47,000 lbs. and 49,000 lbs.

The quarries at Rowley Regis are also represented. The Rowley Regis Granite Quarries, Ltd., have specimens of kerbs, setts, macadam, and coarse and fine chippings. The stone is a basalt, dark grey in colour, and is stated to have a mean crushing strength of 2,049.8 tons per square foot.

#### BRICKS, TILES, TERRA-COTTA, ETC.

Most of the well-known manufacturers of bricks, tiles, terra-cotta, sanitary ware, &c., are exhibiting, but there is not much to be said about each exhibit. You see a great number of red, yellow, and buff bricks on ever so many stands, and though the exhibitor tries to make you believe that his bricks are a better colour than his neighbour's, he does not always succeed in convincing you. There are many stands in this exhibition so much like one another that a separate description would be useless. Firms who always exhibit, like Messrs. Broad & Co., Candy & Co., Carter & Co., S. and E. Collier, Colthurst, Symons & Co., Mark Gentry, Gibbs and Canning, George Jennings, J. Knowles & Co., H. J. & C. Major, Stanley Bros., Peter Wood, and Wragg & Sons, send up what are practically their stock in trade, so far as that is compatible with a small exhibit. We do not intend to mention these in detail.

Messrs. Candy & Co. have erected a covered stand in which are numerous glazed and other bricks, together with an assortment of the goods made from their excellent clays at Bovey Tracey. The "vitrified granite" bricks, including the Olympia paving bricks (fig. 1),



Fig. 1.

from this firm's yard prove to be capable of withstanding a crushing strength of 445.2 tons per sq. ft. Their glazed socket pipes have resisted a bursting pressure of 100 lb. per sq. in., and the pipes did not break. The chemical analysis of the raw clay is as follows:—

Silica .....	77.30
Alumina .....	16.60
Iron peroxide .....	1.90
Lime and magnesia .....	traces
Loss .....	4.20
	100.00

The proprietors of the Marland Stoneware Brickworks, of Torrington, North Devon, have erected a doorway in their material, which latter is of cream stone tint. It is very effective, and the few ornamental stones also forming part of the exhibit show what can be done with the little known clays of the north of Devonshire. Impervious buff facing bricks, vitreous stoneware paving bricks, damp and acid proof bricks, as well as engineering and sewer bricks, are made by the firm, and they look clean and serviceable. The results of a test as to crushing strength on six buff bricks, wire cut, show, on the average, 706.1 tons per square foot. The absorption of water by three of these bricks came out at .74 per cent. Buff bricks wire cut, made by the same firm, show a crushing strength of 784.4 tons per square ft., and an absorption of 2.50 per cent.

Messrs. Perrett Bros., of Cheam, have a stand showing what can be done with the clays of the Woolwich and Reading series. The goods are of excellent colour and make, and consist of red finials, chimney-pots, and much decorative work, all well executed. The Ames Crosta Sanitary Engineering Co. show their characteristic materials, as do the Albion Clay Co. The Aylesford Pottery Co. have a nice exhibit, consisting of gault bricks and plum-coloured roofing tiles and fittings. Their white pressed gault bricks have shown a crushing strength of

243 tons, the mingled wire-cuts 232.2 tons, and the pink wire-cuts 184.9 tons, when tested between pieces of pine ¾ in. in thickness.

Bridgwater tiles are well in evidence, and Somerset generally has made some excellent contributions in clay goods to the exhibition. Mr. Mark Gentry, of Sible Hedingham, in addition to his usual display of red bricks, moulded bricks and ornamental red clay work, has a novelty in the shape of a black brick. The brick is not black throughout, only on the surface; it is red within. This material is not intended for paving purposes or to supersede the Staffordshire blues, but for ordinary building purposes. The proprietor prefers to keep the nature of the colouring matter a secret, and we are told that this method of making bricks black externally was discovered by him accidentally. Hamble's Blue Brick Co. have an exhibit of their blue bricks, &c.

#### CEMENT, TIMBER, ETC.

Raw cement is practically absent from the exhibition so far as we could see. Its use in making drain pipes is exemplified by one or two exhibits, and mixed with basalt chips and trass, it is shown in the gallery where some sewer pipes of the material are shown.

There are some exhibits of raw timber, and though they for the most part show timber of excellent quality, there was nothing attached to the boards and slabs at the time of our visit to explain what they were. This is a great mistake on the part of exhibitors. The name of the firm does not describe the kind of wood. Some well-known firms, however, are exhibiting, like Messrs. C. B. N. Snewin & Sons, Oliver & Sons, C. E. Johnson, W. & J. R. Hunter, and Cobbetts. This part of the exhibition, although not specially attractive to the public, is very interesting to those who have studied the increasing number of useful woods imported in this country.

#### MACHINERY.

In dealing with machinery and mechanical appliances at the International Building Trades' Exhibition, the endeavour will be made to notice the various exhibits, as far as possible, in consecutive order and to preserve a general classification. This is a little difficult, because several firms are makers of appliances which come under different departments of work. The following are the chief heads under which the principal exhibits are mentioned:—(1) Woodworking machinery; (2) Engines and motors; (3) Machinery for dealing with water and sewage, and sanitary appliances; (4) Appliances and plant for hoisting and transport; and (5) Concrete mixers and clayworking machinery.

In the first of these sections, Messrs. J. B. Stone & Co., of London, have a large selection of woodworking machinery, including the well-known "Fox" universal trimmer, which is shown in several sizes, from small machines of 8-in. stroke, suitable for fixing to any bench, to machines of 24-in. stroke, provided with independent cast-iron stands. They also exhibit a chain saw mortiser, requiring no core driving, with a capacity from 400 to 800 mortises per hour. On the same stand we noticed a very handy setting machine for hand-saw blades, a machine capable of setting an ordinary saw in from three to five minutes, without removal from the machine, or at the bench, as desired. The teeth are set, one in either direction, by two hammers, which are pressed by the same spring and strike with equal force at the same instant. The saw passes through a spring-pressed vice, the jaws of which hold it firmly, but yield when the saw is fed or drawn upward. If the saw be of uneven temper, it is simply necessary to adjust the movable stops; the amount of set is in view of the operator all the time, and can be increased or diminished by turning thumb-screws which regulate the force of the blow or travel of the hammers. Messrs. R. Becker & Co., of London, provided for inspection a comprehensive assortment of Kiehl's wood-working machinery, including saw-benches, band-sawing machines, panel planing and thickening machines, four-cutter moulding machines, boring and mortising machines, tenoning machines, and lathes. One of the most generally useful appliances on this stand is a universal planing, jointing, and moulding machine, with attachments for moulding, boring, and slot mortising, and for square turning and ornamental work. Among the



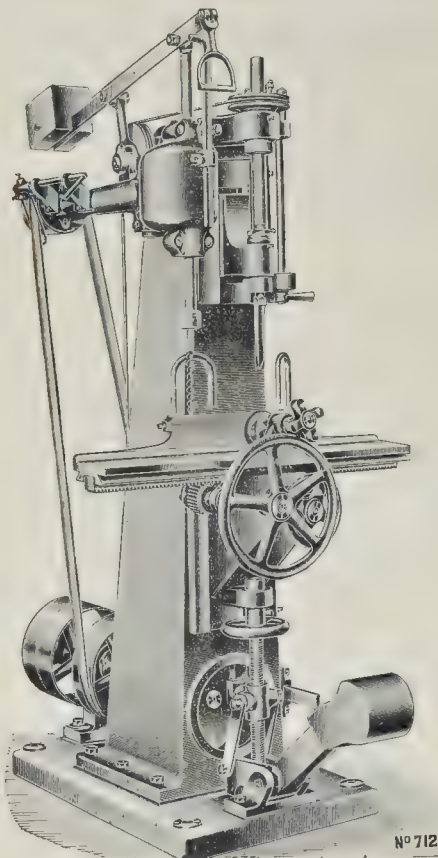


Fig. 2.

various types of woodworking machinery exhibited by Messrs. J. Sagar & Co., of Halifax, attention may be directed to a new pattern high-speed mortising and boring machine (fig. 2), with crankshaft in the base suitable for running at very high speed, this machine having an automatic reversing chisel, self-coring chisels, and taking timber up to 11 in. by 4½ in.

Mr. Monninger, of Clerkenwell, has on show several very handy tools and appliances, including a circular-saw sharpening machine, in which sharpening and gulleting are performed by an emery wheel fitted on a pivoting bracket, which can readily be attached in any desired position; also a low-priced but well-made saw bench, with rising-and-falling table and a very neat saw guard; and a wood trimmer similar to the "Fox" type, but of British manufacture. Other appliances on the same stand are tool-grinding and band-saw brazing machines, and a "Grip" tackle fixture, in which the principle of the lever is employed for the purpose of securing a firm hold for blocks and falls between two walls. Mr. Oates, of Huddersfield, exhibits a trimming machine for edging wall decorations, an ingenious contrivance which unwinds the roll of paper, cuts off one or both edges, or part of one edge, as desired, and rewinds the roll at one operation. It will trim any kind of wall papers, is self-sharpening, and can be regulated in width within customary limits.

One of the most interesting exhibits in this department of the exhibition is that of Messrs. Easton & Bessemer, of Taunton. Among other saw benches, the most noteworthy is one of the self-acting type, with a fence sliding on a strong turned steel bar at the end of table, with hand wheel and screw for fine adjustment. The fence plate is adjustable for saws of various diameters, and is provided with a lever pressure roller and weight for holding timber to

the fence. The feed motion consists of a revolving drum, on which a rope coils for holding the timber into the saw. The drum is driven from the saw spindle through countershafts fitted under the bench, which are provided with speed cone pulleys so that the rate of feed can be varied from 15 ft. to 60 ft. per minute. A clutch on the drum shaft, operated by a lever, permits of the rope-feed motion being thrown instantly in or out of gear. Messrs. Easton & Bessemer's "Express" planing machine, with fixed knife, is another well-designed tool with a massive frame of cast iron carrying the main bearings of the feed roller. The plane iron is fixed in a specially designed box, so arranged that it can be easily moved for setting or sharpening. This firm also show two steam engines. One is a horizontal compound coupled engine, with 10 in. and 18 in. diameter cylinders, 24 in. stroke, and automatic expansion governor; and the other is a vertical high-speed engine, with 6½ in. diameter cylinder and 6-in. stroke, running at 350 revolutions per minute. The latter engine is of design suitable for driving dynamos, fans, or pumps, and is fitted with governor of the Pickering type, and capable of adjustment while running. Lubrication is continuous and automatic, each bearing having a separate and adjustable feed supplied from one oil receiver placed in a safe and convenient position.

As usual in exhibitions of this kind, steam, gas, oil, or electric motors of various types are well in evidence. Messrs. Hornsby & Sons, of Grantham, exhibit a small Hornsby-Ackroyd oil engine made for working with ordinary oil or any form of liquid fuel. Messrs. Crossley Bros., of Manchester, have a fairly comprehensive collection of their well-known gas engines. The National Gas Engine Co., of Ashton-under-Lyne, exhibit an "Improved Otto" gas engine, with patent air filter and continuous lubrication. The Forward Engi-

neering Co., of Birmingham, exhibit an 18 brake-horse-power gas engine of the "Otto" type, and a 2½ brake-horse-power gas engine specially adapted for electric lighting, these engines being fitted with open-end porcelain ignition tubes, and devices intended to render impossible the waste of lubricating oil.

Messrs. Babcock & Wilcox, of London, exhibit models of their water-tube steam boiler, steam superheater, mechanical chain-grate stoker, and of the Guttman water softener and heater. Among the apparatus shown by Messrs. J. B. Petter & Sons, of Yeovil, is a small oil engine burning common paraffin oil, with a consumption of about three-quarters of a pint per brake-horse-power per hour. This motor is provided with a novel system of ignition, in which the tube is heated by the exhaust gases as they pass from the engine. By this means the continuous burning of the usual Bunsen lamp is obviated. The Petter engine is well adapted for use in country houses, farms, and estates, in connexion with machinery for grinding, cutting straw, sawing timber, pumping water, and many other purposes. The stand of the Pulsometer Engineering Co., of Reading, is devoted to different forms of the Pulsometer steam pump (fig. 3), an

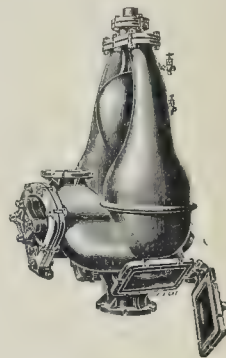


Fig. 3.

appliance generally popular among builders and contractors. For pumping out foundations, well sinking, and dealing with liquids or semi-liquids of any kind, such as mud, liquid cement, slurry, and sewage sludge, it would be difficult to find a more convenient or efficient apparatus. One exhibit shows the Pulsometer in a well section, thus making clear the simplicity of the arrangements for pumping under such conditions, no fixing and no exhaust pipe being necessary. A very handy self-contained pumping appliance for use in trenches or other temporary work consists of a pulsometer pump and vertical steam boiler, mounted on wheels ready for transport to any desired place, the pump being detachable for use in confined situations. The "Deane" steam pump is also shown by the same firm, this being an improved horizontal pattern for boiler feeding and general work. The valve gear, being simple and positive in action, enables the speed of the pump to be regulated down to one stroke per minute. The exhibit also includes centrifugal pumps designed to swivel at any angle, and an air-lift pump, a device for raising large or small volumes of water by means of an air compressor at the top of the well, and a special foot-piece at the bottom. Messrs. Mather & Platt, of Salford, exhibit models of the "Archbutt-Deeley" water softener, of their patent gravity filter, and of the "Ridgway" sewage distributor for automatically dividing the flow of sewage equally over any number of bacterial or other beds.

The Patent Automatic Sewage Distributors, of Westminster, have a full-sized exhibit of automatic revolving and other sprinklers for bacterial beds, a rotating sewage feed, and an automatic sewage screen. Drawings are also exhibited illustrating sprinklers and valves for the Chester sewage works.

Mr. W. E. Farrer, of Birmingham, is another exhibitor of automatic distributing apparatus for small bacterial beds, such as are required for use in public institutions and other large buildings. The apparatus is simple in construction, and arranged in such a way as



to ensure adequate aeration of the liquid. The exhibit of Messrs. Ham Baker & Co., of Westminster, consists chiefly of penstocks, contractors' pumps, apparatus for drilling and tapping water mains under pressure, test pumps, apparatus for testing water mains, water meters of various types, and a varied selection of water valves, hydrants, and kindred fittings. Mr. George Kent, of Holborn, exhibits various sizes and types of water meters, amongst which may be mentioned the "Uniform" meter for trade and district supplies, and three forms of the "Venturi" meter for mains of any diameter. One form of the latter meter is combined with a recorder showing by a diagram the rate of flow at any moment, and by a counter the total quantity passed. A second form is fitted with a U-tube indicator, showing the rate of flow without the use of a recorder, and a third form has electrical counter and diagram transmitter, and receiving instruments, for conveying the record to any desired point. Messrs. Meldrum Bros., of London and Manchester, have on view models of regenerative refuse destructors, with Lancashire and Wilcox boilers. Refuse destructors of these types have been erected in many towns in Great Britain and the Colonies, and in almost every case the power is being fully utilised either for electric lighting, traction, or other purposes. Clinker flags, clinker bricks, and a model of Messrs. Fielding & Platt's hydraulic flag press are shown on the same stand. The adjacent exhibit of Messrs. Heenan & Froude, of Manchester, is devoted to the "Heenan" refuse destructor, centrifugal fans, forced-draught plant, smokeless chimneys, and coal-saving appliances. Disinfecting appliances are represented by a model of the "Equifax" saturated steam disinfecter with automatic recording gauge, shown by Messrs. J. Defries & Sons, of London. The same firm exhibit portable spray disinfectors for hospital wards and rooms, the "Equifax" hot-spray disinfecter for cleansing and disinfecting cattle markets, trucks, &c., Dr. Scurfield's ventilation indicator, and Pasteur-Chamberland filters. Messrs. James Keith & Blackman Co., of London, are exhibitors of Blackman electric fans, Keith's hot-water boiler and radiators in connexion with fans, illustrating a combined system of heating and ventilation. Messrs. Matthews & Yates, of Swinton, exhibit an ingenious refuse-collecting apparatus, with "Cyclone" dust separator; enclosed motor type electric air propellers for ventilating purposes, and various useful types of air propellers and blowers, some direct—driven by steam engine, electric motor, and others driven by belt. On the stand of Messrs. James Stott & Co., of London and Oldham, are to be found air propellers, water-driven fans, a new form of air-purifying screen for the "Plenum" system of ventilation, and the gas-pressure regulators associated with the name of this firm. Among lifting and hoisting machinery and appliances a working model of the Richmond-Carey electric lift, exhibited by Messrs. Richmond & Co., of London, is worthy of notice. This lift is very simple, requiring only one movable wire, and the services of an attendant can be dispensed with entirely. Messrs. Moffat & Eastwood, of London, exhibit self-sustaining belt-power elevators and lifts, and similar appliances, including their direct worm-gear hoisting machine for electric lifts (fig. 4). The Safety Lift and Elevator Co., of Deptford, exhibit a self-sustaining dinner lift of neat design. A serviceable labour-saving winch is shown by Mr. J. Fishburn, of High Wycombe. The machine is adaptable as a means of lifting or lowering articles or materials of almost every description with safety and despatch. For building operations in crowded thoroughfares, where the staging stands out to the curb, building materials can be hoisted direct from vans to required positions on the scaffolding, staging, or floor. Palmer's travelling cradle can be found in another part of the Hall, consists of a light cradle raised or lowered by light and easily worked tackle, and the cradle can be moved along a wire rope to any part of the structure upon which it is intended to be employed, this operation being conducted by the men while in the cradle, and without any outside assistance. Representative examples of other contractors' plant and machinery are scattered in various parts of the exhibition. In the area Messrs. Wallach Bros., of London and Glasgow, exhibit lime and whitewashing machines in four sizes, capable of replacing eight, fifteen

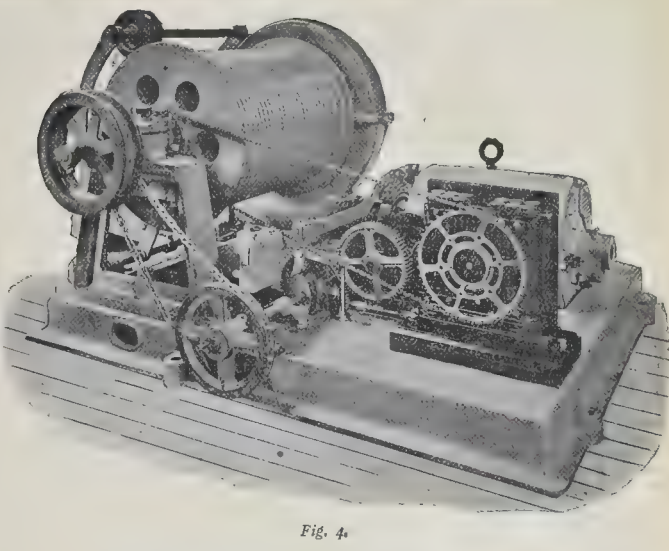


Fig. 4.

twenty, and twenty-five men respectively. Portable painting machines for oil paint are also shown, and it is claimed by the makers that as much as 100,000 super. ft. can be covered by one man and mule in a single day. In the gallery the Phoenix Engineering Co., of Chard, have some "1903" pattern horizontal and vertical pitch boilers, a serviceable hand-lift trench pump on barrow, and a lift and force pump on steel carriage. In the main hall, Mr. Bernard Asplen, of Southall, exhibits a new trench-cutter and scarifier, fitted with direct-acting springs and double fore carriage, so that no turning is necessary after each operation or cut. This machine will work backwards or forwards, and by the action of its springs it tips itself into the work at the predetermined depth. A lighter machine of the same class is on view at the same stand.

Messrs. Ashkam Bros. & Wilson show examples of material for railway and tramway construction, including automatic spring points, crossings, a portable crossover for temporary track, and sundry details of the same character. Messrs. Griffin & Co., of London, are also exhibitors of material for portable railways, and of tipping-waggons of various types. Messrs. Orenstein & Koppel, of London, have a comprehensive display of portable railway-track installations, portable switches, turntables, tipping-waggons, single and double deck brick cars, and Fawcett's concrete mixer. This apparatus, recommended as being entirely of English manufacture, has a mixing drum with two paddle arms and claws which revolve in opposite directions. All operations are under the control of one attendant, and forty charges an hour can be made. The machine may be used for concrete with broken stones or pebbles, and for cement or lime mortar mixing. The apparatus is made in various sizes, the largest being capable of turning out 32 cubic yds. of concrete an hour. Mr. A. Koppel is another exhibitor of concrete-mixing apparatus, made in Germany, and of general similarity to the mixer described above. The stone-cracker shown on this space appears to be a new departure in such machinery. The working jaw is divided vertically into several sections, worked consecutively by cams on the driving shaft. By this method of operation the strain on the machine is reduced in proportion to the number of jaw sections, thus rendering unnecessary the massive framework usually required. Mr. Koppel also exhibits various examples of portable-railway trackwork and plant, and in the minor hall a working model of an electric railway.

A new design mortar mill is to be found on the stand of the Glendon Engine Works, of Kettering. This machine is combined with engine and boiler, and although the mill is of the revolving-pan type, the customary "A" frames are entirely dispensed with. This feature of the design allows the attendant to feed the pan or to take the charge from it at

any point. This exhibit includes also a brick breaker of strong but neat design, and a compactly arranged friction hoist with boiler and engine all mounted on strongly built steel truck.

We now come to the numerous exhibits of brick, tile, pipe, and other clayworking machinery, to do full justice to which would demand much more space than is available. Messrs. Herbert, Alexander, & Co., of Leeds, have on view different types of sand and clinker concrete brick machinery, and stiff-plastic brick machinery. An admirable semi-plastic brick machine of new type, capable of making 10,000 bricks per day, is exhibited by Messrs. Whitaker & Co., of Accrington, together with a very businesslike direct-acting steam press for copings, the whole being on a self-contained bed-plate, so that no special foundations are necessary. Mr. Caplen, of Croydon, has a small workshop in the Main Hall, containing one of his brick-moulding, shaping, rubbing, and cutting machines. From an inspection of this machine in operation we think it quite capable of effecting considerable savings both in material and time. The various implements formerly used for the same purpose, such as the bevel, template, square, bowsaw, and other specially prepared tools, are no longer required, and as the machine includes a circular saw, it is available for any ordinary sawing when not employed for shaping brick. The most noteworthy exhibit of the Nuneaton Engineering Co. is Stanley's multiple-die tile press, producing tiles with great accuracy and rapidity. The machine, which represents a new departure in tile making, is made in sizes with capacities varying from 2,000 to 5,000 tiles an hour. Mr. Joseph Hamblet, of West Bromwich, has on show a well-designed, direct-acting steam pump, suitable for liquids of any kind, as well as a selection of brick machinery.

In addition to plastic brickmaking, and sand-faced moulding-machines, and a double-side cutting-table, Messrs. Buchanan & Son, of Liverpool, exhibit a new brick die, which may be lubricated by either steam, water, or oil, and lubrication can be applied to the corners only, or to the corners and sides, or all over the stream of clay, according to requirement. Messrs. Mackies, of Reading, make a special feature of a self-oiling brick pressing-machine, with an output of 7,000 bricks daily, the press-box of the machine having an automatic oiling device, thus enabling the machine to be run all day without being stopped. Messrs. Pullan & Mann show an improved screw-pipe machine, producing earthenware pipes complete with sockets at one operation, and also capable of making bends, electric cable conduits, chimney linings, and other fittings; also one of Tilley's screw brick and tile presses, specially suited for the production of glazed bricks, high-class facing bricks, and ornamental tiles up to 18 in. square. The Kielberg machine for making



cement pipes, exhibited by Mr. Fernau, of London, deserves more than passing notice. In operating the machine, a pair of half moulds are placed in position under a ram, the two halves being clamped together. This done, the ram is lowered to the bottom of the mould by means of a chain and windlass until the helical thread of the ram is nearly in contact with the bottom ring. Enough cement to form the socket is then passed into the mould, and the ram is rotated. Enough cement to form the pipe is then run into the mould and the ram is again rotated. The screw thread thereupon forces down the charge, thoroughly filling the lower portion of the mould, and an abutment being thus formed, the ram begins to screw itself upward, further charges of cement being added until the thread has come clear of the top of the mould. The top of the pipe is finished by a few extra turns of the ram. Pipes made by this machine are very smooth internally, and being moulded under pressure the cement is very strong after hardening. Two attendants are required for the operation of the machine and its output is 100 pipes daily, each about 10 in. diameter by 3 ft. long.

Among other exhibitors of clayworking machinery the following may be mentioned:—Messrs. Sutcliffe, Speakman, & Co., of Leigh, "Emperor" brickmaking machine for the manufacture of lime-sand and concrete bricks; the Normanby Brick Co. exhibit the Hughes' power press; Mr. Hughes, of Charing Cross, the Buhler brick machinery; and the Horsham Engineering Works, the "Vulcan" pug mill.

Although machinery by no means preponderates in the Exhibition, it must be admitted that there is very little to be seen that is not of direct interest to builders and contractors, and of indirect interest to architects, and to engineers who are concerned in works were building materials and kindred products are employed.

#### ELECTRIC EXHIBITS.

We were surprised to find that, with the exception of an exhibit by the well-known Simplex Steel Conduit Co., there were no exhibits of systems of wiring for electric light. Electricity as applied to ventilation is represented by the well-known "Blackman" fans (fig. 5). An electric lift is exhibited with

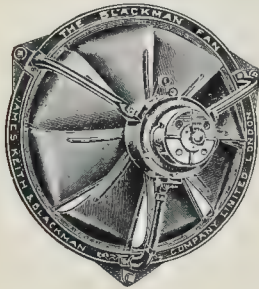


Fig. 5.

safety cut-out to prevent overhauling and suitable automatic starting-gear; also a very handy sack hoist to lift sacks at a speed of 400 ft. per minute. We were struck with the numerous examples of the electrical driving of the wood-working machinery. For working wood successfully high-speed tools are necessary, and hence small electric motors are particularly convenient.

#### FIREPROOF CONSTRUCTION.

Considering the extreme importance of fireproof, or more correctly fire-resisting, construction it is a little disappointing to find so little prominence has been given to this department of work in the International Building Trades Exhibition. It is true that in one way or another a good number of exhibits are to be found relating directly or indirectly to fireproofing, but there are not so many complete expositions of such construction as might reasonably be expected. Perhaps one of the most complete exhibits is that of the New Expanded Metal Co., of Westminster, who have two stands, a small one in the gallery devoted to steel cores for concrete conduits, and a larger space on the ground floor of the main hall occupied by a pavilion exemplifying the expanded-metal system of

building construction, and containing a concrete floor with a layer of metal embedded in the under surface, and examples of solid and hollow partitions, ceiling work, and various samples of expanded metal itself. Like most new inventions, many improvements have been made in expanded metal since its appearance some years ago. Its development has been a process of gradual evolution, so that the material, as now manufactured, has not only been improved and reduced in cost, but its scope of usefulness has been largely extended in various directions. Expanded metal consists of slit and opened-out sheets of metal producing trellis-like work, with diamond-shaped meshes and strands of, practically, any desired sizes and thicknesses. The cutting and opening out of the diagonal strands are effected in one operation by a specially designed machine. This process results in a product of greater rigidity and covering area than that originally possessed by the sheet operated upon, without any waste of material. Beyond its uses as an efficient substitute for sundry forms of wirework, expanded metal has found a wide scope of useful application in general building, and more especially in fireproof building construction.

In fire-resisting floors, roofs, walls, and partitions, the employment of expanded metal in combination with concrete, cement, or plaster, has been proved to be of considerable value. The floor exhibited at the Agricultural Hall serves to demonstrate the lightness, strength, and efficiency of the metal in combination with concrete. This floor is of 14 ft. span, and its strength is sufficiently illustrated by the fact that no joists are required for the purpose of intermediate support. The thickness of the concrete slab in which the metal is imbedded necessarily varies according to the span and the load to be carried. Where joists are placed wide apart or the loads to be carried are heavy, a sub-structure of concrete and steel channel arches may be employed to carry the flooring slabs. Practical tests have demonstrated the fact that the behaviour of expanded metal in concrete when under fire is entirely satisfactory. Owing to its open-mesh formation and the comparatively small proportion of metal, no harmful effects are to be feared by reason of expansion or contraction. As the result of tests made upon an expanded metal floor by the British Fire Prevention Committee two or three years ago, it was shown that the plaster ceiling remained intact until the application of water, and although slight deflection of floor and ceiling was noticed and the concrete was superficially cracked, the fire did not pass through the floor. As this particular test was conducted at a maximum temperature of 2,000 deg. Fahr., upon a floor measuring 100 superficial feet while carrying a load of 140 lbs. per sq. ft., it is tolerably clear that the combination offers a reasonable safeguard against fire. The solid partition exhibited by the company is 2 in. thick, the metal ground-work consisting of vertical rods, usually fastened at top and bottom to other parts of a structure, and the metal is wired to these supports. In some cases light angles, channels, or gas-tubing may be conveniently used in place of the tension rods. These solid partitions consist exclusively of metal and plaster, and are sometimes built 1½ in. thick, but more usually they are made to finish up to 2 in. thick. Such partitions possess all the required essentials of a division wall, and their value in arresting the growth of a fire has been amply demonstrated in the past. Their weight is not more than 18 lbs. per square ft. of surface area, and the combination of steel and plaster forms a monolithic slab capable of resisting considerable pressure. At New College, Oxford, similar partitions over 12 ft. in height have given very satisfactory results, and the rigidity and stability of this construction is further demonstrated by partitions 10 ft. high in the Medical College of the London Hospital. The hollow partitions exhibited on the same stand are formed of light angle-bar standards and metal lathing plastered on both sides. This form of construction is very suitable for the exterior walls of buildings or for giving a more substantial appearance to the doorways of interior walls. Fireproof ceilings, of which samples are exhibited, form another useful application of expanded metal. Very simple methods of construction are followed. Bars placed at short distances apart are secured to the joists by metal clamps; to these the expanded lathing is attached by means of metal

clips or wire, and plaster is applied in the usual manner. The fire-resisting qualities of such ceilings have been amply proved by practical experience in buildings, as well as by experimental tests. Although no examples are to be seen at the exhibition of fireproofing for girders, columns, and iron-work, the fact deserves recognition that expanded metal can be most usefully applied for such purposes. Such protection is of most vital importance in every building where the main supports are of cast-iron or steel, and it is a little unfortunate that a firm undertaking the complete equipment of buildings from the standpoint of safety from fire, should have omitted to include specimens or protection for members of the kind indicated.

An adjacent pavilion in the main hall has been erected by the British Uralite Co. with the object of showing the general adaptability of the material introduced by this firm. Uralite is a new fire-resisting and non-conducting material for building and other work, and is composed of asbestos fibre cemented by a mineral glue. The patentees claim that it is the best fire-resisting agent known to science, and that by its aid partitions and doors constructed that will absolutely stop the spread of fire, without twisting and jamming under heat. Uralite is unaffected either by damp, gases, or acids, does not expand by heat nor contract with cold. Consequently it does not warp, crack or shrink, and when painted is waterproof, being seasoned by time and hardened by exposure. In appearance the material is not unlike thick card-board. It can be fixed to the ceiling or to wood joists over gas jets, and to protect walls in fixing stoves. Tests which have been made with the new material show that uralite is absolutely non-flammable. It is, therefore, extremely suitable for the construction of light buildings as well as for application in various classes of interior work. The stand of the exhibitors serves to illustrate the employment of uralite in building construction, and its contents consist of samples suitable for roofing, ceilings, and partitions, samples painted with various paints and coloured with distempers, and others veneered in different kinds of wood. Models of uralite roofs are also shown, as well as a fire-resisting door safe and a fire-resisting despatch-box. It may, perhaps, be useful to mention that uralite armoured fire doors are now being manufactured by Messrs. Mather & Platt, of Salford, and it is claimed by the makers that an ordinary door, with only two thicknesses of uralite, will retard a fire for a sufficient time to permit the escape of all the inmates of a building, and that specially-made uralite armoured fire doors will not pass flames so long as the walls in which they are fitted remain intact. Messrs. Mark Fawcett & Co., of Westminster, exhibit a full-size example of the Fawcett fireproof floor (fig. 6), with specimens of the material of which it is constructed. The principle of the floor, which was introduced by Mr. Fawcett some fifteen years ago, provides for the complete insulation of the lower flange of rolled steel floor beams or joists by interposing between them and the terra-cotta protection spaces through which air may freely circulate. A fire may heat through the plastered ceiling and may even heat the terra-cotta to a white heat, but before it can reach the steel beam itself, it must heat through a layer of air, and the more intense the heat the more rapid must be the circulation. This floor is now a long way past the experimental stage, and its merits have been recognised by many leading architects in this country and abroad. Nothing could be more simple than its construction. It consists essentially of a series of terra-cotta tubular lintels which are placed diagonally between ordinary steel joists spaced 2 ft. apart. Each lintel provided with a sufficiently large mouth, or notch, at each end, so that practically any sized joist may be used, and the flat part, or shield, of the lintel is made to hang clear of the joist flange, thus allowing room for expansion and also for the circulation of air as mentioned above. The difficulty of placing the tubular lintels into position for ordinary work was ultimately overcome by adopting the diagonal method of fixing. All the load is carried by the joists, and the object of the tubular lintels is to protect the joist and to form a support for the concrete filling above and the ceiling below. On the occasion of our visit to the exhibition we saw a full-sized section of flooring, covering a span



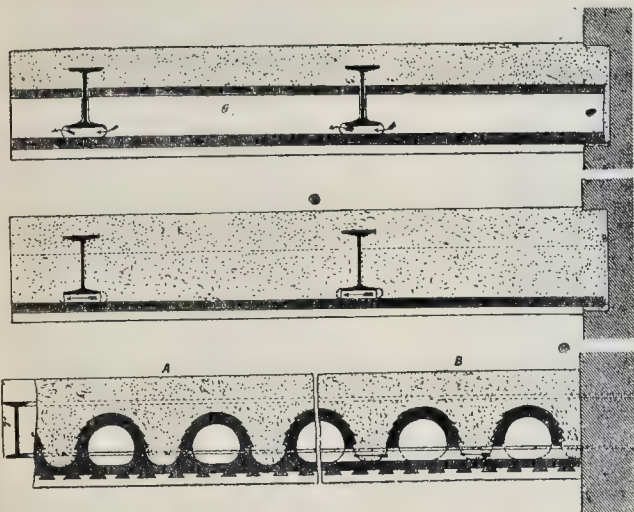


Fig. 6.

of some 16 ft., put into position without the slightest hurry in something less than one minute. One end lintel in each panel is cut suitably for making a parallel finish, and the pieces cut off are used for filling the angular spaces left at the opposite corners. The difficulty that would otherwise occur in filling in the last lintel in a given panel is got over by the play afforded by the notches. This makes it possible to lift up and slide three or four of the lintels one over the other to a sufficient extent to enable the last one to be put into place. The other units are then slid back into their original positions. Floors constructed upon this principle have been very largely used in many important buildings in this country and in America, some of the best known of such being the new Public Record Office in Chancery-lane, the new Admiralty Buildings, the National Portrait Gallery, and the eastern and western galleries of the South Kensington Museum.

Another exhibit of fireproof floor construction is that of the Columbian Fireproofing Co., of London and New York. This system consists of special ribbed steel bars, by the use of which ordinary steel joists are rendered unnecessary. These ribbed bars are in every case surrounded by, and completely embedded in, concrete, and by their special shape utilise the full strength of the concrete. The Columbian floor is made in three main forms (1) panelled floor for warehouses and stores; (2) double construction with level ceiling of concrete under and between the joists; (3) ribbed bar floor between the main girders, a level ceiling being formed between the main girders and walls. This union of concrete and steel forms a monolithic floor of considerable strength, which is more free from vibration than floors constructed in the ordinary manner with steel joists. The bars are protected in the manner adopted in the floor tested in 1899 by the British Fire Prevention Committee, when the heat attained reached 2,335 deg. Fahr.

Messrs. Potter & Co., of Westminster, exhibit a concrete fireproof floor 4½ in. thick, and 12 ft. between the supports, the floor being strengthened with ½ in. corrugated steel tension rods, spaced about three or four inches apart. Being corrugated the rods cannot shear or slide, and the effect is to counteract tensile strain upon the lower portion of the concrete, thus increasing the strength of the construction very considerably. Specimens of steel lat bracketing for plaster cornices, and of secret nailed wood to concrete floor are also exhibited on the same stand. Messrs. Powers, Deane, & Ransomes, of London, exhibit their "MP" fire and sound-proof floor and ceiling, a type of construction in which clear spans of 30 ft. can be attained without the assistance of main girders. The salient features of this floor are the following:—A hollow-tile floor lintel made from mild-tempered clay capable of sustaining temperatures up to 2,000 deg. Fahr.

The lintels are 2 ft. in length by 6 in. wide, and are slotted through each end so as to bear upon the lower flanges of rolled steel joists spaced 2 ft. apart, thus affording adequate fire protection. Being of dovetailed shape, the lintels form a strong key for the concrete, and each bay of lintels, when filled in with concrete, forms a continuous flat arch, preventing any lateral thrust on the walls. The soffits of the lintels are grooved at the top and bottom so as to form a key for concrete or plaster, but the lintels are also made with glazed soffits for buildings where perfect sanitation is required. In connexion with the floor exhibited samples are shown of rolled steel joists, patent tiles, coke breeze concrete, and granolithic paving. The fireproof doors exhibited by this firm are composed of two stamped steel plates connected by pressed interlocking edges, and the space between the plates is filled with suitable fire-resisting material. This type of construction combines minimum weight with maximum stability, and, as the corners of all panels are bevelled and rounded in stamping, there are no acute angles likely to catch dust and dirt. This door is, therefore, specially adapted for use in hospitals and kindred institutions. The London Fireproof Platemill Company show internal partitions constructed of solid fireproof plates or slabs of gypsum, grouted together to form one solid piece on the Bruckner system. These partitions are finished perfectly smooth, so that no final coat of plaster is required, and they may be papered or distempered shortly after erection. Rough slabs are also made suitable for tiling. For the purpose of giving additional stability to walls or partitions, iron rods or tubes are cemented into vertical passages extending through the whole height of the wall at such distances as may be considered necessary. These vertical tubes, built up in sections, are fixed between and into the floor and ceiling joists, or between concrete floors, or steel joists, and after fixing are tightened up by means of right and left handed screwed sockets. The employment of stays in this manner makes it practicable to build walls of several hundred feet area without other intermediate supports. As instancing the size of walls that may be erected, it may be mentioned that in the new Midland Hotel, Manchester, the wall dividing the stage in the Concert Hall is 72 ft. long by 26 ft. 6 in. high. A further use for the Bruckner fireproof partition was found in the Concert Hall for forming stanchions, 38 ft. high, and also in the formation of air shafts and flues in connexion with the system of ventilation. As an instance of the speed with which the slabs can be erected, it may be stated that more than 8,000 superficial yards of walls were erected at the Midland Hotel in one month.

Messrs. J. A. King & Co., of Hayes, Middlesex, show a selection of Mack's patent fireproof slabs and blocks, made of gypsum,

having embedded hollow reeds somewhat resembling bamboo in nature. The reeds form sealed air chambers, and with the plaster give a light, non-conducting material of great strength. The air-cells formed by the reeds tend to break up sound vibrations, and the non-conducting qualities of the slabs are proved by the British Fire Prevention tests, in which 2½ in. slab partitions successfully withstood a temperature of over 2,250 deg. Fahr. the heat registered on the other side reaching little more than 100 deg. The slabs exhibited at the Agricultural Hall are 2 in., 2½ in., and 4 in. thick. They are readily fixed, and are applicable to various purposes in connexion with building construction; one of their most useful applications being to render existing buildings fireproof. Another type of fire-resisting partition is shown by the Acton Concrete Partition Company, this form of construction consisting of concrete slabs, 2½ in. thick, cast in such a manner as to facilitate rapid erection, and to afford a good key for tiling. Messrs. F. Jones & Co., of Kentish Town, exhibit a collection of silicate cotton productions in various forms for sound and fireproof construction. The "Hercules" (fig. 7) partition blocks of the same material

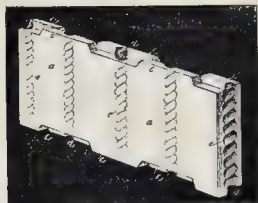


Fig. 7.

are made with projecting parts at top and bottom for holding the blocks in position, and with helical vertical channels, down which grout is poured to convert the whole of a series into one solid partition. Silicate cotton slabs in various sizes are also made, suitable for nailing up in any required position, after which they may be floated over and rendered with plaster. Wire-netted silicate cotton, or slag wool, is exhibited by Messrs. McNeill & Co., of London, for application in the fireproofing of structures, and the same material, in various forms, is also to be seen on the stand of Messrs. D. Anderson & Son, of London, Manchester, and Glasgow. The Asbestos and Asbestic Co., of London, have on view samples of asbestos fireproof plaster; and Messrs. Wallach Bros., of London and Glasgow, exhibit asbestos fire and water proof slabs for building purposes. The latter firm makes a feature of armoured glass, a material that ought to be very much more used by architects and builders than it is at present. The process of armouring renders the glass unbreakable, in the ordinary acceptance of the word, so that it cannot fly off or fall to pieces if exposed to blows or sudden shock, although it may be cracked. The value of this comparatively new combination is very great in fire-resisting building construction. Incombustible wood and fabrics are exemplified by the exhibits of the Non-Flammable Wood Co. and the Fire Prevention Building Co., both of London, while fireproof conduits for electric wiring are shown by the Simplex Steel Conduit Co., of Birmingham.

#### SANITARY EXHIBITS.

At the first glance, the show of sanitary ware does not appear to be either large or truly representative, but the exhibits are scattered about the area and gallery of the building, and are really more numerous and important than the casual visitor would think. It is true that many well-known firms are not represented; on the other hand, some firms whose manufactures are not often seen at exhibitions make a good show. In reviewing the exhibits we shall adopt the order in which they appear in the catalogue, beginning with those in the area of the hall.

At Stand No. 12 Mr. H. Hart, 29, Settlement-street, E., shows a number of drain-clearing tools. Messrs. J. Bonser & Co., 536, Barrington-road, Brixton, exhibit at No. 32 their lead sockets, strengthened with tinned copper, for lead soilpipes and wastepipes, and also some





Fig. 8.

very thin and flexible metallic cones for connecting flushpipes to water-closet basins; these are designed to take the place of the usual rubber cones, and are fixed with wire in the same manner. Moule's Patent Earth Closet Co., 5A, Garrick-street, W.C., exhibit their well-known earth-closets at No. 47A; the newest kind is of the pedestal type, without enclosure, and is made with three different actions—in one the dry earth is spread by means of a pull-up handle in the seat, in the second by a pull-out handle in the back, and in the third by an automatic seat action.

Messrs. Broad & Co., South Wharf, Paddington, have a large and interesting exhibit (No. 52) of drainage fittings, &c., among which white enamelled channel bends for manholes are conspicuous. Their urinal channels with large brass gratings (each fixed with a single screw) are also worthy of mention. A modification of the well-known Dean's grease-trap has a reversible dished top with junctions for two surface channels. There is also an "improved accessible gully," having a sweeping eye fitted with a galvanised-iron cover. Other forms of trap are shown, and a number of cast-iron drainage fittings, including junctions and inspection-chambers. Broad's patent sink is also worthy of mention; the waste outlet is at the bottom of a small well in the middle of the sink, and is fitted with a grating in the usual way; above the grating a perforated cup-shaped strainer of tinned copper is placed, so that when the strainer is in position all liquids draining from the sink must pass through it, the large solids being retained.

"The Darwin Sanitary Pipes," of Darwin, exhibit at No. 68 salt-glazed drainpipes, 24 in., 30 in., and 36 in. in diameter and 3 ft. long, and an 18-in. street gully, 4 ft. deep, of similar ware, all of which appear to be very strong and durable. A much more varied display is made at the next stand by Messrs. Thomas Wragg & Sons, of Swadincote. Stoneware drainpipes of good quality are shown, with special joints of various kinds, including the well-known Stanford, Hassall's single and double lined, and Wakefield's. The last has a corrugated band in the lower part of the socket, the spigot of the next pipe resting on the summits of the corrugations; true alignment is thus secured; the joint is now adopted for pipes up to 30 in. in diameter. A more recent invention is the "spirallitic" joint; the composition rings in the socket and on the spigot are arranged in spiral form, and when the pipes are put together a spiral groove is formed which is then run full with liquid cement. Wakefield's patent stoneware street gully is also shown; this has three chambers and a double trap, and is made in sizes up to 21 in. by 18 in. by 4 ft. deep. Jennings's patent "joinder or impermeable capped stopper" is a very simple and useful invention for stopping the junctions in new sewers; a stoneware cap is burnt on to the socket of the junction, a groove being sunk round it, so that the cap can be easily cut off with a chisel when a connection is to be made with the sewer; as the cap is really a part of the pipe, there is no possibility of leakage. Emden's patent stopper for inspection-arms has a composition joint in the form of a screw. Among the other exhibits are manhole-channels, junctions, and benchings in salt-glazed and white enamelled ware, intercepting traps, junction blocks for brick sewers, and sinks. Messrs. George Jennings,

63-67, Lambeth Palace-road, S.E., have a large display at Stand No. 71, including drainpipes, channels, traps, &c., made by Messrs. Thos. Wragg & Sons at their Parkstone pottery and brick works, Dorset. Sanitary fittings are also shown, including fireclay and porcelain-enamelled iron baths, copper baths with zinc hoods, and a nickel-plated skeleton bath. Among the lavatories are tip-up and fixed basins, some having marble slabs. The patent "Duplex" valve is shown fitted to lavatories as well as to baths. The water-closets include the well-known siphonic "Closet of the Century" (fig. 8), wash-down closets, and trough closets. There are also three good urinal stalls, one in white-glazed ware with the base and back in one piece, and two with similar backs and with slate and marble surrounds and divisions; the treads have V-shaped portions cut out so that the floors will not be unduly fouled.

Another drainage exhibit is that of Messrs. Dawson & Co., of Mendip Wharf, Battersea, at Stand No. 74. Their "Mendip" gully has a perforated bucket, raising piece with side inlets, and a large grating at the top. A stable gully on similar lines, but with larger and stronger hinged grating, is also shown. The "Glasarm" interceptor has a piece of sheet glass bedded in cement in the socket of the clearing arm; the advantage of this is that the drain can be cleared from the surface of the ground by breaking the glass and passing the drain-rods through the opening; when the old type of stopper is used, there is a difficulty in clearing the drain when the manhole is filled with sewage. We also noticed an improved rain-water and waste-pipe shoe, the parts being reversible and the inlets being close to the wall. There is also a varied assortment of manhole-channels, gully-traps, interceptors, pipes, sinks, &c., many of them made in a smooth, highly-glazed brown ware to which the name "Ephos" has been given. At No. 82, Messrs. Stanley Bros., Ltd., of Nuneaton, show some sinks of ordinary type and a few drainpipes; a salt-glazed channel for wastepipes has the rim splayed down to a channel which is about three-fourths of a circle in section, and splashing is therefore prevented.

Messrs. John Knowles & Co., of 38, King's-road, N.W., show a number of drain pipes and accessories at No. 83 in the area of the hall and No. 38 in the gallery. Their patent "B.P." stoppers with Stanford joints for clearing arms, &c., are simple and ingenious; the socket of the clearing-arm has two segments burnt on, leaving an oblong opening with rounded ends; the stopper is of the same shape, and after being placed in position it is wedged tight by a quarter-turn. Bellman's gullies with galvanised wire grids, and other kinds of gully are also shown. The "Anti-Vap" street gully is of stoneware and has a cylindrical body 18 in. in diameter, and a trap outside. The "Aquarius" water-closet may also be mentioned, the peculiarity being the half-trap which allows the outlet to be turned in any direction. Messrs. Shanks & Co., Ltd., of 81, New Bond-street, W., have also two exhibits—At Stands 1 and 84—which, taken together, form the best collection of sanitary fittings in the exhibition. There are baths in fireclay and porcelain-enamelled iron, some of them fitted with the siphonic overflow, which is also applied to lavatories. The lavatories are of various kinds, including constant-stream basins for schools, treadle-action lavatories, and others of more usual type. Water-closets, both siphonic and wash-down, are shown, and particular mention may be made of the "jet" cistern, in which siphonic action is started by pulling a lever, by which a jet of water is forced into the leg of the siphon, the action being almost noiseless. Among the other exhibits are washing-up sinks, slop sinks, tubular or skeleton baths, a sitz bath, and a neat weighing machine for use in bathrooms.

Stoneware drainpipes and fittings may be seen at No. 88, exhibited by the Staunton Colliery and Sanitary Pipe Co., of Worthington, near Ashby-de-la-Zouch. Mention may also be made of what appears to be a tinned copper double sink, shown by Messrs. Beaven & Sons, of 27, Victoria-street, S.W., at No. 92; this has a metal framework and two perforated strainers across the angles, with copper standing wastes and overflows in the spaces thus formed. Messrs. Candy & Co. of Newton Abbot, show some excellent stoneware drainpipes, gullies, &c., at "Special Position No. 4," near Stands 94 and 95. Some

cast-iron baths, vitreous-enamelled and porcelain-enamelled, are shown at No. 126 by Messrs. Yates, Haywood, & Co., of 95, Upper Thames-street; and at No. 155 by the Ashton & Green Iron Co., of 11-14, Bury-street. The latter firm also exhibit some cast-iron lavatory-stands of the usual ugliness.

In the entrance arcade, at Stands 1 and 2, the Ellikay Patent Bath Syndicate, of 28, Victoria-street, show a novelty in baths. This is a sheet-steel folding bath, which is pivoted at the centre of the height of the bath a short distance from the foot, so that the bath can be tipped up into a cabinet. To render the action easier the foot of the bath is weighted, and springs are also attached to it. A short piece of flexible tube extends from the waste-outlet to the fixed wastepipe. The overflow is connected to the waste-outlet of the bath, or may be made to discharge over a safe formed in the bottom of the cabinet. The bath is well adapted for use in dressing-rooms, and wherever space is limited. At No. 23 in the arcade, Messrs. Pryke & Palmer, of 48, Upper Thames-street, exhibit Fullerton's metallic connexions, which are designed to take the place of indiarubber cones for fixing flushpipes to water-closets, &c. They are of lead, and are fixed with wire in the usual way.

The first exhibit in the gallery which claims our attention is No. 25, where the Basalt Stone Co., of 45, Parliament-street, show, among other things, a circular sewer-pipe of concrete about 40 in. in diameter, and two egg-shaped pipes about 4 ft. and 5 ft. high, one of which has an egg-shaped oblique junction cemented in. They are not fortified with steel in any way, and have every appearance of strength and durability. At No. 32 Messrs. John Ellis & Sons, of Leicester and London, show a large circular concrete manhole, and a number of concrete sewer-pipes, which are described as "silicated steel-ribbed tubes," and are true and strong.

At No. 2 in "The Surveyor" Section in the gallery, the Patent Automatic Sewage Distributors, of 4, Westminster Palace-gardens, exhibit apparatus of various kinds for the bacterial beds required in sewage purification, including a mercury-sealed automatic revolving sprinkler to be used at the Chester Sewage Works, a model of a sprinkler in operation, automatic feed valves, &c. At the next stand Messrs. Ham Baker & Co., of 13, Grosvenor-road, have a large exhibit of fittings for waterworks, and also of sewerage fittings, including penstocks of various kinds (some having gun-metal faces), manhole covers, automatic flushing siphons, &c. There is also a sewer-ventilating shaft having a large rust chamber at the base, with a clearing arm brought up to the surface of the ground. Mr. Vernon Parker, of 20, Victoria-street, has a varied exhibit at No. 4; among those of particular interest in the sanitary section are specimens of the blue "ironware" pipes and invert blocks made by Hamblet's Blue Brick Co.

The Albion Clay Co., of Woodville, Burton-on-Trent, have a large display of their well-known stoneware drainpipes and fittings at No. 6. The "new pattern" Sykes's patent street gully has the clearing arm inside the gully, and the trap is ingeniously contrived so that it does not obstruct the passage of the drain-rods; it has a deep seal and is made with either a deep or shallow outlet. Sykes's new patent drainpipes, interceptors, screw-stopper, rainwater shoes, and other fittings are also shown, together with the "Accomo" adaptable gully, which has a raising piece with a number of side inlets, and a loose top; it is useful for connecting a number of branch drains to one trap, and forms a small inspection-chamber.

At No. 11 Messrs. Freeman & Hines, of Westminster Palace Hotel, show a new drainpipe joint known as Freeman's double-seal pipe joint. It has composition rings on the spigot and in the socket, but these rings increase in thickness as they make the circuit of the pipe; the end view is therefore part of a spiral. The spigot can only be placed in the socket when the thick part of the ring on the spigot is opposite the thin part of that in the socket; a slight turn of the spigot pipe wedges the rings together, and the joint is then finished with cement. The pipes are easily fixed, and will probably be largely used. An independent cast aluminium bath with roll edge is also shown by the same firm, and is decidedly an interesting novelty; it is 5 ft. 6 in. long inside and 6 ft. 2 in. outside, and the greater part of it is brightly polished. The cost is more



than that of a porcelain-enamelled iron bath of the same size, but not so much more as we should have expected, and as aluminium is a very durable metal, many persons will prefer it before iron.

The Ames-Crosta Sanitary Engineering Co., of South-parade, Nottingham, at No. 12, show their self adjusting double-seal drainpipe joint, which has a collar near the spigot end, forming with the socket an annular chamber which can be run with cement. Crosta's patent surface-water gullies are also shown.

Messrs. J. Defries & Sons, of 146, Houndsditch, exhibit their well-known "Equifex" and other disinfecting appliances, the "Odourless" tank-wagon for emptying cesspools and gullies, and different types of Pasteur (Chamberland) filters. At the next stand (No. 15) Liebmur's English Syndicate, of 110, Cannon-street, show drawings, photographs, and models of their pneumatic system of sewerage; the only place in England where the system is in operation appears to be the village of Stansted, in Essex, and the pamphlet describing this installation is well worth reading. Messrs. G. M. Callender & Co., of 25, Victoria-street, show Lowe's patent "Rubite" drainpipe joint. The pipes are of stoneware without sockets, and are jointed by means of a bituminous composition, which is run into a removable iron mould, and forms a strong collar around the joint. Ten pipes may be joined together before being lowered into the trench, and the connecting joint is then made *in situ*.

At No. 17 Mr. W. E. Farrer, of 36, Cannon-street, Birmingham, shows an ingenious automatic alternating apparatus for distributing the effluent from sewage-tanks over two bacterial-beds alternately; it consists of a "tipper" extending over the division between the two beds and resting on gun-metal bearings at the ends; the tipper is divided into two compartments by a longitudinal diaphragm, each compartment having a small hopper to receive the sewage. The sewage enters the first hopper and is stored in the first compartment until the weight of the sewage overbalances the tipper and the sewage is discharged over the first bed. The partial revolution of the tipper brings the second hopper under the sewage-inlet, and the sewage entering this hopper is ultimately discharged over the second bed. The sewage is discharged from the tipper through special winged orifices into perforated iron troughs laid over the filtering material, and equal distribution is thus effected without disturbance of the surface. Mr. Farrer also shows his "Torfit" urinals, which are constructed of a special material and brushed over every week with a particular preparation; it is claimed that flushing with water is not required, and we understand that one of these urinals is now being practically tested at the underground conveniences at Oxford-circus. Among the other exhibits at this stand are flushing siphons, penstocks, a sewer-ventilating column with a rust chamber placed in a good position at the base, and other examples of sewerage ironwork. At No. 19 Messrs. Mather & Platt, of Salford, show a model of the "Ridgway" patent sewage-distributor and large valves of various kinds. The Webb Lamp Co., of 11, Poultry, exhibit (Nos. 7 and 8) their "sewer-gas extractor and destructor lamps" in operation, and at Nos. 16 and 17 Messrs. Sutton & Co., of Gorseal, near Ashby-de-la-Zouch have a good show of smooth and true drainpipes and fittings, among which we may mention Smith's patent iron-jointed stoneware pipes; these are about 4 ft. long, and have iron sockets with iron rings on the spigots, so that a caulked joint can be made. Sutton's drainpipe joints, and Green's "Wywurst" manhole channels, are also shown, and a number of gullies, traps, access-pipes, &c. At No. 10 we noticed a diagram of a sewage-purification system designed by Mr. Alfred S. Goodridge. We believe that a model is also exhibited, but it was covered at the time of our visit.

Mr. Goodridge puts his aerobic filter before the anaerobic. At the next stand Messrs. Cakebread, Robey, & Co., of 86, High-street, Stoke Newington, N., show a large number of drain-clearing rods fitted with the "Ferrett" patent lockfast brass joints, which are certainly an improvement on the ordinary screwed joints.

The New Expanded Metal Co., Ltd., of York-mansion, Westminster, show (at No. 19) the

expanded steel core used for a concrete conduit 6 ft. in diameter, and at Nos. 24 and 25 the Imperial Stone Co., Ltd., of East Greenwich, S.E., show some good "silicated stone" pipes 4 ft. in diameter. Passing mention may be made of the "Bexley" cesspool-emptying van and the vacuum gully-emptier exhibited by Messrs. George Waller & Son, of 165, Queen Victoria-street, E.C., at Nos. 33 and 34. The next stand contains a large variety of cast-iron fittings for drain-pipes and soil-pipes, drain-plugs and bag-stoppers, smoke machines, &c., exhibited by Messrs. Burn Bros., of 23 and 24, Charing-cross, S.W., among which may be mentioned the soilpipe junctions fitted with small access covers.

#### FIRE-GRATES AND STOVES.

There are comparatively few exhibits of grates and stoves. The first mentioned in the catalogue is at Stand No. 126, where Messrs. Yates, Haywood, & Co., of 95, Upper Thames-street, E.C., display a large assortment of their manufactures. The principal novelty in grates is the "Recessed" fire, which is one of the many modern grates without front bars; the grating on which the fire rests is raised above the hearth, and is masked in front by an iron moulding, under which is a close fret or economiser. The top of the moulding is about 7 in. above the hearth, and the large amount of iron is somewhat objectionable. Other grates of more ordinary type are shown, and a number of cast-iron mantels and mantel-registers of much better design than is usually seen in this class of work. The "Quadrant" kitchener is shown in operation; it receives its name from the quadrants by which the lifting and lowering of the fire are effected. The mechanism of the lifting fire, which is self-adjusting and can be operated with one hand, is very simple, and this is an important point. The flues are of cast iron, which, of course, add to the cost of the range, but have the advantage of rendering faulty setting almost impossible. A large independent "table" range, measuring 10 ft. 4 in. by 4 ft. 4 in., is a conspicuous object; it has two large ovens on each side with a fire between each pair, and a gas oven at one end. The products of combustion from the coal fires pass over the ovens, down the sides furthest from the fires, and back under the ovens to descending flues connected with main flues under the floor. We also noticed a well-finished grill with a hot closet over it.

Messrs. Smith & Wellstood, Ltd., of 7, Upper Thames-street, E.C., show a number of register grates with front bars of the usual type and firelump bodies; the bright iron interiors in the Adam style are a special feature, and are a welcome change from tiles and briquettes. The "Sovereign" kitchener is a well-finished range with lifting fire and open or closed fire, and is designed for setting with brick flues. The "Bonnybridge" independent range or stove is a cooking-range of different type, made in sizes from 36 to 48 in.

At the next stand (No. 132) Messrs. Bratt,

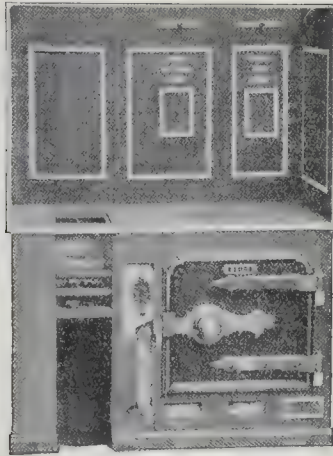


Fig. 9.

[See next page.]

Colbran, & Co., of 10, Mortimer-street, W., show their "Heaped" and "Valley" fires in a variety of forms. The former has a flat grating raised about 3 in. above the hearth, the space between the two being closed in front by a movable fret or economiser; the grating is loose, and can be taken out at any time when the fire is not burning. The "body" is of fire-clay with splayed cheeks, and the upper part of the back slopes well forward over the fire. The grate is shown in action, and gives out a great amount of heat with slow combustion of the fuel. The "Valley" fire shows more iron-work in front, the grating being made to slope downwards from the front to the middle of the fire-space, where it meets a fireclay base which slopes up to the fireclay back. The space for the fire has therefore a V-shaped bottom, the front slope being formed by the grating, and the back slope by the fireclay base. This is a slow-combustion fire, which does not differ in appearance from the ordinary type of grate to such a degree as the "Heaped" fire. We are pleased to note that these fires are fitted to inexpensive cast-iron mantel registers, as well as to more costly wood mantelpieces of good design.

Messrs. Clark, Hunt, & Co., of Shoreditch, E.C., have two exhibits—Nos. 11 and 142. Among their domestic grates we noticed the "Peveril" in which the front part of the bottom is a sloping firelump and the back part a level grating; an ashpans (closely fitting in front) slides under the grating, and there are no front bars. The "Florence" grate was specially designed to consume an appreciable portion of the smoke. The firelump back has a horizontal slit slightly below the level of the top bar of the fire basket; this slit is opened or closed by the movement of the canopy over the fire. When the fire has "burnt up" brightly, the canopy should be nearly closed and the smoke then passes through the opened slit at the back of the fire. The "Derwent" is still another form of grate. The "Middlesex" double-oven kitchener has a simple lifting fire, and a sliding door in front of the fire. The independent "Caterer" restaurant range is shown in operation, and is an ingenious invention. The range is fitted with a low-pressure steam boiler, from which steam is taken through a coil in a cylinder for the purpose of providing hot water, and another steam-pipe is taken to steam-ovens. Bailey's patent geyser boiler range for small Bats, &c., contains a boiler fed directly from the service pipe by opening a stopcock; a return-pipe is taken to the sink, or other fitting where hot water is required, and is left with an open end. When the apparatus is full of water, the stopcock is closed and the open return serves as an expansion-pipe. To draw hot water, the stop-tap (which is fixed immediately over the open end of the return-pipe) is opened, and the pressure of the cold water entering the boiler forces hot water out of the return-pipe. The system has some obvious disadvantages, but is economical, and will no doubt prove useful.

At No. 155, the Ashton & Green Iron Co., of



11 to 14, Bury-street, E.C., show their "Sine Qua Non" kitchen ranges, with a lifting-fire arrangement which is so designed that the grating remains level at all heights; in many kitcheners the lifting is more apparent than real, as the back part of the grating remains stationary. There is a telescopic hood over the fire, and the fire can be open or closed. The "Sunk" fire is another grate without front bars; the grating on which the fire rests is level with the hearth, and air is conveyed to the space below it through small ducts under the hearth; the chief peculiarity is the perforated fireclay curb in front of the fire, but whether this possesses any advantages or not can only be ascertained by actual test. The "Semi-well" fire has the bottom grating in two parts, the front part sloping downwards and the back being level; there is an iron moulding in front of the gratings, with an economiser below it. We also noticed some cast-iron mantel-registers well designed and finished.

Messrs. James B. Pettet & Sons, Ltd., of Yeovil and 73A, Queen Victoria-street, E.C., exhibit various forms of their well-known "Nautilus" grate at Stand No. 4, and at the next stand Mr. T. Potterton, of Cavendish Works, Balham, S.W., exhibits kitcheners (fig. 9) fitted with his patent boilers (fig. 10), which are designed with very large heating surfaces, so that the water can be heated to a high temperature in a very short time.

At Stand No. 3 in the Entrance Arcade, the Coalbrookdale Co., Ltd., of 141, Queen Victoria-street, E.C., exhibit the "Bostel" patent com-

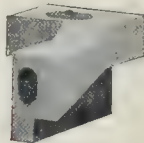


Fig. 10.

bined sunk and lifting fire (fig. 11). The fuel is contained in an iron basket, the section of which (from front to back) is a segment of a circle;



Fig. 11.

to the back edge of the basket a firelump back is fixed. The basket is hung in such a manner that it can be turned up or down, and the back moves with it; on lighting the fire the basket would be turned up and the back would then be nearly vertical; later the basket may be turned down (giving the appearance of a sunk or well fire), and the back then assumes the sloping position which is common to all good modern fire-backs. The grate is shown in action, and certainly seems to be very successful. Fig. 12 shows one of the mantels with hooded grate opening by the same exhibitors.

#### GAS APPLIANCES.

A more favourable opportunity than that afforded by this exhibition for bringing to the notice of architects and builders the many useful gas-consuming inventions of recent years cannot be conceived, yet few of the makers of gas appliances have availed themselves of it. Gas water-heaters and gas engines, it is true, are satisfactorily represented by the exhibits of a few well-known manufacturers, and one firm has a very fine exhibit of high-pressure gas lighting; but none of the leading makers of the gas-heated industrial appliances used in connexion with the building trades are repre-

sented, nor are the principal manufacturers of gas cookers, fires, and stoves among the exhibitors.

Although, however, the gas exhibits are not numerous, the few that are to be seen are well worth inspection. The following are the principal exhibitors of gas appliances:—

The James Keith & Blackman Co. exhibit a number of their high power incandescent gas lamps. By means of a Keith compressor the pressure of the gas as it flows towards the burner is raised to the equivalent of an 8-in. column of water, so that the power possessed by the jet of gas passing through the burner nozzle of drawing in air through the air-holes in the mixing tube is increased, and the mixture of gas and air which reaches the point of ignition contains a larger proportion of air than when the gas flows to the burner under a lower pressure. The result of using the gas under this higher pressure is to increase its lighting efficiency. With a burner consuming

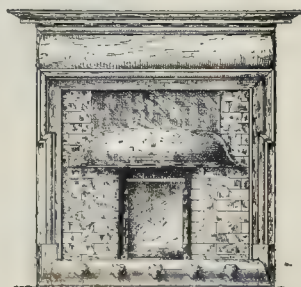


Fig. 12.

gas at the rate of 10 cubic feet per hour light of 300 candle power is obtained. The source of power employed to operate the compressor may be the ordinary water service, or a small dynamo or gas engine; or the compressor may be driven from machinery shafting.

Messrs. S. P. Catterton & Sons, of Newington-causeway, exhibit a large variety of gas-pendants, brackets, and shades, and a number of incandescent gas-burners. A specimen of the inverted incandescent gas-lamp, which is shown in action by this firm, should be inspected by those who have not yet seen this novel form of gas-light.

Messrs. Ewart & Son, of Euston-road, have on view a number of their well-known gas geysers (fig. 13). These are made in different sizes. Generally speaking, the prices rise as the quantity of water heated in a given time increases. A geyser which heats to a given



Fig. 13.

temperature only one gallon per minute is less costly than one which heats eight gallons per minute to the same temperature. A special locking gear may be attached to the geyser, so that the gas flames cannot be turned up until the water tap has been turned on. It is thus impossible to first heat the geyser to a red heat and then pass cold water into it. We are glad to note that these manufacturers state in their catalogues that "geysers must never be fixed without a vent-pipe communicating with chimney or outside of bathroom." If this provision of a vent-pipe be made, and the additional precaution of seeing that there is a constant updraught in the vent-pipe even when the gas is not burning be taken, these geysers may be used with great advantage.

Maughan's Patent Geyser Co. also exhibit several gas geysers, and likewise point out

that a vent pipe to convey the products of gas combustion from the bathroom is a necessity. Some idea of the extent to which these geysers are used may be gained from the statement that this firm alone has sold over 15,000.

Messrs. P. Fenlon & Sons, of Tudor-street, include some "Tudor" Geysers among their exhibits, and also show in action some very effective Hot-water or Steam Radiators of simple construction, in which gas is the fuel employed.

Messrs. Pryke & Palmer, of Upper Thames-street, exhibit some specimens of the "Exeter Gasteam Radiator," which also utilises gas as a fuel. The facility with which the temperature can be regulated by simple adjustment of the gas cock certainly renders gas an ideal fuel for water heating.

Messrs. Beaven & Sons, of Victoria-street, exhibit a novelty in the form of a combined Gas Cooker and Hot-water Circulating Boiler. It is claimed that hot water can be conveniently and economically distributed throughout a building by means of this device.

Crossley Bros. exhibit some of their gas-engines. The engines manufactured by this firm are too well-known to need description here.

The exhibits of the Forward Engineering Co. and of the National Gas-engine Co. have been mentioned under the heading "Machinery."

Messrs. James Stott & Co. have on view some of their gas-pressure regulators for effecting economy in the consumption of gas, but their stand is largely occupied with exhibits in no way connected with the use of gas.

The Webb Lamp Co. have a unique exhibit. A number of street incandescent gas-lamps are shown, supported on metal columns in the usual manner; but the columns are so constructed as to also serve as sewer-gas extractors, and above the incandescent mantles jets of flame project which serve to draw up the sewer gas and to render it innocuous.

#### MISCELLANEOUS.

The exhibits which, though worth notice, cannot be classed under any of the preceding heads, we will take in the order in which they occur in the catalogue.

The Offa ventilator (fig. 14) is an inlet ventilator containing an air-filter; its special character consists in the metal plate placed over it on the



Fig. 14.

inside wall, which can be drawn away from the opening, working on parallel pins in each corner, so that it forms a shield from the direct draughts, and directs the current sideways in each direction so as to spread it over the room. When pushed close back to the wall again, it forms a cover which stops the entry of the current, if that is desired.

Messrs. C. Chancellor & Co. exhibit, among other things, a movable chimney cowl (fig. 15) working on gun-metal pivots so as to have a free



Fig. 15.

movement in any direction, and only one movement with each change of wind. It is rather a novelty, and has something to recommend it—as far, that is to say, as cowls can be depended on at all.

Messrs. O'Brien Thomas & Co. exhibit their sliding door hangers, by which sliding doors for warehouse parallel folding partitions are hung to roller and ball-bearing carriers, the bottom of the door working in a metal guide-



groove but not bearing on it, the weight being entirely hung from the rollers.

The Opalite Glazed Brick and Tile Syndicate exhibit their opalite tiling (with patent granulated back) for tiling wall surfaces. There are two or three exhibits of work of this class, which, under different names, do not seem to differ very materially in their nature. There is that of the Newellite Glass Tile Co., which claims to be a perfect wall lining in thin glass tiles with a backing which has a certain amount of elasticity in order to prevent cracking of the tile surface. Then there are the Crystalline Company's patent glass tiles. We are not very much attracted by the appearance of any of these wall-coverings, but they have their value, no doubt, from their being so thin and light and not materially increasing the thickness of a partition. Of a similar class is the work exhibited by the Marmart Co., as a material for shop facias, pilasters, &c.; this, however, is a rather thicker facing material (about  $\frac{1}{4}$  in.), and is susceptible of producing five tones of colour, but the decorative work shown at the stall is very commonplace as such.

Messrs. Bennett Lawes & Co. show the application in construction of their "Gypo" fire-resisting plaster and cement, on lathwork, corrugated sheet iron, and constructional ironwork, fixed without the aid of a key. We do not know its composition, but it seems to answer its purpose well. A more important exhibit of similar class is that of the Granite Silicon Co., of partitions erected in their granite silicon plaster, which is made from ground and powdered alabaster, and appears to be a most firm and durable material, possessing high fire-resisting qualities and being an excellent non-conductor of heat. Solid partitions made on the principle advocated by this firm consist of a core of metal lathing held in position by an adjustable timber strut between floor and ceiling; the plaster is then applied to the thickness of about 1 in., and after it has set, the struts can be removed. A second coat of plaster is then applied on the other side of the lathing and when set, the final coat is applied on both sides, making the total thickness 2 in.

The patent loop wall-ties of the Warrington Bond Iron Syndicate, which are exhibited at their stand, form an excellent and scientifically designed metal wall tie for use where hollow walls are used—a form of construction, in our opinion, to be avoided as far as possible.

Mr. F. A. Fawkes, of Chelmsford, has a good show of woodwork, wood mantels, panelling, &c.

The "Emdeca" Metal Decoration is another of the forms of thin wall facing, in this case of metal-stamped ornamental ceilings, &c., a form, one may say, of machine-made *reposé* work. The pieces in the form and size of wall-ties are not sufficiently rigid for use in that manner; the material is at its best in large sheets.

Messrs. Mellows & Co. exhibit their well-known "Eclipse" glazing system, of which the section is shown in fig. 16.

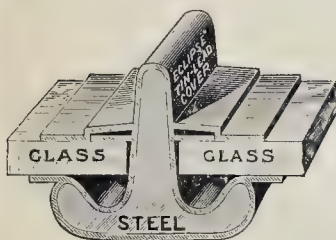


Fig. 16.

Messrs. D. Anderson & Co. exhibit the construction of their patent wooden lattice-girder felted roofs. We give an illustration showing what is the general character of this construction, in which light wooden lattice girders are employed with roofing felt as a covering. The felt is their Stonifex roofing felt, which, it is claimed, with one coat of mastic will last several years without attention. The roof thus constructed appears an admirable form of covering for large sheds for machinery or stores. The same firm also show silicate cotton as applied for fire-proofing and sound-proofing buildings, for insulating cold stores, and for covering boilers and pipes.

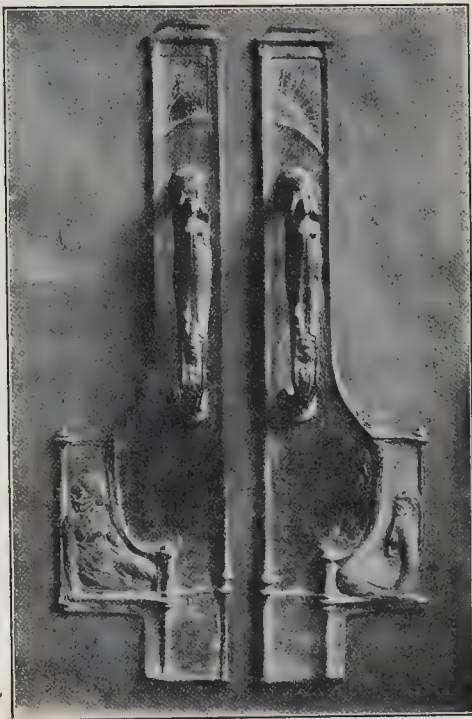


Fig. 17.

[See next page.]

Mr. Walter Notcutt, who is the British representative for the "Bommer" spring hinges, shows a large exhibit. The springs are enclosed in a small tube at each side of the door, fixed in the same position as ordinary butt hinges, and it is said with equal ease; by an easily made adjustment the screws can be wound up or let down to a higher or lower tension as required. Every variety of finish is shown in the specimens of all sizes that are exhibited.

The British Compo-Board Co. give an exhibit of their material as used structurally and as a lining material. Compo-board has been noticed before in our columns as an excellent and strong lining material for walls and ceilings, and capable of being very quickly fixed.

The Crittall Manufacturing Co. have an admirable exhibit, containing steel and gun-metal casements, their patent safety reversible casement for cleaning, and opening gearing for lanterns and fanlights, the latter excellent for combined simplicity and strength.

The Venesta wall panels, exhibited by "Venesta, Ltd.," are something of the same nature as compo-board, only made in a different way. It consists of thin slips of wood, three together, the middle having the grain the contrary way to the outer ones; and though only about half the thickness of compo-board, is very strong as well as light.

Messrs. Samuel Elliot & Sons, of Caversham, have a fine exhibit of high-class joinery, and show steam-struck mouldings from  $\frac{1}{4}$  in. to 20 in. width. A Spanish mahogany door, with inlay of satinwood, made some time ago and lent for exhibition, is a quite exceptional piece of joinery work. They also show their "Simplex Weather Bar" for casements, a simple but scientifically designed section which we think we have before mentioned, and which ought to be an efficient safeguard against wet.

The Rhodes Patent Sash-hanging Co. exhibit sashes hung with their steel chains and teeth pulleys, more expensive of course than cord, but possibly economical in the long run; at any rate they act admirably.

The Moore's Patents Co. have a very interesting exhibit. They have a sash window with a cord at one side only, the other side

being taken by rollers; a sash which on being pulled down becomes a casement, opening inwards on a pivot for cleaning. There is a casement window which, while ordinarily opening as usual, can by a handle at its heel, so to speak, and a sliding slot, be pulled round so as to open partially across the frame, leaving a space to get at the outside for cleaning. The "liquid check" doorsprings for closing doors, and which can be simply fixed to the floor without any sinking, seem to be perfect in their action, as far as one can judge from the specimens erected at the exhibition; the check is made by means of oil forced through a small opening, which can be varied by turning a screw, so as to offer a greater or less resistance to closing. The most ingenious part of it is perhaps the manner in which the hinge is contrived so as to keep the door standing open if it is flung open sharply for any special purpose, while with a gentle and more gradual opening the closing force operates.

Palmer's Travelling Cradle is exhibited, and also (in the gallery) Coppard's Patent Swing Scaffold; both of which have been mentioned with recommendation in our pages.

In the gallery also is to be seen the Johns' patent safety window exhibited by "Incorporations, Ltd.," in which the sashes, sliding up and down in the usual manner, also revolve, for cleaning purposes, on a strong safety pivot. A feature in this window is the introduction of a hit-or-miss ventilator in the sash-frame itself, above the glass, so that a certain degree of ventilation can be obtained with the window closed.

#### DECORATIVE WORK.

The decorative side of the Exhibition is not extensive, only a few among the many firms who are manufacturing decorative articles for building purposes exhibiting. Messrs. Bratt, Colbran, & Co., of Mortimer-street, W., patentees of the "heaped" and "valley" fires, have a stall showing these patents with the fires in action. The virtue is in the simplicity of the patent, which saves both coal and labour and is capable of giving great or little heat as required. Amongst much that is vulgar or merely novel in the design of patent fireplaces



nowadays, these makers show only wood and iron mantels to their interiors of markedly excellent design; without being copied from old patterns they exhibit the refinement of detail that make the old so delightful. Messrs. George Wragge, Ltd., within a nicely designed showroom, have much that is of real interest, both on artistic and useful grounds. Thoroughly good in appearance and construction are the iron casement windows. Leaded lights are treated with wide leads in a substantial manner, and where colour or drawing is introduced, the leaded line is allowed its proper prominence as a factor in the design. In smaller fittings, such as finger-plates and electric-lamps, much beautiful figure modelling and enamel work is shown; the lines upon which these are designed are hardly perhaps sufficiently severe and architectural, but they are probably none the less popular for that. Interesting examples of lead work, both cast and wrought, in rainwater heads, gutters, and down-pipes, are above the average merit in design. Leadwork occupies an important position amongst decorative materials, and its use is not sufficiently appreciated either by the public or the majority of manufacturers. Fig. 17 illustrates one of their exhibits.

Mr. W. Höfler has a disappointing collection from his generally interesting showroom in Soho-square, Mr. Dressler's tiles, some very good oak panelling, and metal electric fittings relieving his stall from dullness. Messrs. Ashton & Green show some good mantels and interiors among their more utilitarian exhibits. A design of some originality for a lifting fire has been made by the Coalbrookdale Co., who exhibit nothing else this year. Messrs. Carter & Co., Encaustic Tile Works, Poole, show

some extremely good tiles of unusual colours and design.

In the gallery Messrs. Waltham & Co. have a good exhibit of wrought metal for churches, electric light fittings, &c.; among the articles shown is a very artistic font in metal work, which we have seen before at the Arts and Crafts Exhibition.

Regarding terra-cotta and ornamental brickwork as decorative materials, it is astonishing how little attention is given to their appearance. Apparently it does not pay the manufacturer to appeal to other instincts than those of the jerry builder and villa speculator, for after careful search among the number of exhibitors who all show specimens of most excellent material and workmanship, there is not a single exhibit with a claim to any artistic feeling or design.

A new feature of the Exhibition is a fairly representative loan collection of architects' drawings. Mr. Mountford's New Sessions House, Old Bailey, is shown by the beautiful elevation of Mr. English and boldly-drawn interiors of Mr. Adshead. Mr. Florence shows his design for this also. A large photograph illustrates Mr. Mountford's Sheffield Municipal Buildings from a new point of view. Of a large number of buildings by Mr. H. B. Measures here represented the plans and sections of the Birmingham Rowton Houses is of the most interest. Mr. Statham sends an elevation and details of the new front to the *Builder* office, and a perspective study in bridge design. Mr. Ernest Newton shows perspective drawings of several country houses and a colour drawing of his delightful front for Martin's Bank at Chislehurst, which does not make it out nearly so good as it is. Of

smaller domestic work that of Mr. W. H. Ward, illustrated by photographs, is very good indeed, work distinguished by those refinements which it is next to impossible to show adequately in a drawing. Some small houses of a different class, by Mr. H. G. Ibberson, show a pleasing individuality of style if a little exuberant. A corner village site is well treated by Mr. Robert Marchant in his design for a house and butcher's shop. Mr. Alfred H. Hart illustrates a nice house at Enfield; and some rather too clever designs for houses by Mr. O. Maxwell Ayrton give promise of better things to come. Mr. R. A. Briggs shows his design for Liverpool Cathedral as well as additions to Cowley Manor by water colour drawings of masterly handling, the work of Mr. H. F. Waring. Mr. Horace Field is not at his best in the Granville Hotel, Ramsgate, but the drawing by which the building is shown is very bad. Mr. Arnold Mitchell sends a nice model for a country house. Mr. Ernest George's drawing for the British Pavilion at the St. Louis Exhibition is also here, apparently based upon Sir Christopher Wren's orangery in Kensington Gardens, a better model than which it would be hard to find.

A good many drawings of old buildings are also sent, noticeable amongst which are Mr. F. L. Emmanuel's pencil drawings, showing a wonderful feeling for tone and texture. Quite as remarkable, but in a different way, are Mr. Fulleylove's pencil studies of Jerusalem. Mr. C. J. Lauder exhibits a number of water-colour drawings of Venice which ought to be seen, that of the now fallen Campanile of St. Mark's from the Grand Canal, with St. Mark's on the right, being particularly interesting.

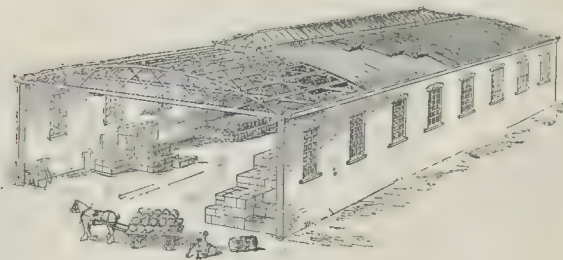


Illustration of Anderson & Sons' Roofing System.



# The Builder.

VOL. LXXXIV.—No. 2152.

JUNE 27, 1905.

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### Hull Town Hall Competition.



CONSIDERING the attention the competition for the Hull Municipal Buildings aroused among architects, it is remarkable that there should have been only thirty-two competitors. The conditions as

originally drawn up were said to be unsatisfactory, but the objectionable clauses were amended, and as finally issued they form a singularly fair and explicit document. Mr. John Belcher, whose capacity for appreciating the merits of a design is assured, was appointed assessor, and his decision was to be final. The site is practically isolated by streets on all sides, with a frontage of somewhere about 600 ft., giving an immense opportunity for design, so that there were attractions. But though competitions give rise to many surprises, the reason for the comparatively small number of competitors in the present one is traceable to two causes. The minor one, no doubt, was having to pay five guineas deposit to see the conditions. Two guineas should be quite sufficient to ensure the good faith of a would-be competitor; more than that may have kept competent men from writing for the conditions if they have other work in hand. It is a mistake to suppose that a large number of designs necessarily entail more work on the assessor; the time that he spends over the many is insignificant compared with the pains and care expended on the comparatively few designs that immediately assert themselves as being in the running. The real reason, however, which limited the competition to such reasonable numbers was the difficulty of the problem and a tantalising restriction which involved the most skilful and laborious planning; the mountain which might not be moved was, in fact, the present Town Hall. If the Hull Corporation could have seen their way to expending another 25,000*l.* it would have been a highly-popular competition. This sum would have made it possible to remove the existing Town Hall, leaving architects a free hand to compose harmoniously the great pile of buildings

required. The present Town Hall was the work of a scholarly architect; the interior is a good piece of architecture, but the exterior leaves much to be desired; the tower is the worst, because the most conspicuous, feature. It gives the impression of being the hasty work of a busy man, and it is hard not to sympathise with those gentlemen who found themselves unable to embody it in their new scheme. Besides the embarrassing presence of this building, which permeates the whole problem of design, the accommodation required was particularly complex, and on such a scale that the sum of 100,000*l.* allowed will barely cover the expense of the building, even retaining the existing building. A great many competitors remove the incubus of the present building, with the consequence that in estimating the cost of their design they have to cube at a next to impossible figure. We do not, however, think that the winners of the first premium could have bettered their plan had they had an entirely free hand. It is very often the case that an awkward condition or obstruction in planning is the means of giving character to a building, and sometimes, as in the present instance, gives the key to the puzzle.

The accommodation to be provided involves departments for town clerk, finance offices, city engineer, water and gas, sanitary department, electrical engineer, city architect, estate agent, and coal inspector; law courts with police court, sessions court, and county court, and the various offices connected with them, besides fifty prisoners' cells. The municipal offices include Mayor's rooms, banqueting hall, large hall, council chamber, members' and committee rooms, &c. The superficial area of the space required for the various departments places the Town Hall first, which is nearly equalled by the size of the law courts, the business offices occupying a space equal to rather more than both these put together. The problem is somewhat assisted by the fact of the building having four frontages, which give opportunities for entrances to the various departments, and simplify intercommunication by corridors and stairs. The present Town Hall has its principal front to Lowgate on the east; this will now be the front of secondary importance,

the principal façade to the enlarged scheme being on the south, in Alfred Gelderstreet. The west end of the site tapers to rather a wedge shape, giving only a narrow west elevation, and causing a break in the continuity of the north elevation to Annstreet and Hanover-square.

Messrs. S. B. Russell, Cooper, & Davis and C. E. Malloes have won the first premium with a plan that compares favourably with any of those sent in; the departments are well placed and the intercommunication good, and arranged with an economy of space that reduces the cubical contents to a minimum and enables the price per foot cube to be higher than other competitors could show. The exterior of the present building and the tower is preserved. The interior is reconstructed on lines that place the large hall, banqueting and reception rooms, conveniently for letting separately for public entertainments, as well as for throwing them *en suite* with the Council's Offices on great civic occasions. The ground floor of the existing tower, now the principal entrance in Lowgate, is converted to a staircase for this independent entrance to the large hall. The remainder of the ground floor of the present building is devoted to the finance department, an entrance on either side of the present tower giving capital ingress and egress to the rates office, thus keeping a large section of the public from entering further into the building. The authors propose this as a temporary expedient, and show plans for the entire rebuilding of these departments, together with the tower, which they propose to heighten considerably. The revised internal arrangement does not show an improvement upon the temporary one, and it seems to us that when the opportunity comes the exterior could be remodelled to harmonise with the new building without again interfering with the internal arrangements. The added dignity to the whole building of a new front in harmony with the rest would, of course, be an immense gain. The estimated cost of remodelling the interior is placed by the authors at 5,000*l.* Their ground plan occupies the entire site, and is without a basement. The new part of the ground floor has two entrances on the south in Alfred Gelderstreet and a corresponding pair on the north in Annstreet. These north and south entrances are connected by



corridors 15 ft. wide at right angles to the longitudinal axis; the main staircases are off these corridors on this axis, and the corridors are connected to one another by minor corridors serving the different departments, 8 ft. wide. The principal staircase on the east serves the council chamber and offices, and gives secondary communication to the large hall and reception hall, all on the first floor; on one side of this staircase is an ample lift, on the other is a subsidiary staircase for clerks and for gaining officials' rooms on the second floor. The other staircase referred to is principally for justices ascending to the Law Courts at the west end of the site. Each of these stairs is amply lit by a courtyard; these are divided from one another on the ground floor by the Town Clerk's Record rooms—his offices adjoining these on the south front—and on the first floor over these by the council chamber. In each courtyard is an isolated block of lavatories connected with each floor. The council offices and committee rooms on the first floor are conveniently arranged, the council chamber forming the central feature, around it an 8 ft. corridor, on the south a suite of committee rooms and the Mayor's own apartments, with a similar arrangement on the north for committees and officials. These corridors, when required, give efficient communication to the large hall and banqueting-room, which has its own service and retiring rooms. Returning to the ground floor, we find the city engineer's offices are on the north side. This department is a large one, and requires thorough lighting, and a north drawing office, which should be adjacent to the engineer's private room and that of his assistant. It is a great blemish to this otherwise excellent plan that the authors have been obliged to place this drawing office and the assistant on the second floor, a most inconvenient arrangement. Corresponding to the city engineer on the north is the town clerk on the south, occupying a long range of apartments, with his committee clerk's rooms on the first floor over, adjoining which on the ground floor are the water and gas offices, the remaining space being occupied by the medical officer, sanitary inspector, coal inspector, workmen's yard, and cycle store; a small part of this area is given up to the prisoners' van yard, entered off Ann-street, around which are the warders' rooms and prisoners' cells, which have direct communication by a private stair to the courts over. This brings us to the consideration of the Law Courts, placed on the first floor to the extreme west of the site. The entrance for the public is at the S.W. angle of the main front. The entrance for the solicitors and witnesses is in Alfred Gelder-street, the justices using the adjoining entrance already referred to as one of the Town Hall entrances. The public stair communicates only with the second floor, giving access to an immense corridor off which are the public galleries to the three different courts. The justices have a complete set of rooms at the head of their staircase and a private corridor to the courts. The grand jury is conveniently placed between the justices' and the solicitors' quarters; the solicitors and witnesses have a hall at the head of their staircase, 172 ft. long by 15 ft. wide, off which on one side are the various private rooms and lavatories, on the other the courts. The Police Court and Sessions Court are divided by the prisoners' corridor cells and stair.

The future extension asked for it is proposed to find by forming a mansard roof over the present buildings. The exterior treatment is shown in a fine perspective drawing by Mr. Malloes; in it the old building is shown as it would be rebuilt with a new tower. This tower, and one at the west end, are effective features in the design, though not very beautiful in themselves. The main entrances are emphasised by slightly projecting bays rising above the main parapet level and roofed with low crown, like stone domes. The long front has a plain base the height of the ground floor, supporting three-quarter columns, which break the first and second story into bays, and carry the usual entablature and balustrade. The front to the Law Courts is differently treated in only two stories, and is a simpler and more impressive design, while the suggested treatment of the old Town Hall is an effective adaptation of the long front. The  $\frac{1}{2}$ -in. scale detail drawing gives a bad impression as to the sort of detail that will be used; greater refinement in this respect would add much to the beauty of the building.

The finest architectural conception shown is that by Professor Beresford Pite. The existing Town Hall is left practically intact, with only enough internal alteration to suit the altered requirements. The site is balanced by a somewhat similar block on the extreme west, but of a very different character in detail to the old. The intervening central space of some 300 or more feet is occupied by a magnificently simple group of buildings, having as a central feature a low dome of fine design. The effect of this scheme would have been extremely grand, and, in the event of the old Town Hall being rebuilt, Hull would have possessed a great architectural monument. After saying thus much, we regretfully come to the plan, which, amidst much that is both original and monumental, has the weakness of extravagance where extravagance was contrary to existence. The basis of the plan is a magnificent hall in the centre of the pile, having a grand staircase as its principal feature, and east and west courts off it, 75 ft. long and 26 ft. wide; these latter are top lit, with open galleries around the mezzanine floor. Subsidiary staircases are placed at either end of these courts, and in this way much space is accounted for. A mezzanine floor with the ground floor gives most of the business office accommodation required, but it is neither so compact nor so convenient as in the first premiated design. The law courts occupy the west corner of the site, and are self-contained and admirably arranged. The price at which the building is cubed is only 9d. per ft., a very low figure for so large a building, as the assessor probably thought, but we must consider that there are practically no areas on the ground or mezzanine floors, and the increased cubic contents that this gives is out of proportion to the expense involved in cubing, say, any of the three premiated designs which in cubing omit the internal areas. The drawings are slender and unpretentious in character, and probably quite unattractive to the public, but the large idea is there, and we can only suppose that some important omission in the departmental offices has been made—more important than those evident on the face of the second and third premiated design—which we could not ascer-

tain without cubing the whole plan up, and which prevented Mr. Belcher from awarding it an honourable place.

The second premiated design, by Messrs. Treadwell & Martin, resembles in one or two particulars the design just referred to. The existing town hall is barely touched, and a block similar to it in character balances it on the west with an intervening central block having a central principal entrance and principal staircase; here the resemblance ceases, the elevations have a certain dignity, the dignity of a well-performed exercise, too much broken up as to the south front, but having the advantage of freedom from towers and domes, for which in our opinion there is insufficient money; there are five areas shown and the price per cubic foot is shown at 10d. Less than the required space is allowed for further extension. The large hall is in a central position facing Alfred Gelder-street, the surrounding rooms are inconveniently placed, the banqueting-room being some way off, making it difficult to let the hall and reception rooms for private purposes; there are no adjacent lavatories, and elsewhere lavatories are few and far apart. The council chamber is approached from Lowgate with a grand staircase opposite, and is well arranged with the surrounding committee-rooms, but the town clerk is inconveniently situated and the required accommodation is not given. The law courts are better arranged, though here again the lavatory accommodation is inconvenient and insufficient. The three courts are top lit and free from noise.

A finer design than this, but with greater faults, is that receiving the third premium, by Mr. A. Bramwell Thomas, a design with marked characteristics of its own, the exterior being a good architectural conception, the principal feature of which is a large well-designed dome, the elevations under showing a fine mass of reticent design. The keynote of the design is the destruction of the existing town hall, and after rebuilding it it comes as rather a surprise to find the whole cubed at 11d. per foot. A half basement is shown, and no less than nineteen areas on the ground floor, nine of which are only 8 ft. square, and six carried up this size the full height of the building, these and the disposition of the several departments and law courts are the weak parts of the design. The finance department is conveniently situated in the western end of the building, with separate entrance and exit. The actual west elevation is the entrance to the public hall on the first floor and the finance department, the banqueting-hall and service rooms adjoining, beyond which is the council chamber, very cleverly managed and very convenient. The council chamber and adjacent committee rooms are in direct communication with a grand staircase of their own, having the principal entrance under the dome in Alfred Gelder-street. This entrance and stair under the dome would be an impressive feature. The law courts occupy the site to the east of this entrance and dome, using the whole of the ground floor and a part of the half basement. It is here that the bewildering little areas light a maze of corridors and lavatories, which we dare say are not so perplexing as they appear. The courts are isolated from street noises and top lit. Over these on the first floor are large areas with well arranged isolated lavatories, and six little areas already referred



to. Around the large areas are suites of officials' departments.

Another design on these lines is that by Mr. Baggallay, who clears the old building away and starts with a clean slate, sending in a design of great power and scholarly refinement. A somewhat extensive half basement is shown, chiefly occupied by storage and lavatory accommodation. The basement is, perhaps, the reason that the plan is not more successful: it takes up a great deal too much of the cubical contents for the importance of the accommodation provided. The design is based on a central block with one central tower and two wings corresponding in size to the present town hall. The central portion of the ground floor contains the three courts and legal offices. The Low-gate end is very cleverly arranged for the rates, and the corresponding west end for the civil engineer. The first floor is finely laid out, though it seems to us on a mistaken principle. The council chamber is at the extreme west end, and the public hall at the extreme east of the site; the mayor's offices are in the centre, with the principal staircase and officials' staircase arranged symmetrically on either side. This scattered arrangement would be inconvenient in practice. The only features of the exterior we do not like are the battered axes of the columns and pilasters round the tower, which otherwise is of graceful proportions; the heavy flanking ends are well and interestingly designed.

Mr. Arnold Mitchell sends a Georgian design showing the old building "re-windowed" externally, which means a complete transformation of its appearance; the present tower is heightened and finished with a new crown of severe design, and the old building presents an altogether attractive appearance. The new western block is somewhat similarly treated, with the same identical tower. The intermediate space is treated by itself with four projecting bays, roofed with low crown-like stone domes, the middle recess so formed having a wide but low sham dome over the council chamber, a feature that could be well omitted with improvement to the sky-line. The council chamber being in the centre of the building is a long way from the existing mayor's parlour and other rooms; in other respects the planning on the first floor is good, as also are the arrangement of the law courts.

Messrs. Lanchester, Stewart, & Rickards' design leaves the existing building untouched except for necessary minor alterations. The ground floor is given over to the law courts and public offices. The plan exhibits the defect before referred to, that the public have to traverse a great part of the building to gain admission and exit from the rates office. The town-hall entrance is nearly in the centre of the main front, under a tall tower, which sets somewhat back from the façade; in front of it on a pedestal, roof high, stands a heroic group of statuary; the tower itself is a fine, if somewhat hurried, study. The municipal offices, or town hall proper, are on the first floor, the council chamber adjoining the present banqueting-hall. Future extension is allowed for on the first and second floors. The drawings, as usual from these gentlemen, are vigorous and interesting.

Messrs. Wallace & Gibson have slightly remodelled the existing Town Hall for the principal entrance and staircase, giving access to the council chamber and public

hall, the remainder of the first floor being devoted to the law courts, having their own stairs. The entrance to the rates office on the ground floor is in the centre of the south front; the exit in the centre of the north front. Any one with a carriage or trap would be obliged to walk half round the building, some 300 yards, to gain it again. The elevations show a somewhat heavy Classical façade treated as one long front from the old building to the west end. This latter has a circular treatment in plan. The long façade is broken up by two projections roofed with low domes. The perspective drawing, which shows only half the front, does not do justice to the design.

Mr. A. W. S. Cross sends a disappointing design, the keynote of which is the retention of the present town hall; the internal arrangements have many attractions; the design is shown in a perspective drawing that is anything but attractive.

Messrs. Hubbard & Moore show a somewhat original design, rather too full of features, otherwise good in plan and elevation. A huge perspective drawing illustrates Messrs. Stones & Stones scheme, which gives too much the impression of being a number of buildings instead of one great design. The design of Messrs. Banister Fletcher & Sons and Mr. C. Harrold Norton is somewhat complex in plan; the lighting and intercommunication would have been greatly facilitated by a more generous treatment of stairs and corridors; the latter are far too narrow; the elevations are not striking compositions. The existing tower seems to be the only feature of the old building retained.

Another advocate for the removal of the old building is Mr. J. Hatchard Smith, who produces a new building *in toto*, shown in a fine perspective drawing. Mr. John Murray retains the old building, and repeats it with some originality at the west end; the long façade is happily broken up by two heavy pedimented bays, roofed with four-sided domes. Under these bays are the principal entrances. A nice design with a simple plan, with several good points, is that by Mr. Alfred J. Pilkington. Apparently only one firm of Hull architects submitted designs, Messrs. Fair & Holstead, who exhibit a scheme of some originality. Space forbids mention of other designs of merit. The problem was undoubtedly one of plan, and it is a satisfaction to feel that the design of Messrs. Russell, Cooper, & Davis and C. E. Mallows is in this respect worthiest of the place awarded to it.

#### NOTES.

THE meeting on Monday last at the Institute of Architects, for the purpose of presenting the Gold Medal to Mr. McKim, was largely attended by ladies as well as members, and was one of the most pleasant and successful Gold Medal evenings that we remember. The recipient of the medal commanded the sympathies of the meeting by his personal manner and the tone of the remarks embodied in the little address which he read, while the illustrations of his work hung round the walls gave ample justification for the award of the medal, to any who needed it. The charming speech by the American Ambassador was a valuable addition to the evening, regarded from the point of view of an entertainment. In regard to the exhibi-

tion of designs just referred to, they go to show that Mr. McKim, who is an old Ecole des Beaux-Arts student, is a believer in architectural tradition and in the value of Classic precedent, and does not by any means regard the columnar order as a thing effete and valueless for modern architecture. One or two of his large country houses illustrate what he said as to the debt that American architecture owes to Wren and his school, and how it is almost a continuation of English architecture, for they might almost pass for English country mansions of the eighteenth century. The design for the exterior of the library for Mr. Pierpont Morgan, of which a drawing was hung, is an admirable example of dignity and fitness in architectural treatment; and altogether the members must have come away feeling that the Gold Medal of this year had been wisely and suitably bestowed.

It is not often that cases in the Chancery Division involve the decision of points of antiquarian romance, yet such was the case in the recent action brought on behalf of the Crown against the Trustees of the British Museum.

In a field in County Derry some ploughmen discovered some articles of gold of great beauty, which are attributed to the second or third century after Christ. These articles, having been renovated, were purchased by the Trustees of the British Museum, but were now claimed by the Court as treasure-trove. The position in which they were found suggested a careful concealment, as though for the purpose of securing their safety. The theories of the defendants were that the sea had once covered the spot on which they were found, and that they had been thrown into the sea by some Irish sea king to propitiate some Irish sea god. The learned judge, whilst confessing that those ideas would be more suited to a Celtic poem than to the Law Reports, proceeded to consider the facts in the usual way, and has given his findings that there is no evidence of the sea having flowed over the spot, that there was nothing to show that votive offerings had ever been made in Ireland, or, indeed, in Europe, since the Bronze Age, nor anywhere else at any period, of such a miscellaneous description as the articles in question. In this the judge explained he did not include offerings in Christian churches or the well-known offerings to wells or fountains. The Court, having negatived the existence of the sea in that place, and of a sea king invoking an unheard-of god with an entirely extraordinary votive offering, had to come down again to an every-day level and consider whether a charter of Charles II. operated to vest treasure-trove in the Irish society, but decided this question in the negative on the ground that treasure-trove belonged to the Crown by virtue of its prerogative, and was not conveyed, by use of the general word "franchises" in the charter. These unique specimens of early art are, therefore, now vested in the Crown, but it is some consolation that the equally unique theory of the British Museum of their concealment will remain enshrined in the Law Reports.

THE case of Mercer v. Liverpool & St. Helens & South Lancashire Railway Co., in which the Court of Appeal have reversed



the decision of the Lord Chief Justice, should be carefully noted by those interested in land and house property. The claim was made by the plaintiff under the Lands Clauses Act for compensation in respect of leasehold lands and houses injuriously affected by the undertaking of the railway company. The land in question had formed a portion of the estate of Lord Gerard, and on June 14, 1902, had been leased to the plaintiff's predecessor in title on building leases for 999 years. On October 23, 1901, a notice to treat for the land had been served on Lord Gerard by the railway company, and eventually, on October 14, 1892, an agreement was executed, and on November 27, 1894, a conveyance was completed by Lord Gerard conveying the lands to the railway company for a certain sum to include all compensation for damage to the vendor by severance or otherwise, and imposing certain obligations on the railway company to lower certain streets. At the time the lease was granted to the plaintiff he had no knowledge of the notice to treat, nor had the railway company knowledge of the lease to him. Before the date the conveyance to the railway company was completed the plaintiff had erected certain houses on the land, and in 1894, when the works of the railway company were constructed, the access to these houses became permanently interfered with, and the plaintiff applied for compensation from the company. The Court of Appeal have held that this claim for compensation fails on the ground that the notice to treat binds the land, and all persons claiming under the vendor, whether they have had notice or not, and since after assessment the landowner can claim no further compensation, except for damage entirely unforeseen, this principle applies equally to those claiming under him, and also to land injuriously affected as much as to land actually taken. The position of the plaintiff is one of hardship, since the provisions in the conveyance by which the railway company could be compelled to maintain the levels can only be enforced by this lessor and not by himself, and we assume any remedy he may have against the lessor will depend on the clauses in his lease.

**General Words in Leases.** We have on many occasions recently drawn attention to the necessity of both landlords and tenants most carefully considering the general words in their leases, since the various Acts of Parliament which regulate the powers and duties of the Local Authorities place serious liabilities on house property which become shifted from landlord to tenant by the terms of their leases. The latest case, *Stockdale v. Asherberg*, is an authority to the effect that the shortness of the term alone will not suffice to relieve a tenant from fulfilling obligations imposed upon him by the terms of his agreement. In this case the agreement was entered into in respect of a villa or the term of three years at the yearly rent of 55*l.* The tenant agreed to pay all "outgoings," and it was contended the liability to pay 83*l.* 10*s.* incurred in draining the premises on the requisition of the Urban District Council was imposed upon him by this agreement. The leading recent case on this subject is *Foulger v. Arding*, commented upon in our issue of March 22, 1902. In that

case there are expressions in the judgments to the effect that in construing these covenants the intention of the parties at the time the contract is entered into must be regarded, and we pointed out at the time that such latitude in the interpretation of absolute covenants was hardly satisfactory, and would lead to litigation. In the case now under discussion, the judge has held that the possibility of the landlord being called upon to put the drainage in order was within the contemplation of the parties, and that the tenant was therefore liable to pay this sum, which represented more than a year and a half of rent. We are always urging parties to see their leases express clearly what liabilities are to be borne respectively by landlord and tenant, and to avoid the use of general words, and this case furnishes an excellent example of the consequences which may ensue if they neglect to do so.

**Irish Cement.** In reference to our observations concerning the cement exhibit in the Irish section at the Building Trades Exhibition in our last issue, a correspondent writes that, although Portland cement was not largely represented in the exhibit, much work has been done by the Department of Agriculture for Ireland with a view to the extension of the Portland cement industry in that country. We do not doubt that for a moment, for what has been done is well known to us. We were only describing the Irish exhibit, which consisted of one firm's samples of cement, so far as we could see, and not the Portland cement industry of Ireland, nor of the possibilities of creating a large cement industry in the sister Isle. We are led to make the last observation because our correspondent sends us a paper\* by himself on the "Manufacture of Portland Cement," with special reference to Ireland, published by the Department of Agriculture, in which he shows what can be done with the limestones and clays of the country in the way of manufacturing cement. We are in thorough agreement with his observations for the most part. Our view is that Ireland is extremely rich in raw materials for making cement, and in many other minerals used by the architect and engineer. The officers of the Geological Survey of Ireland have for years called attention to the matter, though we do not know that the Survey has had any funds at its disposal to enable it to carry out much original work dealing exclusively with the economic or industrial aspect of the science. There seems to be an awakening all round now, however, both in Ireland and England, and as the chemist is at last going hand in hand with the geologist the result should prove fruitful if the scientists are provided with sufficient funds to render them independent of aid from interested manufacturers.

**Preservation of Steel.** OWING to the fact that steel framework cannot be inspected after buildings have been completed and occupied, those who are directly responsible should take every reasonable precaution to preserve the metal from any possibility of corrosion. It is known that steel imbedded in cement or concrete is adequately protected, but there is nothing to justify the assumption that the conditions

usually prevailing in ordinary buildings are such as to render corrosion improbable. While it may be granted that exposed steelwork, when kept well painted, is protected against the deteriorating influence of rust, yet it is equally true that a sufficient number of instances have not been collated at the present time to permit us to say the same of painted steel members imbedded in the brick and stone walls of modern structures. Hence, considerable interest attaches to the report of an examination of the steelwork in a building recently pulled down to facilitate the construction of the New York Rapid Transit Subway. The building was erected about four years ago, and completed a year later. When delivered, the metal had received one coat of carbon paint, and another was added during erection; the girders and columns were encased either in brick or terra-cotta, and the floor beams were encased in cinder concrete forming the floor arches of the building. After the recent removal of the brickwork and terra-cotta, the steel was found to be in generally good condition. In a few places there were evidences of oxidation, but the rust had apparently been on the members at the time they were put up, or had been the result of injury to the protecting coats of paint. In parts where the metal had been protected with cement mortar, and concrete, there were practically no evidences of oxidation. Although the period of test was comparatively short it appears to be made clear that the proper application of paint is always desirable for steel built into brickwork.

**The Clapham-road Tramway Accident.**

AS some of our readers may be aware, the space between the tops of the new cars, on the Tooting electric tramway, and the railway bridges crossing the road has been considerably reduced in consequence of the greater height of the new vehicles. There was formerly sufficient headroom for a man of average stature to stand up without risk of injury when passing beneath the bridges at Clapham-road and Balham stations. Now that the electric cars are in operation the under surfaces of these bridges are so close to the head, even of a seated passenger, as to make tall people uneasy as to the safety of their hats. Standing up is, of course, quite out of the question except for children and adults of stunted growth. We cannot account for the oversight to which this dangerous condition is due, but, as it exists, one would surely expect to find some reliable safeguard for the protection of the travelling public, or some infallible warning to call their attention to the danger. The only precaution at present taken is the provision of notice boards on the two sides of each bridge, and the addition of a white painted ceiling to part of their under surfaces. The boards are so small that they do not attract much attention, and can hardly be seen by passengers occupying the hindmost seats of a car, while they cannot be read at a distance of a few yards, even by people with good sight. Something better should certainly be forthcoming from the competent engineers who have so far carried the work to a successful issue. It might possibly suffice if much larger danger boards were fixed on the bridges themselves, and if other danger signals were erected across the road so near to the heads of passengers as to ensure notice, these

\* "Journal of the Department of Agriculture, &c., Ireland," Vol. III., December, 1902, pp. 221 et seq.



signals to be constructed of such material and suspended in such a manner as to constitute no source of actual danger in themselves. Another method would be to provide over each seat a pivoted frame carrying a safety net that could be operated by mechanism under the control of the driver so as to assume a horizontal position when required, thus preventing any person from standing up so long as danger existed. In any event, it is clearly the duty of the London County Council to provide some really efficient safeguard.

Report of the Board of Trade on Wages.

In the Report of the Labour Department of the Board of Trade, issued on 21st inst., owing to changes in the rate of pay a decrease in the amount paid in weekly wages during the year 1902 is shown of 76,293*l.*, and an increase of 3,572*l.*, making a net decrease of 72,721*l.* The decreases are, however, entirely confined to the coalmining and shipbuilding industries, whilst the increase is spread over all the other industries, but in small amounts, the building trade heading the list with an increase of 925*l.* amongst 15,575 workpeople affected by change in wages, but a reduction of hours of labour amounting to 2,960 hours amongst 14,640 affected is also shown in this industry. The number of persons affected by changes in wages is 890,356, 793,041 having experienced a decrease, out of which number 735,000 were engaged in coalmining. Considerably fewer changes have been effected than in the years 1898 to 1900, in which years the number of people affected was over a million. The figures in the Report have to be read bearing in mind that they do not take into consideration fluctuations in the total amount of wages paid, owing to changes in the state of employment, nor of fluctuations in the number of workpeople employed. The most interesting feature of the Report is the statement that the changes preceded by disputes causing stoppage of work comprised only 1*1*/<sub>4</sub> per cent. of the persons affected, whereas an increase is shown in the proportion of changes effected by conciliatory agencies.

Modern Statues in an Ancient Church.

THE Vestry of Wrexham Parish were occupied last week with a discussion as to whether modern statues should be placed on the ancient corbels in the nave of the church. According to the report in the *Wrexham Advertiser*, the suggestion first came from Mr. Prothero, the architect employed in the restoration of the church, who wished to see the church more adorned with stained glass and sculpture. The question came up in a practical form when a member of the congregation expressed to the Vicar a wish to put up some memorial to his late wife in the church. The architect had marked that position for a statue of St. Augustine, and it was proposed that such a statue should be placed on the corbel, with a brass tablet underneath stating that it was given by the member of the congregation in question, in memory of his wife. Mr. E. M. Jones opposed the resolution as at all events too hasty, and moved that no faculty be applied for until the matter had been more fully considered. In the course of his speech he said (as reported)—

"It was placing new statuary on the corbels of

the nave, some of which had been there in their present condition for 300 or 400 years. They were built into the walls for the definite purpose of supporting the arches for carrying the roof of what Mr. Palmer's history of Wrexham Parish church called the fifteenth-century Church. There was no clear-story, and the roof was lower than at present. There they had remained as silent historical records of many a thoughtful worshipper through the times of the Tudors, the Stuarts, the Commonwealth, and onwards. The proposal to appropriate these ancient corbels to such a different purpose as modern statuary gave them a sensation of discordancy. It was like the marriage of a badly-assorted couple—one venerable, the other juvenile. They felt very doubtful about the result being harmonious. It was not the sort of thing to do in a hurry. They might do it in haste and repent it at leisure."

Mr. Jones found no seconder for his amendment, and the resolution was carried. Nevertheless we think he was right—at all events in proposing fuller consideration. Sculpture in a frankly modern style would look out of place; and imitative mediæval sculpture is of no value.

Mr. Montague Fordham's Gallery.

AN exhibition was opened this week at Mr. Montague Fordham's Gallery, consisting of many beautiful household things as well as objects of a purely ornamental character, the work of well-known artists and craftsmen. On the walls are hung some colour and crayon drawings of exceptional interest. Mr. W. Davies Adams has some more of his half idyllic, half realistic, drawings of persons and places; the colour and drawing are both lucid and highly decorative, without the apparent strain after decorative effect that spoils so much work of this class. Mr. Lewis Baumer, known by his pen drawings in *Punch*, shows some clever drawings of pretty girls, comparable to the work of Mr. Gibson, whose drawings of beautiful American women have won him so much fame. Mr. Baumer's work is as fresh and quite as characteristic of English beauty and English art as Mr. Gibson's is of American. Very effective, also, are a number of woven materials and embroideries by Mr. Luther Hooper, some of which were at the recent exhibition of the Arts and Crafts Society. Miss E. Taunton and Miss G. W. Evans have a table covered with choice leather bindings that are a delight to handle and look at. Pottery is represented by that of the Misses Lucas, made in Rome. Mr. Clement Heaton shows a remarkable inlaid panel in woods and mother-of-pearl, forming the front of a jewel cabinet. His cloisonné work is interesting, being on a very large scale; a sideboard by Mr. Gimson and some settees by Mr. H. F. Waring, one of the directors, are also noticeable.

The Holland Fine Art Gallery.

At the Holland Fine Art Gallery in Grafton-street there is a collection of oil paintings and water-colours by modern Dutch artists on view. The well-known names of Israels, Mauve, Maris, and Mesdag, are represented; but not, with the exception of the last-named, by works representing them at their best; indeed, the specimens of Herr Israels are decidedly poor (for him); dealers are getting rather too much into the belief that we are to accept anything, however slight, with the name of Israels tacked to it. Herr Mesdag's "Stormy Weather" (10) is a fine example of his power of broad handling of sky

and sea effect; and his larger picture, "Scheveningen" (28), with the boats with white and brown sails putting off together from the beach, and the windy drift in the clouds, is also a fine work, though rather weak in the painting of the sea surface. Among works by less familiar names we were particularly pleased with Herr Bilders's "Meadow with Cows" (22), a most artistic little landscape composition, and Herr Theodore de Bock's "The Flock" (2), which is even higher in quality.

M. ROUX CHAMPION has a small collection of sketches—

landscape and city scenery—on view at the Goupil Gallery. They are, in truth the very sketchiest of sketches—some of them too crude for exhibition, but they show a power in seizing effects rapidly. Among the best is "Saint Nicholas, Bretagne," a view of a tidal river and sandbanks between hills, which is very true in atmospheric effect; and there are some effective representations of Notre Dame, Paris, under special aspects of weather. The sketches may serve to indicate that their author can do more than that; but as they stand, they are rather light fare for an exhibition gallery.

The Handel Festival.

THE first day of the Handel Festival, the only one to which we can refer in this issue, consisted as usual of the performance of the "Messiah," and may be said to have been more than usually successful. In Mr. Cowen the Festival management have found a conductor who developed almost unexpected aptitude for the position, both in his true feeling for Handel's music, and in a steadiness of beat and a command over the vast body of performers which recalled the days of Costa, the Handel Festival conductor *par excellence*. The solos were for the most part finely given; Mr. Santley, *ultimus Romanorum*, the last of our great English school of Handelian singers, singing with all his old brilliancy and accuracy of execution, though not, of course, with quite his old physical power. There seems no promise of a successor to him in this form of art, any more than we have had any successor to Sims Reeves. Perhaps presently there will be a reaction, and the art of singing will be found worth reviving. At present it is certainly on the decline.

#### ARCHITECTURE AT THE ROYAL ACADEMY.—V.

DECORATIVE work is very little represented this year, and hardly by anything of importance.

The first design we come upon which can be grouped under that head is Mr. W. L. Lucas's "War Memorial to Old Cliftonians" (1,446), a square erection in stone with columned projections at the angles, at an angle of 45 deg. Portrait figures, or what we presume are such, are shown on the faces of the central block, presumably bronze bas-reliefs; and the whole is finished by an open-work stone crown with heraldic lions and shields. With nothing very remarkable about it, it is suitable to its purpose and agreeable in design. Mr. C. H. Townsend's "A Village Cross, West Meon, Hants" (1,466) is hung too high to be well seen, but looks good; it has a large square base diminishing slightly upwards, bearing an inscription, and on this is a slender octagon shaft with an entasis, and a little shrine (apparently) on the top, above which is the actual cross. Messrs. Bromet & Thorman exhibit a line drawing of "Wall Panelling: Chancel, Bramham Church" (1,470); it gives the im-



pression from its shape of being intended for an altar; the sides are drawn in square panels alternately showing tracery and conventional foliage, the large crowning moulding being decorated with four bosses of carved work at the angles and at equal distances between; there is a bold and effective style about the drawing and design. Mr. Edgar Wood's "Birkby Lodge, Huddersfield" (1,508), is a water-colour drawing of the interior of a room, of which the walls are wainscotted to three-fourths of the height (the top moulding marking the impost of the arched window heads) with wood-panelling treated with some originality, divided up by flat projecting strips the upper part of which is decorated with a simple inlay; the lower portion of the intervening woodwork is panelled with arch-headed panels, leaving some plain space above them. The ceiling shows the beams and joists, which are painted white; the whole makes a pleasing interior. Mr. Whitley's "Decoration for a Drawing-room" (1,541), savours very much of the "new art"; the main features of the wall are white, with a chequer inlay at the angles of the pilasters, as they may be called—they are not orthodox classic pilasters. The walls are divided into panels by green and reddish chequer-painted borders. The drawback to the effect consists in the oval panels filled with a strong blue ground which are introduced in the upper part, and which are by no means beautiful in effect. Mr. Skipworth's "Pulpit, Batley Carr" (1,556) is a nice piece of quiet woodwork of Gothic type, with moulded mullions and a band of carving at the top of the panels, picked out with gold and colour. Mr. Hargreaves's "Treatment for a Billiard-room" (1,555) is a very slight water-colour sketch in which nothing is distinctly made out, but it deserves notice for the good effect of colour shown at the further end of the room. We noted one or two other drawings of interiors showing schemes of decorative treatment which we pass over, as we did not see anything attractive in them.

Stained glass, which at the best can be but ill shown by coloured drawings, and which the Academy ought to exhibit in the actual glass (as is done at the Paris Salon), is even less represented than usual, and some of the drawings shown are so completely the ordinary conventional programme of ecclesiastical stained glass—stiff figures with crocketed canopies over them, that they hardly furnish any occasion for remark. Mr. Steggle's small drawing (1,519) shows more freedom of line than usual in the design of the child figures, and the square of close tracery work in a kind of golden hue behind the head of the principal figure has a rich effect; we should imagine that this design would work out into a very pleasing window. Mr. E. A. Fellowes Prynne's large drawing for a "Nativity Window, St. Peter's Church, Staines" (1,614), is heavily blacked all round and on the mullions to give the effect of the lighting being all from the glass; but as far as the design is concerned we confess that we cannot see much to differentiate it from the usual run of modern mediæval windows. The small drawing by Mr. W. Aikman, however (1616), showing designs for two windows or two lights of a window, is marked by originality of design and a fine effect of colour; one design shows the Nativity, in which the group of the Holy Family is canopied over by a kind of symbolical conventional representation of a thatched roof in a decorative form, above which are grouped angels with crimson wings; the other is a kind of symbolism of the Resurrection, Christ rising from a symbolic Tree of Life, borne up by an angel on each side. Small as these drawings are, they merit notice because they indicate a true feeling for what can best be done in stained glass—symbolic design made out in rich masses of colour. Mr. Weatherstone's design for a large five-light window illustrating the Te Deum (1618) is a good design of the usual mediæval type; the manner in which the upper row of figures is stepped, some lower and some higher, to form a decorative break of line, is a good point. The only other drawing of the kind which calls for notice is Mr. Allan Hughes's "Design for Decorative Panel: Music" (1666), which is really pretty and original; a girl in roseate and green draperies, accompanied by a child, plays a pipe beneath a horizontal canopy of decorative foliage, the thin stems of the trees partially filling up the background.

It is useless to expect that the art of stained glass can be illustrated in any way worth



From the Lid of a Japanese Lacquer Box.

speaking of at the Academy, as long as nothing is done for it but to find space for a few small coloured drawings wedged in among the architectural drawings. The Royal Academy ought to devote a room or a gallery to the exhibition of actual stained glass, with a special lighting arranged so as to show the glass by transmitted light. By making such a provision at their annual exhibitions they might do a great deal to encourage and promote a new development in stained glass design; and they would perhaps even find that it would become a very popular feature in the annual exhibitions.

#### THE DECORATIVE ART OF THE JAPANESE.—VI.

##### TEMPLE DECORATION (conclusion).

IN this concluding article of the series I have selected a few further examples of temple decoration, which differ from those which have already been given. In dealing with the ornamentation of the temples generally in the second article (see *Builder* of February 7), I pointed out that, with rare exceptions, it consisted either of Classical diapers or of designs which seem to have been made expressly for the temples, and used exclusively in them. Very few examples of Japanese art, as it is commonly understood, are to be found. I believe that I made a note of every one I came across, and out of some hundreds of different designs, I do not think I found more than a dozen which bore the impress of Japanese art so clearly indicated as to be recognised by the uninitiated.

Two final illustrations, however, are given in this issue which represent more what is generally regarded as the special quality of Japanese decorative art. The one annexed is from the lid of a black lacquer box—the leaves in gold, and tin berries in crimson. It is given as a good example of the Japanese art of distribution of masses and spaces.

The large design in colours given in this issue as a separate plate (see lithograph) is a panel of a gold lacquer cabinet. In addition to the gold of the background, four tones of gold are used for the design, the lowest being used for the leaves, which are solid in the illustra-

tion, and the highest for the chrysanthemum on the left, which is drawn in fainter outline than the other two.

F. T. P.



#### HAMMERSMITH LIBRARY COMPETITION.

A LIMITED competition for a new library at Hammersmith, in which six architects were invited to compete under the assessorship of Mr. Aston Webb, has resulted in Mr. Henry T. Hare winning the first place. The conditions wisely left a good deal to the discretion of the architects. The number and nature of the rooms to be provided were given, but the sizes were not; the limit of expenditure was to fix these, and the amount allowed was 10,000l., the rooms to be as ample as possible for this sum. A condition, that should be more often seen in competitions, refers to the work submitted by each competitor being his own and that of his usual staff (not including the perspective drawing). That is an excellent rule, and if always introduced and enforced would, we know, reduce the number of designs sent in to open competitions.

An inspection of the plans now exhibited at the Hammersmith Town Hall fully justifies Mr. Aston Webb's choice, and shows that there was no serious competition for the first place. Mr. Hare's design shows a plan of great simplicity and directness, accompanied by a report of like characteristics; the elevations are pleasant and dignified, and the building seems to us to form a model of what free libraries of a certain size should be. The public entrance, 8 ft. wide, in the centre of the frontage, opens directly upon a hall 55 ft. long by 15 ft. wide, one end of which gives access to the news-room, the other to the boys' room and the magazine-room; the long side of the hall opposite to the entrance forms the counter



and screen for the indicators, behind which is the lending library. The lending department and the hall are top lit, giving light to both sides of the indicators, which are provided for 30,000 books. The public staircase opens off the long side of the hall next the entrance, leading to the reference library and committee-room. The reference room is over and similar in size to the news-room; it has top light and windows at each end. The books of reference are kept in a stackroom separated from the library by a counter, thus leaving the walls of the reference room free for hanging pictures or for additional books; to leave it free for pictures would add much to the quiet and comfort of the room. The committee-room is over the boys' room, and the workroom, messroom, and strong-room are over the magazine-room behind; over these latter are the caretaker's rooms, which make this wing equal in height to that containing the newsroom and the reference-room over it. The remainder of the upper floor is occupied by the upper part of the lending library. A private staircase in the backyard gives access to the caretaker's quarters and mess-room; a similar stair off the lending library gives a private connexion for the librarian and his assistants with the reference-room and stackroom, and to a large store in the basement, from which there is also a lift. This store, with the heating and coal chamber, with subways for the pipes, is all the accommodation provided in the basement. The materials to be used are those suggested by the conditions, red brick and Portland stone; the elevations show pleasant spaces of plain wall and well-grouped window openings, giving nice proportions to the front and end elevations.

The plan next in merit seems to us to be that sent by Mr. Sidney R. J. Smith, which, but for a small basement and caretaker's apartments on the first floor, is entirely a one-story building. A central vestibule opens into an octagonal top-lit hall; it has branch corridors, roof wide to right and left, three sides of the octagon and a side of each of these corridors forming the counter and screen for indicators for the lending library; the library is top-lit. One end of the corridor referred to gives access to the boys' room, the other to the reference library; the newsroom and magazine-room open out of the octagonal hall and face the main street. The elevation is charmingly shown in a good pen perspective drawing. An alternative scheme by the same author shows the reference library and book-store on the first floor as well as the caretaker's rooms, but the counter and indicator departments are spoiled in this by the staircase to reach them, which is not happily arranged, and the elevations are not so good as in the first design. Mr. Wimpey shows a sound plan which would have been still better had he put the magazine-room on the ground floor, and put the committee-room, strong-room, and workroom in its place on the first; it is not desirable that the committee or librarian's room should be overlooked by the public. The lending-library accommodation is good, ample space being provided for borrowers and the indicators, which space is practically not trespassed on for other purposes. The reference library occupies a central position on the first floor, a lofty room with a gallery over for books. Two low lead domes rather spoil the elevations, and the dormer windows to light the top of the reference-room seem to be hardly necessary.

The design by Mr. Maurice B. Adams shows a very good ground and first floor plan, with an addition on the ground floor to the requirements of a ladies' room off the newsroom. The stairs to the reference-room and committee-room are hardly ample enough, and the elevations are far too much broken up with features to be pleasant design. Mr. G. Sedger and Mr. J. H. Richardson also send designs of some interest.

#### ARCHITECTURAL ASSOCIATION PRIZE COMPETITIONS.

THE interest of the exhibition this year of the Architectural Association prize competition drawings centres round the design for a small town hall. The first prize is deservedly won by Mr. A. Carder. Besides the town hall, a council chamber, committee-room, town clerk and borough surveyor's offices are required; the site is an isolated one. Mr. Carder's plan is simple; the first floor is occu-

pied by the town hall; at one end the staircase for the public, with retiring-rooms on either side; at the other the stage, green-room, service-room, lavatory, and two stairs directly communicating with the street; the body of the hall is lit by clearstory windows, side service passages being top lit; the other offices are on the ground floor; the council-room on the ground floor gains height by fitting in nicely under the stage of the hall; the borough surveyor's offices are on one side of this, the town clerk's on the other. The elevations and sections show a nicely treated design, outside and in, restrained and well proportioned, with enough originality to give it a character of its own. The drawings are well executed. The second prize is won by Mr. L. G. Detmar. The plan is not so straightforward as the first; the principal corridor is largely dependent on borrowed light, the elevations are too much broken up, and the desire to emphasise the vertical lines of the design is a pity, considering its classical style and the compactness of the site; each of these vertical divisions is a nice piece of design by itself. The design by "Josephus" has a well-arranged but extravagant entrance-hall, but the upper floor plan is hardly simple enough, and the elevations exhibit some of the defects referred to in the second prize design. The design—self-protected by its motto—"La critique est aisée, et l'art est difficile"—would have been better if the difficulties encountered were a little less obvious. Internally the arrangements are not very good; the external treatment is very dainty, but would have been better still without the buttresses to the hall, which overpower the otherwise delightful porch and upper elevation of the hall. "Ali Baba" sends a quiet little design, and "S.P.O.R." an effort which is not successful; a simpler beginning would have led to a better result. A design entitled "Nihil sine labore," externally based upon a study of the new Westminster Cathedral, exhibits a plan of possibilities, externally rather broken up, showing a tower of poor design.

The competition for the travelling studentship is very disappointing. It is won this year by Mr. A. G. MacNaughtan; the designs submitted by him include a chancel screen in wood, a solicitor's house in a country town, and a design for a market hall, a rather overpowering treatment of a market hall for a small town. Some good pencil sketches and some measured drawings of St. John's College, Oxford, and York Gate on the Embankment, complete the set. Mr. Vincent Hooper shows designs for a font and cover, a market hall, and a solicitor's house, while, as a measured drawing, one of the many beautiful wood screens in Evreux Cathedral, Normandy, is shown. Mr. J. MacLaren Ross shows good measured drawings of Kinross House, Kinross-shire.

The Banister Fletcher Bursary is won by Mr. J. Gillespie, with a number of measured drawings, the best, perhaps, being that of the west doorway, Jedburgh Abbey. A perplexing sheet of full size mouldings is shown, and some powerfully drawn full size details of the Percy Shrine, Beverley. Mr. A. A. Reeve gets an honourable mention for his careful drawings of Wren's Banqueting Hall, Kensington Gardens, and the front of the Horse Guards.

#### THE ROYAL INSTITUTE OF BRITISH ARCHITECTS:

##### PRESENTATION OF THE ROYAL GOLD MEDAL.

A MEETING of the Royal Institute of British Architects was held on Monday at No. 9, Conduit-street, Regent-street, W., the President, Mr. Aston Webb, R.A., in the chair, when the Royal Gold Medal was presented to Mr. Charles Pollen McKim, of New York.

The Chairman said that a special meeting had been summoned for that evening, but he proposed to adjourn it until a more convenient season.

This having been agreed to, and the minutes having been taken as read,

Mr. Alex. Graham, hon. Secretary, said he regretted to announce the decease of Mr. Edward Woods, who was born in 1814, and was the oldest railway engineer in the country. Mr. Woods was President of the Institution of Civil Engineers in 1886, and he had been connected with the Institute of Architects since 1877, when he was elected an Hon. Associate. He proposed that a vote of condolence be

passed to the relatives of the deceased gentleman. This having been agreed to in silence,

Mr. Graham also announced the decease of Mr. Robert Walker, of Windermere, a Fellow, elected in 1893.

##### The Royal Gold Medalist.

The Chairman then addressed the meeting as follows:—

"Your Excellency, Ladies and Gentlemen, As you all know, we are met together to-night to present the Royal Gold Medal for the promotion of architecture, annually given by his Majesty the King to some distinguished architect or man of science or letters who has designed or executed a building of high merit, or produced a work tending to promote or facilitate the knowledge of architecture or the various branches of science connected therewith. The mode of selection is that a name is brought forward by the Council and submitted to the general body of members of this Institute, after which it is submitted to the King for his gracious approval. Amongst those to whom the medal has been awarded, and who are now no longer amongst us, are Professor Cockerell, the first recipient in 1848; Sir Charles Barry; Owen Jones; Sir Gilbert Scott; Viollet-le-Duc; Sir James Pennethorne; George Edmund Street; John Pearson; Baron von Ferstel; F. C. Penrose; H. Schliemann; Charles Garnier; Baron von Hansen; R. M. Hunt; and Lord Leighton.

In selecting a recipient for this honour it has almost become an unwritten rule to select in rotation an English architect, a foreign architect, and a literary man with architectural instincts. This year we have somewhat departed from this rule, and, as you know, our Institute has selected, with the full approval of his Majesty the King, Mr. Charles Pollen McKim, of New York, and Mr. McKim has returned us the compliment by crossing the Atlantic especially to receive the medal in person to-night; and here he is, I am glad to say, safe and sound with us this evening, and very heartily we all welcome him. I have said that in selecting Mr. McKim we have somewhat departed from our rule, for we cannot claim him as an English architect, we have not selected him for his literary attainments, and, least of all, can we consider him as a foreign architect. No, we have selected him as a highly-distinguished American architect, a very near relation of ours, and a representative man, in order that we may show to him personally and to the whole world of American artists our high appreciation and admiration of the great work that marvellous country is doing on the other side of the world; an appreciation not only of what they are doing, but also of what we expect them to do untrammelled by traditions, full of youth, energy, imagination, and initiative, and supported by almost boundless resources; and we are confident that as time goes on they will not only develop fresh types and plans of buildings, but that they will, though still mindful of the past, clothe those buildings in a language that will be distinctly their own.

As I have already said, this selection has met with the full approval of his Majesty the King; and I venture to hope that the presence here to-night of the Ambassador himself from the American people to our Court may be taken as setting the American seal on this selection of ours also.

And now I must introduce you to Mr. McKim a little more in detail, in order that not only those present, but also those who read these proceedings, may fully understand our choice. I may say my facts may be depended upon, for I have received them from the best authority—Mr. McKim himself. He was born in Chester Co., Pennsylvania, six and fifty years ago, and at eighteen entered Harvard University with a view to becoming a mining engineer. A year later, finding the work uncongenial, he entered the office of Mr. Russell Sturgis, architect, of New York, and in the autumn of the same year, the Atelier Daumet in Paris, where he was prepared for, and admitted to, the Ecole des Beaux-Arts, remaining till the outbreak of the war some three years later. During this time Mr. McKim also travelled in Europe, and visited England in 1869, where, he tells me, through the kindness of Mr. Phene Spiers, Mr. Florence, and others, he was able to make profitable use of his time, as far as cricket matches would permit. He also was made an Honorary Member of the Architectural Association. Returning to New



York in 1870, Mr. McKim entered the office of the well-known architect, H. H. Richardson, and in 1872, at the age of twenty-five, commenced practice on his own account, being joined in 1877 by Mr. Wm. Rutherford Mead, and in 1879 by Mr. Stanford White, and since that time they have continued their practice as 'McKim, Mead, & White.' In 1887 they were appointed architects to the new public library of the City of Boston, now a famous building. In 1889 two Fellowships in the School of Architecture, Columbia University, known as the McKim Fellowships, were established. In 1891 Mr. McKim was made a member of the Commission of ten architects from throughout the United States to design the World's Columbian Exhibition at Chicago; in 1894 the firm were appointed architects to the new Capitol building of the State of Rhode Island; in 1897 the American Academy of Architecture in Rome was incorporated under the laws of the State of New York, and Mr. McKim was made President. In 1899 he was elected a member of the Academy of San Luca, and in the same year was appointed to serve as a member of the first Municipal Art Commission of the City of New York. In 1901 Mr. McKim was appointed a member of the Park Commission for the improvement of the park system of the district of Columbia, and assisted in drawing up the magnificent scheme, photographs of which are exhibited here to-night. Here there is to be an avenue 1,600 ft. wide and a mile and a half long, architecturally treated at various points, with great public buildings incorporated in the scheme. The cost is put at some three to four millions, some half of which has already been voted. A Bill has also passed Congress for locating the memorial.

Mr. McKim was elected President of the American Institute of Architects in 1901, and re-elected in 1902, and in the same year appointed by President Roosevelt to restore the White House, and also as architect for the new Army War College.

Of the buildings erected\* some idea may be

\* The following is a complete list:

1879-1893.  
Casino at Newport, Rhode Island.  
House of Louis C. Tiffany, Esq., New York.  
House of Henry Villard, Esq., New York.  
The Judge Building, New York.  
The Imperial Hotel, New York.  
House of the Hon. John A. Andrew, Boston, Massachusetts.  
The Algonquin Club, Boston, Massachusetts.  
The Public Library, Boston, Massachusetts.  
Country House of Mrs. William Edgar, Newport, Rhode Island.  
The Freundschaft Club, New York.  
The New York Life Insurance Co.'s Buildings at Kansas City, Missouri, Omaha, Nebraska, and New York.  
Country House of C. J. Osborn, Esq., Mamaroneck, New York.  
Country House of Colonel Elliott F. Shepard, Scarborough, New York.  
St. Peter's Church, Morristown, New Jersey.  
House of General Charles A. Whittier, Boston, Massachusetts.  
House of F. I. Amory, Esq., Boston, Massachusetts.  
House of the Hon. Richard Olney, Boston, Massachusetts.  
Deutscher Verein New York.  
First Methodist Episcopal Church, Baltimore, Maryland.  
Judson Memorial Church, New York.  
Country Houses of E. D. Morgan, Esq., at Newport, Rhode Island, and Wheatley Hills, Long Island.  
House of the Hon. J. Hampden Robb, New York.  
Power House and Office Building of the Broadway Cable Railway, New York.  
The Bowers Savings Bank, New York.  
The Century Club, New York.  
The Power House of the Niagara Cataract Co., Niagara Falls, New York.  
The Germantown Cricket Club, Philadelphia, Pennsylvania.  
The Metropolitan Club, New York.  
Country House of H. McK. Twombly, Esq., Madison, New Jersey.  
Office Building of Messrs. Cornelius & W. K. Vanderbilt, New York.  
The Washington Memorial Arch, New York.  
The West Point Battle Monument, West Point, New York.  
The Walker Memorial Library, Bowdoin College, Brunswick, Maine.  
The Public Library, Naugatuck, Connecticut.  
1893-1903.  
The Agricultural Building and New York State Building at the World's Columbian Exposition, Chicago, Illinois.  
Building of the *New York Herald*, New York.  
Museum Building of the Brooklyn Institute of Arts and Sciences, Brooklyn, New York.  
The Columbia University, New York.  
The University of Virginia, Charlottesville, Virginia.  
The University of the City of New York, New York.  
Radcliffe College, Harvard University, Boston, Massachusetts.  
Building of the Medical Department of Cornell University, New York.  
Building of the Architectural Department, Harvard University, Cambridge, Massachusetts.  
The Harvard Union, Cambridge, Massachusetts.

gained from the splendid series of photographs and drawings Mr. McKim has kindly shown us here to-night. He seems equally at home with a palace or a bungalow, with a university or a railway station, with laying-out a great park scheme or arranging a charming little formal garden. In all I think you will find true artistic feeling, nobility of plan, breadth of treatment, absence of unnecessary or meretricious ornament, and a suitability of purpose. The style, based largely on Italian examples, shows the influence of French training, and, while founded on traditional lines, appears to me to show just that amount of individuality required, and without which the best work must be dull and uninteresting.

Then, again, Mr. McKim has set all us architects an example by the opportunities he has given to painters and sculptors to further adorn his works. The decoration of the Boston Library by Mr. E. A. Abbey, who I am glad to say is here to-night, and by Mr. Sargent, who would have liked to have been here but is still abroad, is a case in point, and is well illustrated by photographs here to-night.

And now, Mr. McKim, it only remains for me to present you with this medal as an English token of our admiration and esteem of yourself and your colleagues. May you long live to still further adorn your country with your works!

The Chairman then placed the medal round Mr. McKim's neck, amid loud applause.

Mr. McKim, in response, said:

"Mr. President, Your Excellency, Ladies and Gentlemen,

I am no speaker, and if I were it would be quite beyond me to adequately express to you my appreciation and deep sense of obligation to his Gracious Majesty King Edward and to the members of this Royal Institute of British Architects. The broad philanthropy which created this medal, not alone of British subjects, but that it might help and encourage the successful development of the art of architecture in other countries, was characteristic of the Most Gracious Queen whose memory we, next to you, hold in veneration. That it should have a second time within a single decade come to our shores is indeed cause for felicitation, since it attests, in lasting form, the progress and achievement of your eminent body has been pleased to recognise in the work of your younger colleagues in America.

The medal which you do me the high honour to bestow on me is pure, at least, in virtue of my accidental Presidency of the American Institute, but is, I feel, to be regarded

Campus Fence and Gates, Harvard University, Cambridge, Massachusetts.  
The Harvard Club, New York.  
The University Club, New York.  
The Capitol of the State of Rhode Island, Providence, Rhode Island.  
Symphony Hall, Boston, Massachusetts.  
The Culm Memorial Building, West Point, New York.  
The Public Library, Orange, New Jersey.  
The First Congregational Church, Naugatuck, Connecticut.  
The Detroit Savings Bank, Detroit, Michigan.  
The Carnegie Branch Library, New York.  
House of George A. Nickerson, Esq., Boston, Massachusetts.  
Country House of Herman Oelrichs, Esq., Newport, Rhode Island.  
House of Thomas Nelson Page, Esq., Washington, D.C.  
Country House of Frederick W. Vanderbilt, Esq., Hyde Park, New York.  
Country House of Ogden Mills, Esq., Staatsburg, New York.  
House of the Honourable Levi P. Morton, New York.  
House of Joseph Pulitzer, Esq., New York.  
House of K. W. Patterson, Esq., Washington, D.C.  
Country House of Clarence H. Mackay, Esq., Roslyn, Long Island.  
Country House of the Honourable William C. Whitney, Roslyn, Long Island.  
Town House of the Honourable William C. Whitney, New York.  
The White House (Executive Mansion), Washington, D.C.—Restoration.

#### NOW IN COURSE OF CONSTRUCTION.

The Bank of Montreal, Montreal, Province of Quebec, Canada.  
The New York Terminal Station, Pennsylvania Railroad.  
Library Building for J. Pierpont Morgan, Esq., New York.  
The Army War College and Engineers School, and Washington Barracks, Washington, D.C.  
The New Bellevue Hospital, New York.  
Building for the Gorham Company, Silversmiths, New York.  
Building for Tiffany & Company, Jewellers, New York.  
Building for The Knickerbocker Trust Company, New York.  
Officers' Mess Hall and Quarters, West Point, New York.  
The Harmonic Club, New York.  
House for James Stillman, Esq., New York.  
House for L. C. Hanna, Esq., Cleveland, Ohio.  
House for T. B. Wanamaker, Esq., Philadelphia, Pennsylvania.

in a far larger sense than as a personal recognition of the ties which unite the builder's art on both sides of the Atlantic. As a spur and incentive, and as a token of the friendship and respect that for many years have been growing up between our two bodies, I accept with grateful pride this medal, tendered, as to my countrymen, by the Royal Institute. I accept it for the whole profession in the United States, and I accept it for my associates of twenty-five years, to whom I owe everything. As the bearer of many messages from across the seas, I cannot let such an occasion as this pass by without, at least, briefly adverting to the ties which have united us in the past, and which must render the development of our future of something more than passing interest to you. I will add also a word concerning recent events on our side of the water.

The early buildings of the New England coast, dating back to the eighteenth century, and more rarely to the seventeenth, from the once vice-regal towns of Portsmouth, to Charleston, S.C., have happily descended to us despite political revolutions. Notwithstanding their simpler forms, both of construction and design, unaided by slender means and the circumstances of transplantation, they still reflect the mother country in their excellence of construction as well as sound and correct taste. Precisely the most interesting, and in their sphere the most admirable, architectural monuments of my native land, private dwellings and public buildings alike, are those that most strongly recall their English prototypes. Our obligations, for instance, to Sir Christopher Wren are very imperfectly understood even at home, yet the cities of the Atlantic seaboard, especially in New England, abound in examples showing the influence of his school.

The struggle of these landmarks for existence in the advancing tide of commercial prosperity before which they are gradually being swept away, is a melancholy daily spectacle; not alone deplorable in the loss of historic monuments, but for the lessons they invariably teach of sound proportion, simplicity, and good manners. Happily some of the best examples remain to us. At the seat of Government, for instance, our Capitol, and the home of the President, the White House, are both singularly animated by a pure taste and devoted love of beauty, not to mention the City Hall and the old Department buildings of the city of Washington. Of these, for our information at home, as well as yours, let us gratefully acknowledge that the Capitol, though enlarged and changed since, was originally designed by one William Thornton, the White House by a certain James Hoban, while the City Hall and old Department buildings were the creation of a man of the name of Hadfield—all Englishmen!

I can well remember the thrill of surprise and pleasure which I experienced on my first visit to England, more than thirty years ago, in the discovery of a strange familiarity in the appearance of things, and in the sense of not being after all so far from home. Though I did not understand it then, the reason, as has been shown, was not far to seek. I will venture to refer to one more building of the era which we call Early and you ingloriously Late, albeit of the period of Adam—the Octagon.

Our Institute, which has urged upon Governments—national, state, and municipal—the duty of preserving historic monuments, has itself recently secured possession of one of the historic houses of America, known from its shape as the 'Octagon,' and designed by the same William Thornton, architect of the Capitol. Here in the early days was dispensed a liberal hospitality by President Madison, whose home it was. Under its roof, too, the Treaty of Ghent was signed. The house was finished in a manner befitting its importance, and to-day is in an excellent state of preservation. Thus the expressed desire and often-recurring efforts of our Institute to secure for itself a permanent home, has been accomplished after nearly half a century of existence. May it typify to those who assemble in it, as well as to the people of the City of Washington, the spirit of public service.

Our Institute has ample reason for felicitation in both the increase and betterment of our own schools of architecture, in Harvard, Columbia, Penna., Cornell, and Chicago Universities, as well as in the admirable and still older foundation of the Institute of Technology in Boston. The movement to endow an



American Academy of Fine Arts in Rome on the general lines of the French Academy in the Villa Medici is not new. Till now dependent for support upon the insufficient means at the command of the incorporators (members of the Institute), the number of scholars has of necessity been small, and the conveniences for work not such as would be afforded by an older, well-equipped, and well-endowed institution. Nevertheless, in spite of its vicissitudes, such has been the quality of the men and work turned out, so strong the conviction of those most deeply interested in the need for an institution offering a post-graduate course intended only for those who shall be already technically well equipped, that a bill for the incorporation of the American Academy in Rome by Act of Congress, and asking the protection of the United States Government, was introduced in 1901 by the late Senator McMillan. The persons named as incorporators, besides the leading architects, painters, and sculptors, include the great universities and technical schools, represented by their Presidents, the Secretaries of State and War, the Librarian of Congress, the Government architect, and a considerable number of names of men chosen from the community at large known for their interest in art and art education. This bill passed the Senate, and was favourably reported to the House; but owing to the legislative conditions prevailing in the latter body during the closing weeks of the session, it failed to become law. I am happy to say that it will be reintroduced in the coming fifty-eighth Congress and is considered to have every prospect of success. Indeed, we seem to be living in a new age, not only in our private enterprises, but in our relations with the Government. It was no small thing that a committee of the United States Senate, under the leadership of the deeply-mourned Senator McMillan, called into consultation, officially, the Institute and accepted the advice of its Committee in the formation of a commission to prepare plans for the improvement of the park system of the district of Columbia, including the location of public buildings.

Following this lead have come frequent requests from Government officials on the various and often perplexing problems of their departments, so that, informally and unofficially, there has come to pass a seeking for expert advice as gratifying as it has been unusual. The forces which have brought about plans for the improvement of the National Capital are acting throughout the land. Not only in the Atlantic seaboard city of New York and the cities of the lake region like Buffalo, Cleveland, and St. Paul, but even from far away Seattle, on the Pacific Coast, comes the news of attempts to treat the city as a unit and to develop a municipality as a consistent work of art. It is worthy of note also that as the star of progress takes its western way, the effort at improvement is made with increasing vigour in both enthusiasm and money. As evidence of the times, and amongst the measures voted by the last (fifty-seventh) Congress for new buildings to be erected within the district of Columbia alone, I will quote the substance of a single paragraph from the Report of the Senate Commission of the District of Columbia, dated March 14, 1903:—

"The fifty-seventh Congress, besides the restoration of the White House, authorised the construction of the Army War College and the Engineer School of Application; a building for the National Museum . . . the Union Railroad Station; (an office) building for the use of the members of the House of Representatives; a Municipal Building for the district of Columbia, and a Hall of Records. The cost of these buildings completed will approximate not less than fifteen millions of dollars, or over three millions sterling."

I cannot conclude without an expression of appreciation for one whom your eminent body so recently did honour. After nearly half a century of successful endeavour, during which Mr. Hunt held aloft the banner and fought the battles of the Institute, and in the fulness of his powers, at a time when his influence was greatest, he was suddenly taken away."

The Chairman said they were honoured that evening by the presence of the American Ambassador, Mr. Choate, and they would be glad to hear a few words from his Excellency.

Mr. Choate said he was present in a three-fold capacity: first, and he thought most important, as the personal friend of Mr.

McKim; secondly, as a Harvard man, representing a University which was so proud of Mr. McKim; and thirdly, as the official representative of his country, upon which, in honouring Mr. McKim, the Institute had conferred a lasting and highly appreciated honour. He knew how dangerous it was for a layman to appear and speak before a company of distinguished professional men, but he believed that in either of the three capacities he had mentioned he could say a word or two without coming into conflict with that technical criticism which arose in the minds, if it did not fall from the lips, of those who listened to one who was emphatically a layman. It had been his good fortune to know Mr. McKim from boyhood—he was sorry to say it was from Mr. McKim's boyhood and not from his own—and it was not exaggerating the estimate of his friends to say, in view of his whole-souled attention to his art, to the sweetness and simplicity of his character, and to his enthusiasm for the profession which he so highly honoured, that from the beginning of his career they thought that Mr. McKim would receive, if not that medal, the highest honour which his professional brethren throughout the world could confer upon him. As a Harvard man he rejoiced to be there that evening. Perhaps they knew—if not, he would tell them—that Harvard bore the same relation to American life that Oxford did to the life of Great Britain, and Harvard was particularly proud of this son whom they had selected for that distinction that night. She had already conferred upon Mr. McKim one of her honorary degrees, and he believed that the day was not far distant when she would again select him to confer upon him the highest degree known to her. As the representative of his country, he had no hesitation in saying that if they put it to the vote of the whole American people who among her distinguished sons was most worthy of this honour, by a practically unanimous vote they would have selected Charles Follen McKim. And if they had called for a vote of the Congress of the United States as representing the power and judgment of the whole community, they, too, would have selected him, because, with their approval, he had been selected to take an important part in the Commission—a Presidential Commission, corresponding very much to a Royal Commission here—as to the laying out, the restoration, of the city of Washington—a development of the city of Washington upon the lines and according to the plans which received the approval of the Father of his country, George Washington, more than 100 years ago: not only their capital city, but their Republican palace, the White House—a symbol of the homely, the unambitious, which did not venture to compete with any of the palaces of the Old World—the home of their President, which every ingenious American boy was taught to look to as his possible future residence—not only the White House, but the city itself, had been laid out upon the more generous plans of the Father of his country instead of upon the mistakes, should he say, which subsequent generations had allowed to be developed. It was thought a few years ago that it would be wise to select a commission of competent architects to see whether the original plans of Washington could be again brought to life and restored, and put into practical operation both as regards White House and the city itself. It was no secret that to the genius of Mr. McKim and his associates on that commission was to be ascribed the success which had resulted in the complete restoration both of the palace itself and of the city of which they were so proud. The President of the United States, from his lifelong friendship and heartiest sympathy with Mr. McKim in all the successes and incidents in his career, would have joined in the approval of the selection of Mr. McKim for the honour which had been conferred upon him. It was his (the speaker's) good fortune to have known Mr. Richard Hunt, who was honoured by the Institute some ten years ago in the same way, and he thought he could say of both gentlemen that, in the immense development of their art which had taken place in the United States during the last thirty years, that they were entitled to a very great share of the credit. After the Civil War, and when it was established once and for ever that the United States was to be a nation, one and inseparable—an indestructible union of indestructible States—there grew up, throughout the length and breadth of the land, an ambition to

improve, to adorn, to glorify its buildings, both public and private; and, as Mr. McKim had said in his address, from Boston, on the shores of the Atlantic, to Seattle, on the shores of the Pacific, this purpose grew up of acquiring, of having, of living in buildings remarkable alike for their beauty and their utility, and of having public buildings worthy of the municipalities and of the country—of their wealth and power—which they represent. This had been the universal desire, and the result was that America had been, is now, and was likely to be in the future, a perfect paradise for architects. There had grown up, not a school only, but many schools of architecture connected with the great Universities, and they were sending forth year after year numbers of young men highly qualified for the pursuit of the profession. These young men were following in the footsteps of Hunt and McKim, and, if he mistook not, in the future there would be added to this fraternity of architects—for he believed they were one great fraternity throughout the world—a noble contribution from the United States, of whom, like the recipient of the medal that night, they would have reason to be proud.

The Chairman called on Sir L. Alma-Tadema, as one interested in American art, to say a few words.

Sir L. Alma-Tadema said he was glad to welcome Mr. McKim, because Mr. McKim was more or less one of them. In the Royal Academy they had always felt that American artists belonged to us and we to them, that artists were one great fraternity. He knew there were many beautiful things in America, for a friend of his once remarked that if they wanted to write a history of the art of the nineteenth century, they could not do it without going to America, and he believed the same remarks applied to architecture.

Mr. E. A. Abbey, R.A., who was also called on by the Chairman to address the meeting, said he was not accustomed to public speaking; he tried to express himself in another way. The Chairman had referred to the great scheme of the American school in Rome, which was a beginning of a sort of Renaissance of the wedding, he might say, of the three arts of painting, sculpture, and architecture, which had been separated too long. This school in Rome, which owed so much to Mr. McKim's energy and devotion, was one which he hoped one of these days English students would go to as to a sort of Mecca—a sort of University of the Fine Arts, which by that time would be much more brought together. He was glad to be present that evening to testify to Mr. McKim's devotion to his art.

The Chairman said there was a request which they would like to make to Mr. McKim. When Mr. McKim went back to America they would not have the advantage of hearing him as they would like; but the Institute had a list of honorary corresponding members, and they would all like Mr. McKim to consent to become one of their honorary corresponding members, so that, in that way, they might have the advantage of hearing from him from time to time what was being done on the other side of the Atlantic.

Mr. McKim: I shall be extremely glad to be associated with you in that way.

The meeting then concluded.

[We regret that we are unable to give our usual portrait of the Gold Medalist of the year, as when we wrote to Mr. McKim some time ago for a photograph from which we could prepare an illustration, he was so much occupied with work that he forgot the matter until his arrival in London, when it was too late. We could have given an ordinary block in the text, but there would be no satisfaction to us, and little compliment to Mr. McKim, in giving his portrait in an inferior form to that which we have always adopted.]

#### Annual Dinner.

The annual dinner of the Institute was held on Tuesday evening at the Whitehall Rooms, Hotel Metropole, S.W. The chair was occupied by Mr. Aston Webb, R.A., the President, supported by the American Ambassador (Mr. Choate), the Earl of Lichfield, the Bishop of London, the Archdeacon of London, Lord Monkswell (Chairman of the London County Council), the Lord Mayor of London, Lord Redesdale, Viscount Dillon (President of the Society of Antiquaries), the Hon. Sir Schomberg McDonnell, K.C.B., Sir Edward J. Poynter, Bart. (President of the Royal Academy), Sir



William Richmond, K.C.B., R.A., Sir Lawrence Alma-Tadema, R.A., Sir Norman Lockyer, K.C.B., Sir Arthur Rucker, F.R.S. (Principal of the University of London), Sir Henry Howse (President of the Royal College of Surgeons), Sir John Taylor, K.C.B., Sir Thomas Sutherland, Sir Wm. Emerson, Sir H. Trueman Wood, Sheriff Sir Thomas Brooke-Hitching, Sir Henry Howorth, Mr. C. H. Seely, M.P., Mr. Charles F. McKim (President of the American Institute of Architects), Mr. A. Buck (President of the Surveyors' Institution), Messrs. G. Ashlin, R.H.A. (President Royal Institute of Architects of Ireland), H. K. Bromhead (President Glasgow Institute), J. W. Beaumont (President of the Manchester Society), Arthur Harrison (President Birmingham Architectural Association), D. Morgan (President Cardiff and South Wales Society), Arthur S. Parker (President Devon and Exeter Society), J. W. Taylor (President Northern Architectural Association), Butler Wilson (President of Leeds and Yorkshire Society), Edwin A. Abbey (R.A.), M. B. Adams, T. W. Aldwinckle, Louis Ambler, J. Macvicar Anderson (F.R.S.E.), H. H. Armistead (R.A.), Professor Armstrong (F.R.S.), R. S. Ayling, F. T. Bagallay, T. J. Bailey, R. S. Balfour, F. W. Barham, C. E. Barry, E. Ingress Bell, Thomas Blashill, G. F. Bodley (R.A.), Thomas Brock (R.A.), C. W. Brooks, Professor G. Baldwin Brown, J. J. Burnet (A.R.S.A.), W. D. Caroe (F.S.A.), R. F. Chisholm, F. Dore Clapham, Thomas E. Colcutt, H. H. Collins, A. W. S. Cross, Alfred Cuslaw, Percival Currey, Thomas W. Cutler, Alfred Darbyshire, C. J. Dawson, R. Dircks, D. G. Driver, F. E. Eales, Alfred East (A.R.A.), Charles L. Eastlake, Colonel John Eaton (C.B.), Ernest Emerson, H. Favarger, W. M. Fawcett (F.S.A.), Owen Fleming, William Flockhart, Frank Fox, George Frampton (R.A.), Ernest George, E. M. Gibbs, Wm. Glover, G. L. Gomme (F.S.A.), Alexander Graham (F.S.A., Hon. Sec.), E. A. Gruning, A. L. Guy, Edwin T. Hall, S. H. Hamp, F. H. A. Harclate, W. J. Hardcastle, Henry T. Hare, Christopher Harston, Killingworth Herdges, G. T. Hine, Francis Hooper, George Hornblower, A. A. Hudson, C. E. Hutchinson, E. B. Ineson, B. Ingelow, T. E. Lidiard James, Zeph. King, F. G. Knight, Frank Lishman, W. J. Locke (Sec.), Henry Lovogrove, R. Falconer Macdonald, Leonard Martin, J. Douglass Mathews, Walter Millard, H. Percy Monckton, J. D. Mould, E. W. Mountford, Dr. A. S. Murray, John Murray, W. Hilton Nash, P. E. Nobbs, G. Northover, Paul Ogden, F. B. Osborn, Alfred Parsons (A.R.A.), E. Harding Payne, F. W. Peel, H. A. Pelly, Professor Beresford Pite, Col. Lenox Prendergast, A. N. Prentice, G. H. Fellowes Prynne, Herbert Read, Harry Redfern, E. R. Robson (F.S.A.), R. Fabian Russell, Joseph Sawyer, H. D. Seales-Wood, W. H. Seth Smith, George Sherrin, Professor F. M. Simpson, John W. Simpson, Harry Sirr, John Slater, J. Osborne Smith, Walter Smith (Master of Carpenters' Co.), Lewis Solomon, Leonard Stokes, Arthur Sykes, A. W. Tanner, Henry Tanner, J. C. Tanner, Herbert Taylor, A. H. Ryan Tenison, J. Lewis Thomas (F.S.A.), A. Hessel Tiltman, Frederick Wallen, T. H. Watson, W. A. Webb, C. W. F. Wheeler, Frederick Wheeler, Thomas B. Whinney, W. Henry White, H. H. Wigglesworth, Edmund Wimperis, J. T. Wimperis, W. Wonnacott, R. Selden Wornum, Clyde Young, and others.

The toasts of "The King," "Queen Alexandra, the Prince and Princess of Wales, and the other members of the Royal Family," and "The President of the United States" having been proposed by the Chairman and suitably honoured.

The Lord Mayor proposed "The United States of America." There was a special reason why they should wish prosperity to the United States, as they had with them, as they knew, an American who had succeeded in carrying off the gold medal offered by the King. He (the Lord Mayor) remembered travelling a good many years ago through the United States, and he visited Chicago soon after the terrible fire that reduced it almost to ashes. The time that had elapsed between that calamity and his visit was very short, but the Americans, with that splendid energy which characterises them, had already covered the city with palatial warehouses, and he remembered attending a nigger entertainment where the entertainer said "the Americans are a wonderful people, Chicago is a wonderful city. It was in ruins a short time ago and now it is mostly covered with palaces and you can

rent anywhere." That was long ago, and it was doubtful if they could rent anywhere in Chicago now, for that city, like other great cities in the States, had achieved an era of great prosperity and he hoped it would continue to flourish. We in this country had been singularly fortunate in the official representatives from that country we had had, and in Mr. Choate we had a worthy successor to the others.

Mr. Choate, in response, said it was a well established rule of diplomacy that an Ambassador should be seen and not heard, and that no one of them ought to have any experience in public speaking. He therefore would have been most happy if the proper man had been called on that night to respond to that toast. And who was "the proper man" on this occasion but Mr. C. F. McKim, on whom, in London, the eyes of all his countrymen were turned at this moment with satisfaction for having achieved the honour he had—not so much for himself as for them? But if he must respond to this great and ever growing sentiment for the United States of America he thought he knew in what spirit he ought to address that assembly. He might call their attention to the fundamental principles upon which his Republican Government rests; he might draw a distinction, perhaps flattering to both sides between the advantages of democracy and monarchy; he might treat of those trusts and combines which were constantly being thrown in their teeth by the jealous people of Great Britain, but it was upon no such subject that he would address them, for it seemed to him that he should speak of the United States on that occasion only in an architectural sense—in a sense appropriate to their vocation and the sentiments of fidelity to their profession which had called them together that evening. And he must begin by admitting that the United States architecturally were still in the making—they were still, in that sense (and would continue to be for some time) entirely unfinished, and they were likely to afford to the noble profession of architecture lucrative employment for a thousand years to come; and then, at the expiration of that time, there would still be many vast places to be improved, many noble structures to be erected, much utility, much skill, and much beauty to be lavished upon the buildings of the still distant future. He believed Americans still had a tariff upon works of art—not so much, not so high, as it once was, but much higher than he hoped at some time in the future it would be. But there was no tariff in the United States upon architects. Americans were constantly preaching the doctrine, and they put it in practice of "the open door," and he was authorised by Mr. McKim to say that there was room for all. Mr. McKim had not authorised him to say, but he knew it, that in the natural course of events—far distant may be the day—when Mr. McKim himself would retire, that would make room for—how many? Certainly for a hundred, possibly for a thousand. The history of the architecture of the United States—he spoke with deference and submission, for he knew nothing about it—seemed to be well exemplified in the history of the City of Washington and the District of Columbia, which was the seat of government. It appeared from a report lately made by the distinguished gold medallist, acting under a commission from Congress, that at the beginning of their Government the first President and his Secretary of State were well versed in this noble art of architecture, and that they brought to their aid knowledge and skill acquired upon this side of the water, and a distinguished architect and engineer from the Continent; and they laid out in magnificent proportions the city which was to be the future capital of the United States. That was a day of very small things and small means, and the great project which had been laid out was only in very small part accomplished, and as time went on, the capital, with its originally limited proportions, was constructed. The city was laid out generally according to the plans of the father of his country at the outset, but they were often departed from, and it was only in recent years that the attention of the Government, and of the architects of the country, was drawn to the fact that that plan had not been carried out in its full perfection; had, in many ways, been departed from; and the genius of the architectural profession in America, as represented by the gentlemen they had honoured by conferring upon him the Royal gold medal, and his associates had, combined with the wisdom

of Congress, brought about a restoration of the original plan. He believed that under their combined efforts the future would show a city of Washington, with its public buildings, its magnificent avenues, its glorious parks, extending through the district of Columbia, which would challenge comparison with any capital in the world. Well, as it had been with the capital of the Federal Government, so it had been in large measure with the whole of the country and people of the United States. For many years, for many generations, they were altogether too poor to indulge in the luxury of architecture—and nobody knew better than that present company how very costly and expensive a luxury it was. In those early days they imported architects—they believed that architects, like all other men, were free and equal, and with certain inalienable rights, such as life, liberty, and the pursuit of business—and they permitted them to come, and they did come, and helped the United States in their then humble undertakings. But now the circumstances of the United States had improved. It was an ill wind that blew nobody good, and the vast accumulations of property, the vast companies and communities of interest of which people on this side of the water seemed to be somewhat afraid—whatever other effect they might be having, were certainly having the effect of bringing the noble profession of architecture into the very front rank of occupations in America. Almost every countryside from the Atlantic to the Pacific was being adorned with comely, commodious and beautiful residences such as could be seen in the photographs of examples on the walls of the meeting-room of the previous evening. The municipalities of the United States were competing with each other as to which should have the finest buildings to represent the municipality; the States—and there were forty-five of them—were conducting one with the other to see which should have the noblest, the most commodious, the most beautiful State House; and over and above them all, the United States of America was spending the national funds very largely in the erection all over the country of court houses and custom houses. As the country grew, so they wanted more, and though they had many architects they wanted a great many more—although they had many highly-skilled architects, they wanted a great many more of the highest skill and character. He had said the previous evening that the United States was a paradise of architects; that was no joke; it was really so, and he thought architects would come from the east and from the west and from all parts of the world and help Mr. McKim and his associates in adorning and decorating the great Republic of which they were all so proud. This was a glowing and a happy picture which he held out to them; it was equally glowing, equally happy, equally satisfactory, to Americans themselves. He hoped that when they visited America—and it was really an essential not only of a liberal but a fair education of an Englishman—that in America they would be able to present to the visitors, not only in their national capital, but in all the States, and towns, and rural districts, work by their architects which would be worthy of any country and of any time.

Sir L. Alma-Tadema, R.A., said it was his great pleasure to propose the toast of "The Houses of Parliament," and he was called upon to do it as "an architect." They should not laugh, for he was proud of being an Honorary Fellow of that Institute. He felt great admiration for Parliament that had built up our history, and he had great respect for the laws it had given us.

The Earl of Lichfield, who responded for "The House of Lords," said that a little while ago there was an agitation to end or mend the House of Lords, but he thought that now most people would wish to leave things as they are. The fact was that the continuance of the House of Lords depended very largely on the rules which regulated recruiting to that House. Every year distinguished men from politics, science, art, recruited the House of Lords, and as long as that system was kept up the Lords would retain the confidence of the country. He was glad to have that opportunity of congratulating his friend and their President on the honour which had recently been done him, and which he so well deserved.

Mr. C. H. Seely, M.P., responded for "The House of Commons." Parliament, he said, owed much to architects, for one of the greatest



architects who ever lived built them a palace to live in—one of the finest, if not the finest, building of modern times in Europe. It was true that building was not quite as comfortable to live in as it might be; when one sat on the floor of the House on a crowded night because there was no room on the benches, and when one looked round the small smoking-room to try and find a seat, one wished that the architect had paid a little more attention to comfort and a little less to the external appearance of the building. But if Parliament owed much to architects, architects sometimes owed something to Parliament, and the Institute must feel that this was so in the last Parliament. As one walked down Whitehall and elsewhere and saw the new public buildings rising, it must be felt that Parliament had done its best to afford architects an opportunity which all states ought to give to those who devoted their lives to architecture—an opportunity of showing in material the ideas which were in their minds and of erecting great buildings for future generations to see. And if, sometimes, the question of the raising of the funds for what had been described that evening as "an expensive luxury" caused occasional unpleasant hours in Parliament, still, among the architects of England were to be found men who could build fine buildings for posterity to see. There should be sympathy between statesmen and architects: statesmen were engaged to some extent in the same work. "Empires rise and fall and nations come and go, but future generations judge architects largely by the buildings that they leave behind them. It is by the solidity of the Roman stonework that we judge of the strength and the solidity of the old Roman Empire now gone; it is by the grace of the Greek architecture that we judge of the greatness of the Greek mind." Statesmen of England, as they look about our country and think of the works of the past and the works of the present, might well feel that when they were past and gone future generations would judge this and past generations by the buildings left behind. He believed that modern buildings would be worthy of the present times. Statesmen wrote their minds upon the daily press; architects wrote their names in stone on the buildings they erected. Those who were engaged in the business of daily government must feel humble as they came before those who built not only for the day but for the distant future.

The Lord Bishop of London, in proposing the toast of "The Royal Institute of British Architects and the Allied Societies," said that in one sense he was fitted to propose the toast, for he came with the perfectly unbiased mind of one who did not pretend to lay down the law to experts—and could it be for that reason that he had always got on so well with architects he had worked with? He quite fancied that the clergyman who thought he "knew all about it" was rather an irritating person at times to the architect. He once had half an hour's conversation with the late Sir Arthur Blomfield, who was to build him what was the apple of his eye, what he had long wished to have in Bethnal Green, *i.e.*, the building which was erected and called Oxford House. What Sir Arthur Blomfield did by that building for the new settlement, for a new kind of work, had greatly helped him along in his work at Oxford House, and it gave him a high opinion of the practical way in which the architect set about his work. In passing he would like to mention that magnificent church at Smithfield which had been recreated by their President. And that brought him to what he specially wanted to say—*i.e.*, that those in his profession were working together against three foes, and the chief one was the materialism of our time. Against that materialism, which was demoralising all sections of society, he looked to architects to help him. St. Paul's Cathedral alone had preached a grander sermon than had ever been preached in its walls. It stood there with all its noble dimensions, and those who came within its walls were comforted and calmed by the building itself. (He could not mention St. Paul's in the circumstances without thanking one of the millionaires of the United States, Mr. Pierpont Morgan, for having given, at great cost, the electric lighting of the Cathedral, which was now lighted efficiently for the first time.) And so it was with such a church, and with other churches. He thought he consecrated one church a month throughout the year, and it was architects who, by their build-

ings, were helping to break through the materialism of the day. And in that war, too, they fought against ugliness in every form. Who had he found helping him in the slums—who had helped him to cope with the ugliness to be found there? Why, it was an architect whom they had there that evening, *i.e.*, Mr. Fleming. Another foe was the worldliness of the world, and in that connexion he had read with the greatest interest and delight a delightful article on the late Mr. F. C. Penrose, which appeared in a recent issue of their *Journal*. Towards the end of that article the writer said:—"Was he successful? We must also ask ourselves, What is success? Perhaps we are all too apt to measure success by conventional standards in which monetary reward and wide repute claim a large part. Yet it is certain that these, combined or apart, cannot in themselves bring happiness, nor even content. If to have carried through a long life a name untarnished, to have held to truth and right, to have been free of any mean or petty impulse, and to have won the affectionate respect of his fellows be success, then I think that Francis Crammer Penrose was a successful man." The great architects did not look to the worldly success, to the money reward, but to ideals—the ideals beyond this world, ideals which would leave lasting memorials behind. In giving the toast, he would conclude by congratulating the President upon the great distinction which had just been accorded him.

The Chairman, who on rising was received with musical honours, thanked them for the kindness of their reception. As architects they were proud of the terms in which the toast had been proposed. They had many distinguished guests there that evening, and on behalf of the Royal Institute he wished to thank them for being present. With their distinguished American guests with them, their thoughts naturally went towards American affairs, and he could not do better than touch on one or two American matters. One of Mr. McKim's works had been the restoration of the White House. He did not know whether they mentioned it to forget it as soon as mentioned—it was because in 1814 the British occupied and partially destroyed the White House. After that the building was patched up and repaired, but it was not until the present President took office that Mr. McKim was called in and all traces of what once happened were removed. In the same way they believed that all traces of what happened had been entirely wiped out of the minds of both peoples. Another American matter which very closely interested the members of the Institute was that the city of New York, in their Charter, which was granted in 1790, had provided for the formation of a Commission of Art, consisting of the Mayor of New York, the three presidents of the principal art societies of New York, and a painter and sculptor and architect, who were chosen each for three years, and three other residents of New York. These gentlemen, he understood, served on the commission without monetary consideration, but suitable offices were provided for them, and the expenses of the Commission were paid for by the city. The duties of the Commission, he believed, were these: no work of art could be brought now into New York without it being first submitted to this Commission for their approval, and by works of art were meant, not only pictures and sculpture, but monuments, arches, lamps, and decorations of all sorts in the city. In the same way no work of art could be removed without similar approval. The Commission could also be requested to report upon all improvements which were proposed in New York—to advise as to new streets, municipal buildings, parks, gardens. He mentioned all this because it seemed to him to be a matter on which they might take a leaf from America. As to the public improvements taking place and the public buildings being erected in London, the Government had of late years usually done the Institute the compliment of requesting them to nominate architects from whom they could select several to compete or select one to carry out the work. In all cases the Government had loyally kept to the understanding and had selected one of the architects nominated by the Institute. Unfortunately, in the case of the London County Council that was not so. In the case of the Holborn Strand improvement the Council applied to the Institute for the names of architects to prepare schemes; a competition was held and

Mr. Hare's scheme was selected as the best, but he was sorry to say that no steps had been taken to give effect to it. On the contrary, as far as he could understand, the recommendation of the Council's own Committee, that some control of the buildings to be erected should be exercised, had been entirely thrown over, and that great and important improvement, as far as could be seen, was to be carried through without any controlling hands on the buildings to be erected. Another point he might mention was that of architectural education. In America all the universities of the different States had a recognised architectural school, through which all students passed before entering on the practical work of an architect's office. We were beginning to attempt something of the same kind, and the University of Liverpool, whose architectural school was under Professor Simpson, and the Architectural Association in London, under Mr. H. T. Hare, had already started a day school for architects, where students could be prepared before entering an architect's office. But at present there was an absence of method over here. The Institute were proposing to do something to remedy this, for they had been invited to prepare some scheme which should bring all the means of education to a focus. The Institute had appointed a committee, and they intended to appoint others to join it and see if they could not do something to meet the difficulty which they felt at the present time. He was going now to depart a little from the toast-list in order to ask them to drink the health of their very distinguished guest, Mr. C. F. McKim, the Royal Gold Medalist.

The toast having been drunk with musical honours,

Mr. McKim, in briefly acknowledging the honour, said that since he had been here he had met with a succession of agreeable surprises which he never dreamt even were in store for him. He desired again to thank them for the honour and distinction they had conferred upon him—a distinction which on his side of the water would be felt to be conferred upon all, for he felt he had been selected for the honour in consequence of the accident of being President of the American Institute (no, no).

Mr. J. MacVicar Anderson, in proposing the toast of "The Guests," said that amongst their guests that evening were several most distinguished men in several walks of life, and by their presence they had greatly added to the pleasure and gratification of the members of the Institute. With the toast he coupled the name of Sir Arthur Rücker, Principal of the University of London.

Sir Arthur Rücker, in response, said he hoped that in the future London would erect more buildings like that of the Royal College of Science. The new University must surely bring about the gradual extension of the means of education. They had, by the generosity of the Government, been provided with dignified buildings for their headquarters at South Kensington, and he hoped that before long there would arise numerous buildings worthy of the architects of the country, and also of science.

The proceedings then terminated.

On Wednesday a meeting of the President of the Institute and the Presidents of the allied societies was held.

#### PALESTINE EXPLORATION FUND.

The Bishop of Salisbury presided on Monday afternoon at the Royal Institution, Albemarle-street, over a meeting of the Palestine Exploration Fund, when Major-General Sir Charles W. Wilson, K.C.B., gave an account of the work accomplished in connexion with the excavation of Gezer.

Dr. Theodore Wright, American hon. secretary, moved the adoption of the Report, which stated that since the last annual meeting eighty-seven names had been added to the list of subscribers, and fifty-six had been struck off.

The Report was adopted, and the Executive Committee were re-elected, with the addition of the Rev. Mr. Horton, Chairman of the Congregational Union of England and Wales. Sir Charles Wilson said that before drawing attention to Mr. Macalister's work at Gezer, he would like to reply to a question which had been asked, *viz.*, "How is it known that any particular object belongs to the aboriginal, the Canaanite, the Jewish, the Greek, or the Roman period?" To answer that it was necessary to



explain the law of stratification, upon which the whole groundwork of scientific exploration depends. The occupation of a site by a town or village is always marked by a bed or stratum of rubbish, which contains the foundations of walls and specimens of weapons, the tools and the objects connected with the domestic and religious life of the occupiers. The bed of rubbish varies in thickness according to the duration of the occupation, or the period that has elapsed since the site was abandoned. When a site has been occupied continuously for several centuries and by different races, the accumulated rubbish forms a series of beds or strata of varying thickness which lie one above the other. As each geological formation has its characteristic fossils, so in the remains of an ancient city each bed of rubbish contains something which differentiates it from the two beds between which it lies. Sometimes certain forms or objects survive through many centuries, and are found in several successive strata; sometimes the action of sun and rain carries a small object down to a stratum to which it does not belong, and sometimes in sinking for foundations, the contents of lower strata have been brought to the surface and again covered up in their false position by later accumulations. These disturbances, as a rule, can be readily detected, and the skilled explorer is able to refer nearly everything he finds to its proper stratum, and consequently to the period during which the rubbish of that bed was accumulating. The determination of the date and duration of the period which each bed or stratum represents is rendered exceptionally difficult in Palestine by the small number of objects found which can be dated with certainty. But within certain limits a trained archaeologist is able to read the history of an ancient city which he is excavating with very considerable accuracy. Mr. Macalister who has charge of the excavations at Gezer, is a trained archaeologist with exceptional skill as a draftsman, and keen powers of observation, and he is carrying out the work with a scientific accuracy and care that leaves nothing to be desired. Some of his conclusions may be subject to revision when the work is completed; but meantime there can be no question as to the great interest and importance of the discoveries that he has made during the past twelve months. The excavations at Gezer have disclosed the stratified debris of seven periods of occupation. During the first and second periods, which are represented by the two lowest strata, the site was occupied by an aboriginal, non-Semitic race of slight build and small stature. These people, who, in some respects resemble the occupants of Europe during the neolithic age, lived in caves or in rude huts of mud and stone, and cremated their dead in a cave specially preserved for the purpose. The two strata are characterised by coarse, porous, hand-made pottery, flint and stone implements, objects in bone, a few roughly-cut emblems of native worship, and by a complete absence of metal. Between the second and third strata there is a distinct break indicating the advent of a new race. The neolithic cave dwellers gave place to a Semitic people of stronger build and more advanced civilisation. These Semites, the Canaanites, perhaps the Amorites of the Bible, who settled at Gezer several centuries before the Israelites passed over Jordan were from 5 ft. 7 in. to 5 ft. 11 in. in height, and had well-developed skulls, and their racial type was not unlike that of the modern Arab. They lived in houses of mud and stone, crowded together like those of a Palestine village, and surrounded them with walls. The earliest wall is a bank of earth faced with small stones, and the latest a strong wall of masonry, which made Gezer one of the "fenced cities" of the Canaanites. A large number of objects in flint stone, bone, bronze, and pottery was found in the two strata. Bronze is the only metal, but fine flint knives are the most usual tools. Scarabs and impressions of scarab seals of the Egyptian middle empire occur in abundance, and a fragment of an inscribed statue of the same period was uncovered. Amongst other finds are broken statuettes of a cow divinity, a little bone needle-case containing a bronze needle, moulds for casting arrow-heads, cylinders of Babylonian and Syrian origin, and a great number of terra-cotta plaques with figures of Ashroth in low relief—all broken, as if some rite connected with the goddess involved the fracture of her image. Some of the pottery types in both strata, which are

almost unknown in the mounds recently excavated in the low country of Judah, are common to Gezer and Lachish in indicating a connection between the two places. In the other stratum the influence of Aegan art is very clear in much of the pottery. The most interesting discovery in connexion with the pre-Israelite strata is that of the "high place" of Gezer, which dates from the early Semitic period, and was apparently altered and enlarged in the period represented by the fourth stratum. The "high place" consists of a megalithic structure standing in a court which has a well-defined floor of limestone chips. Under the floor there are about 3 ft. of debris containing the remains of the neolithic cave-dwellers, and in this sub-soil a number of large two-handled jars were found, each containing the remains of a newly-born infant. In two cases the bodies had been burned, but in the others no trace of mutilation was detected. The ceremonial burial of so many newly-born infants in the precincts of the high place clearly indicates the prevalence of infant sacrifice, and this view is confirmed by Dr. Sellin's discovery of thirty jar burials of infants near a rock-hewn altar at Tarnach. They appear to belong to the second Semitic occupation, but some may be earlier or later. Recently Mr. Macalister has reported the jar burials of two children about six years old whose bones show distinct traces of fire. The megalithic structure consists of a group of monoliths from 5 ft. 5 in. to 10 ft. 9 in. high, aligned in a gentle curve. The top of the smallest stone has been worked to a sharp point, and its polished surface shows that it has been rubbed, anointed, and kissed by a long succession of worshippers. This peculiarity, wanting in the other stones, has suggested the idea that the most insignificant of the monoliths was the original beth-el of the high place. West of the north end of the alignment, and evidently belonging to the scheme of the high place, is a circular structure, 13 ft. 8 in. in diameter, consisting of a rude wall, now about 6 ft. high, in which there is no opening. In this structure were found numerous fragments of jugs and bowls in fine ware, to which Professor Petrie ascribes a Phœnician origin, and with the broken pottery there was a bronze model of a cobra, which is suggestive of serpent worship. The "high place" was *par excellence* the sanctuary of the Semites. Every city, town, and village had its own high place, where the people worshipped and where sacrifices were offered. There is evidence that the high place of Gezer retained its sanctity until a late period of the Jewish monarchy, when it appears to have fallen into disuse. The fifth and sixth strata represent the occupation of Gezer by the Israelites. In the fifth strata private houses are found for the first time to have encroached upon the precincts of the high place, due, probably, as Mr. Macalister suggests, to the overcrowding after the capture of the city by Joshua when the Ephraimites and Canaanites lived together within the walls. The stratum is characterised by the appearance of iron, by lamp and bowl deposits under the foundations of houses, and of the transitional character of the pottery. Bronze is the common metal, but flints are still used. In the fifth stratum several instances occur in which the bones of infants have been built under or into ordinary house walls. It seemed clear that we have in this discovery evidence of infant sacrifice in connexion with the widespread custom of foundation rites. The questions, however, connected with the practice of infant sacrifice at Gezer cannot be adequately discussed until the completion of the excavations, but the custom was not common amongst the Jews until the latter half of the period of the monarchy. The sixth stratum may be assigned with certainty to the Jewish monarchy, for it contains the jar handles with Royal stamps bearing the legend "to the King." The lamp and bowl deposits continue, and there is a further encroachment by private houses on the precincts of the high place; Jewish types of pottery prevail; iron is in general use, but bronze weapons are common. Amongst the finds in this stratum were a fine bronze statuette of Osiris; a bronze statuette of Ashroth Karnaim, or horned Astarte (the only perfect image of the goddess he believed yet found); large numbers of nude female figures, &c. The city represented by the sixth stratum was confined to the western half of the mound, and this seems to indicate that Solomon, in rebuilding Gezer, restricted the area and made the place a fortified post. The

seventh stratum represents the occupation of the site during what may be called the Syro-Egyptian period, during which the country was alternately occupied by the followers of Alexander the Great and saw the temporary consolidation of Jewish power under the Maccabæans. The stratum marks a complete break in the history of Gezer. Flint instruments and the lamp and bowl deposits disappear, iron is in common use, and the masonry of the houses and the types of pottery are similar to those found in the Ptolemaic town of Marisa. Amongst the objects found are an Egyptian inscription of the fourth century B.C., a Greek inscription, Rhodian jar, handles, saucers, ointment bottles, and imported Greek bowls.

The Chairman proposed a vote of thanks to Sir Charles Wilson, and remarked that he was a little disappointed that nothing had been discovered to illustrate Stonehenge, for there did not seem to have been any orientation about the stones as there certainly was at Stonehenge. They might yet perhaps find something of the kind in Palestine.

The resolution was carried.

Mr. Armstrong moved a vote of thanks to Mr. D. Macalister for his diligent work and to other workers resident in Palestine, and also to Dr. Theodore Wright, and hon. secs. throughout the country. He strongly appealed for further funds to carry on the work, and said the discoveries at Gezer were in many ways the most remarkable that the Society had made.

Dr. Ginsburg seconded the motion, which was carried.

Replying to a question, Sir Charles Wilson said there was a report that the Mahomedan cemetery above Jeremiah's grotto had been enclosed by a high wall. What they wanted to find was the series of tablets completing the correspondence with Pharaoh. There was the danger, however, at Gezer, that as it was a wet climate the clay tablets may have become disintegrated. They hoped at the next meeting to give even a more satisfactory account of the excavations than during the past twelve months.

#### ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS.

The annual meeting of the Association of Municipal and County Engineers was opened on Thursday morning, June 25, in the Town Hall at Kensington. Mr. T. H. Yabbicom, C.E., of Bristol, the retiring President, occupied the chair at the opening of the proceedings, supported by Mr. W. Weaver, Kensington, President-Elect, Mr. T. Cole, Westminster, and a large gathering of members.

Mr. T. Cole, Secretary, read the annual Report, which stated that during the year ended April 30 fifty-seven new members had been elected, twenty members had resigned, eighteen names had been written off, and the Council regretted the deaths of Messrs. J. H. Burton, W. Fraser, J. Myatt, and W. C. Walker. The complete membership was now 1,034. Four examinations had been held during the year, when seventy-eight candidates presented themselves, of whom forty-four satisfied the examiners, and were granted their certificates.

The operation of the "model" by-laws issued by the Local Government Board for new streets, &c., as well as for those for use by rural authorities, was being considered by a Committee of the Council.

The Council had received a lengthy Report from their delegates who are representing this Association on the Standards Committee, setting forth the work of the Sub-Committee on Tram-rails. The Committee had adopted the Report of the Sub-Committee, in so far as it referred to tram-rail sections, the question of specifications for their manufacture being left open for future consideration. The Report stated that "five sections of tramway-rails were agreed upon—viz., for weights of 90 lbs., 95 lbs., 100 lbs., 105 lbs., and 110 lbs.," and it was noted that the Board of Trade had approved these proposed sections.

With regard to a standard specification, considerable difficulties had been met with, and it was finally decided to refer the matter back to the Sub-Committee that they might consider the question of having one analysis for both acid and basic steel.

The Council desired to tender their best thanks to Messrs. Harpur and Wike, who had undertaken to represent the Association upon



the Committee, as the obviously large amount of work must necessarily entail a considerable sacrifice of time and personal expense.

The Council addressed the Local Government Board's Highway Department, with a view of setting forth the fact that this Association was peculiarly fitted to tender evidence before the inquiry which it was understood was to be held by the Department, and respectfully offering to tender evidence thereat.

The Board, however, declined to accept the assistance so offered, giving as their reason the fact that other associations had been decided upon, and in the view of the Board were sufficient. The Council had, however, pointed out to the Department that the evidence of those associations—viz., the County Councils' Association, and the Association of Municipal Corporations—although doubtless of the highest possible value of its kind, could not be of that engineering value which must be so desirable, and which evidence tendered by this Association must undoubtedly possess.

Mr. W. Weaver, of Kensington, was then installed as President of the Association for the ensuing year.

#### The Presidential Address.

Mr. Weaver, C.E., in his presidential address, said that, recognising fully, with grateful appreciation, the honour conferred by the members in appointing him their President, he was at the same time fully conscious of the difficulties and responsibilities of the position. He ventured, as the outcome of nearly half a century's experience, to submit some observations on municipal work and its tendency, and to proffer for their thoughtful consideration certain views which occurred to his mind as to the trend of such work in relation to municipal progress and national prosperity. Municipal progress and national prosperity were so interwoven that considerations relative to the former must, of necessity, have a bearing on the latter, and unless the trend of municipal effort harmonised with the unalterable laws which governed the advance or decay of nations no real improvement in national life was achieved. The directors, therefore, of municipal action should take a broad view of their responsibilities, and in their efforts to advance the interests of the particular locality with which they were connected, should consider the probable influence of their endeavours upon the national welfare as a whole. The individual effort of each unit constituting a nation had some effect, be it ever so small, upon the national life as a whole, and in the same way on a larger scale local effort affected the entire body politic. Glancing backward through the past forty to fifty years, one was struck with the growth and changes in this vast Metropolis, and to many minds its continued extension in the future at the same rate represented a problem of the gravest character, and the same considerations applied in a minor degree to many of the large towns in the kingdom. The changes which had been effected in the Metropolis during the last half-century were stupendous, and there was every indication that the next half-century would present a similar record. Consider for a few moments the progress made in the water-supply, locomotion, roads, refuse removal, sanitation, and lighting. The plan of abstracting from the river the water likely to overflow and cause damage, and storing the same to meet a time of drought, fully met present necessities, and the enormous reservoirs and filtering-beds between Staines and Hampton, and the extensions of the New River and the East London Water Companies would probably meet the requirements during the next forty years, and, doubtless, long before the expiration of that period the agitation for a new source of supply would be in the hands of the new Water Board, instead of being vested in private companies. Under the present system, by which the higher-assessed ratepayer paid more or less for the water consumed by his poorer neighbour, its use by the latter was encouraged, and extension of effort in this direction would result in individual and national gain. The present policy of abstracting an enormous volume of water from the higher part of the river, and after passing through and serving the several purposes of the Metropolitan community, restoring same to the lower part of the same river could not go on for an indefinite period, otherwise the river would be pretty well pumped dry at its higher part and filled with sludge filth at its mouth. The collec-

tion, removal, and disposal of the refuse of the Metropolis was a gigantic work, and the excellent manner in which it was on the whole carried out was an important factor in the preservation of the public health. The work, so far as it related to house and street refuse, was generally carried out by the municipal authorities themselves, and of necessity was costly; but the expense could be much reduced if ratepayers would assist in lessening, instead of increasing, the difficulties of the work. In Kensington the rates would be about a penny in the pound less if paper, straw, cardboard, &c., were burned instead of being thrown into dustbins or cast upon the streets. In no branch of municipal work had greater advance been made during the past half-century than in sanitary work. The universal cesspool had been displaced by water-carried sewage schemes, and old brick drains had given way to stoneware and iron pipes. The regular removal, without nuisance, of the sewage of the Metropolis was an enormous work, and the system provided was probably the best that could be devised. The best means of dealing with the offensive exhalations from the sewers remained a vexed question. On the one hand, they had the unanimous opinion of the Metropolitan supervisors of drainage work condemning the siphon traps as the root of the nuisance, and, on the other hand, the medical officers of health responsible for the introduction of such traps insisting on their use on each house drain as an essential requisite, a view endorsed by the recently issued drainage by-laws of the London County Council. The present-day supervision ensured the proper execution of all drain work and an adequate water supply to each house, but the construction of buildings in accordance with the provisions of the London Building Acts was supervised by district surveyors appointed by, but only partially responsible to, the London County Council. One of the pressing needs of the Metropolis was the transfer of the district surveyors' duties to the Borough Councils, who should be entrusted with the duty of seeing that the buildings erected in the boroughs should not only be properly drained, but also that they should be properly built and otherwise safe and fit to live in.

The large towns throughout the country had their tasks of difficulty, but they sink into insignificance when compared with the problem set by the Metropolis. With the preferential liking for pleasure versus work generally attaching to humanity, the individual was naturally attracted to the locality where he could get most of the former with as little of the latter as possible, and nowhere were these chances or conditions so favourable as in the Metropolis. The magnificent waste and luxurious benevolence prevalent there offered chances of living without work not to be found elsewhere; hence the thousands of loafers to be found throughout all the public parks on a fine day, who, as a rule, found little difficulty in subsisting during the greater part of the year, and during the other part swelled the ranks of the unemployed to the unwarrantable augmentation of the difficulties of that question—difficulties which demanded the gravest consideration. Inventing unnecessary work in order to give employment and stop clamour was the worst solution which could be proffered for the unemployed problem, as it increased the evil instead of lessening it. The gradual concentration and fostering of the unit meant rapid national decadence, and unless measures were adopted for getting the people back to the land, the physical deterioration now going on must result in England's retirement from the forefront of the nations. Should such reflux of population occur, a large part of municipal indebtedness now being incurred to cope with the influx would be money wasted, with the capital secured upon a rapidly reducing realisable value, with the result, despite sinking funds, that the nationalisation of municipal loans would offer the only means of preventing in many cases municipal bankruptcy. An increase during the past twenty-six years of 216 per cent. in local debt deserved the gravest consideration, and an alarming feature connected with this indebtedness was the immense amount expended in dealing with lunacy. Gigantic asylums were constantly being erected and were filled as soon as built, and on the lines on which we were at present advancing there seemed a probability at no distant date of a large proportion of the

entire population having to be supported in public buildings of various kinds at the expense of the over-worked and over-taxed remnant. Another danger attaching to the lines of municipal progress lurked in the direct labour question. With an experience of about equal duration of contract and direct work, he found contract work generally much less expensive, but, as a rule, not so well executed as when carried out by direct labour. Influences all tended to add names to the municipal workmen's list and to create difficulties in getting them off when once added, and hence it arose to a great extent that work had to be found and fitted to the men, whilst in contracting the men were discharged and changed in accordance with the fluctuations and demands of the work. In municipal, as in national, work the power of combined labour was making itself felt, naturally for the advancement of its present interests, but possibly to the future detriment of the common weal. So long as any body of workers could by their votes secure representatives on Councils and in Parliament they would to some extent dictate the terms of their employment, and thus it happened that throughout the country a body of workers was being created with privileges denied to the outside ranks, a state of things either unjust to the latter or preferentially unfair to the former. Some of these points would not have formed part of his address had he allowed personal policy to outweigh a sense of duty, possibly erroneous, but at any rate conscientious. He had a very strong feeling that the competitive efforts of the large towns, whilst probably conducing to the present prosperity of each, were antagonistic to the future welfare of the country as a whole, and must result in a decadent population, deficient in the virile merits necessary for a country's advancement in the conflict of nations.

A hearty vote of thanks was accorded to the President for his address.

[We shall continue our report next week.]

#### DRAINS AND SEWERS, AND LITIGATION.

THE President of the Municipal Corporations Association last week introduced a deputation to the President of the Local Government Board calling his attention to the unsatisfactory condition of the law on the subject of drains and sewers, stating that private owners, by means of combined drains, were able to place a burden on the Metropolitan Authorities equal to some halfpenny in the pound in the rates. Mr. Long admitted that the law called for Parliamentary reform, and in the course of his observations satirically alluded to the diversified opinions which had emanated from the Law Courts on this subject. His satire might, however, rather have been directed against the Legislature which so often places statutes upon the statute book dealing with domestic matters of every-day occurrence, either in terms so ambiguous that litigation is a necessity, or so imperfect in their scope that they create anomalies. The cases no doubt within the contemplation of the deputation were those decided upon the Metropolis Management Acts and the Public Health Acts, which have proved the legislation to be so imperfect that under the Acts it has become rather a matter of chance who is liable to repair and make good the drains, and of which the case of "Kershaw v. Taylor" (1895 2 B 471) may be cited as an example. A builder built four houses which, contrary to the directions of the sanitary authority, he caused to drain into one drain. Subsequently he sold the houses to different purchasers. The effect of this was that since more than one building was drained by the pipe, it became a sewer, and was repairable, not by the owner of the house, but by the sanitary authority. An even stronger case, perhaps, is "Geen v. Vestry of St. Mary, Newington" (1898 2 B 1), where four houses were drained by a combined operation under an order of the vestry, constituting the system "a drain" under the Metropolis Management Act, 1855, repairable by the owner of the houses. It was subsequently discovered that an adjoining owner had connected a drain from his stables with this combined system of drainage, apparently unauthorised to do so, but this fact sufficed to convert the drain into "a sewer" within the meaning of the Acts, repairable by the Sanitary



Authority. Apart, however, from these defects in the law, the legislature has itself created another anomaly. By Section 4 of the Public Health Act, 1875, a "drain" is that system of drainage which serves one building only. By Section 19 of the Public Health Amendment Act, 1890, where two or more houses belonging to different owners are connected with a public sewer by a single private drain, powers are conferred on the Local Authority to call on the owners to maintain and repair the drain, or to recover expenses incurred in carrying out the work in default. Where, however, the houses are separate buildings owned by the same owner, there seems no power to do this, and in such circumstances the drain is a sewer repairable by the Local Authority. In our Notes on the cases which affect house property under the various Acts of Parliament, we have repeatedly drawn attention to the necessity of clear legislation dealing with the whole question; the present condition of the law regulating such domestic questions is the cause of almost daily litigation.

### Illustrations.

#### JAPANESE ORNAMENT: PLATE VII.

**T**HIS design, a conventionalised treatment of chrysanthemum, forms the last of the series of illustrations of types of Japanese ornament which we have been giving in the present volume. It is further referred to in the short article on the subject on page 650.

#### DESIGN FOR LIVERPOOL CATHEDRAL.

WE give this week the design submitted in the Liverpool Cathedral Competition by Mr. Malcolm Stark.

The author has sent us the following statement of his views in preparing the design:—

"The problem of the plan of a modern cathedral has been the subject of much controversy. Generally the wide nave is advocated on the plan of a basilican church, as the form most suitable for present-day requirements. The credit of solving this problem to some extent may be said to be due to the promoters of the competition for the Liverpool Cathedral. The central 'octagon' space, or 'large central area' requested in the instructions to the competitors gives variety and purpose to the plan; it marks the development of our church architecture, and provides an excellent auditorium.

The feature of the plan submitted herewith is a large central space capable of accommodating 3,000 persons in the proximity of the pulpit, free of any interrupted view of the pulpit and high altar. The high altar is brought as near to the chancel gates as provision for purposes of ritual will permit, and in comparison the chancel is much shorter than those of the mediæval cathedrals. The plan generally is an attempt to give a practical indication of the requirements of a modern cathedral in view of the special needs of the Diocese. Retiring rooms are provided at the entrances; these are intended to be used for the reception of cloaks and various secular purposes as occasion requires. Certain desirable accessories with the object of securing the comfort and convenience of the bishop, clergy, and large congregations have also been introduced. The morning chapel is orientated as desired, and can be entered externally to the cathedral. The approaches and exits have been carefully considered and the site manipulated, so that it may form a suitable environment to the cathedral and provide a certain extent of garden and lawn for the clergy and the public.

The style of the cathedral has advisedly been left to the competitors. The author of this design has adopted the Gothic style, believing, as he does, that it is more suitable than any other for the full and perfect expression of ecclesiastical purposes—indeed, Gothic may be said to be almost exclusively and intrinsically ecclesiastical. But in deciding on the Gothic style as the most suitable, the choice of the period of style has not been made without some hesitation. Two distinct types appeal to the author: these are the Early English, with its dignified simplicity of outline, noble conventionalism of sculptured forms, and pure arch contour; and that type of Gothic which prevailed during the reign of Edward III.,

known as the 'Decorated,' with its maturer development of decorated features and its foliated tracery of intersecting and reversed curves. For expression of refinement and quiet reverence of effect, the 'Decorated' type, when treated in the Greek spirit, is perhaps the most acceptable. The author has in this design adopted a modern treatment of fourteenth-century Gothic, in which the architectural element is practically eliminated. In general conception, bulk and carefully-designed proportions have been chiefly considered, and the character and scale of the features and detail have been subject to the test of generally accepted abstract Gothic principles. As much variety as possible, consistent with a perfect unity of idea, prevails, and the spirit rather than the letter of symmetry has been observed. Internally, the design may be said to be a concession to precedent. In the treatment of the nave, aisles, and transepts a simple and conservative character is maintained. There is little carving and sculpture, and no feature or line of detail is prominent or purposely aggressive. The choir is comparatively rich in character, and perhaps the most effective part of the interior. By the omission of the triforium a lancet effect is obtained to the choir windows, which will give distinction and emphasis to the quasi-east end. The approach to the north front has been considered a most important if not an integral part of the scheme. A crescent, 200 ft. central from the portal, is shown, in which is placed a fountain, the design of which is inspired by a study of the beautiful old fountain at Perugia. A residence for the Dean is suggested, and it has been thought desirable to place the chapter-house and choir-school at the extreme south end of the site. These buildings are connected with the cathedral by a cloister, so as to give a commanding and dignified treatment to that portion of the site adjoining Upper Parliament-street."

### COMPETITIONS.

**GOVERNMENT HOUSE, LIMA.**—The Board of Trade have received from the Consul for Peru in Southampton a pamphlet containing particulars of the plan for the reconstruction of the Government House in Lima. Plans for the execution of this work may be presented up to December 31 next, in the Directorate of Public Works, Lima, and will be referred to a committee for consideration and report. The Government will grant a first premium of 300l. and a second premium of 100l. to the author or authors of the plans approved by the said committee. The pamphlet contains a list of approximate prices of labour and materials in Lima, and may be seen on application at the Commercial Intelligence Branch of the Board of Trade, 50, Parliament-street, S.W., any day between the hours of 10 a.m. and 5 p.m. (Saturdays 10 a.m. to 1 p.m.).

### ENGINEERING SOCIETIES.

**SOCIETY OF ENGINEERS.**—An interesting visit was made by the members of the Society of Engineers, on the 24th inst., to the engineering works of J. & E. Hall, Ltd., at Dartford, Kent, where they witnessed the manufacture of ice-making and cold storage plant, a demonstration of which was kindly given. These works date from the year 1785, but during the last fifteen years they have been entirely rebuilt and fitted with modern machinery. About twenty-four years ago the Company commenced the manufacture of refrigerating machines on the cold dry-air system, and in 1888 they took up the manufacture of refrigerating machines on the carbonic anhydride (CO<sub>2</sub>) system, which was then entirely unknown in this country. Owing to the very much higher efficiency of the CO<sub>2</sub> system it almost entirely took the place of cold-air machines, and the manufacture of the CO<sub>2</sub> machines has so greatly increased that the whole works are now entirely devoted to the manufacture of those machines, with the exception of a few small cold-air machines for the Admiralty. The CO<sub>2</sub> machines are made in some thirty or forty sizes and designs, belt driven and steam driven, and many of them specially designed for use on board ship. Owing to the high gas pressure at which these machines have to work their manufacture requires a very high class of both workmanship and materials, and an elaborate method of testing is carried out in the shops; thus

every part of the machine which, when working, is subjected to the pressure of the CO<sub>2</sub>, is tested, first by hydraulic pressure to 3,000 lbs. per square in., and afterwards, when submerged in water, to an air pressure of 1,350 lbs. per square in., the first test being for strength, and the second to ensure freedom from porosity. All parts after testing are stamped by the inspector, and erecutors are forbidden to use any parts which do not bear a testing stamp. The shops are driven throughout by electric motors, the current being generated in a power house principally by an inverted compound condensing engine, and partly by gas engines, using producer gas. In the same power house is the plant for generating the current for electric welding, and also the various air compressors and pumps required for testing purposes and for pneumatic work in the shops. The engine is driven by steam from Lancashire boilers fitted with Cass's automatic stokers. The power plant is about to be increased with a 150 K.W. direct steam driven set, and a steam superheater is to be installed. The pattern shop is fitted throughout with modern tools, the whole being electrically driven, mostly from below the floor. It is lighted throughout by electricity, and the electric current is also used for the glue-pots, thus avoiding as far as possible the risk of fire. The pattern stores are at one end of the building, and extend in one floor over the whole shop. The iron foundry is served by a 20-ton electric traveller, and another 10-ton traveller is about to be added. Three bays of the erecting shop are devoted respectively to the erection of small, intermediate, and large machines, and are commanded by 15-ton, 10-ton, and 6-ton electric travellers. Arrangements are made so that in whatever position a machine is erected its tests can be run whether it is belt driven or steam driven. It is the practice to run all machines actually doing refrigerating work before they leave the shops. The amount of refrigerating work thus performed is measured, and a full record of the performance of each machine is kept. A machine was shown under test. It is stated that some fourteen or fifteen hundred refrigerating machines have been turned out at these works during the last few years, of powers ranging from small ones equivalent to the melting of 30 lbs. of ice per hour, up to large ones equivalent to the melting of 12 tons of ice per hour.

### ARCHITECTURAL SOCIETIES.

**MANCHESTER SOCIETY OF ARCHITECTS.**—On the evening of June 16 thirty members visited the new St. Mary's Hospital, Manchester (Messrs. A. Waterhouse & Sons, architects), and were shown with the greatest thoroughness the admirable fittings and arrangements of this excellent modern hospital. On Saturday, June 20, thirteen members visited Liverpool. Messrs. Norman Shaw and Doyle's White Star Line Offices and Parr's Bank, by Mr. Norman Shaw and Messrs. Willink & Thicknesse, were very much admired, and the excellent design and detail inside and out carefully examined. The party next visited Mr. Mountford's new Technical School Buildings, where Mr. Willink, Chairman of the Committee, with some of the staff, explained the buildings very fully, giving special attention to the "Plenum" ventilating system, and also most hospitably entertained the party. A visit to the new Central Fire Station concluded the afternoon.

**QUEEN VICTORIA MEMORIAL HALL, CALCUTTA.**—Since Sir William Emerson's return from his visit to Calcutta for the purpose of consulting with the Viceroy upon the design and erection of the Memorial to Queen Victoria a settlement has been made of the vexed question as to its site which had given rise to considerable local controversy. The Building Committee have issued a statement setting forth that they obtained, in response to invitations circulated by them, a preponderance of opinions in favour of the Cathedral-avenue site instead of the Fort site which they themselves had at first recommended. The former site will therefore be adopted, subject to, with other conditions, the removal of the jail and the clearance of the ground within a reasonable period, without the creation of any charge upon the trust funds. The minimum sum, fixed at 50 lakhs of rupees, for the beginning of the work has been raised, and a measure has been prepared by the Viceregal Legislative Council for the legal constitution of a body of trustees, to include two representatives of the native chiefs and noblemen of India.





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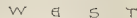








St. JAMES CEMETERY



P U B L I C                      C A R D E N

57 JAMES ROAD



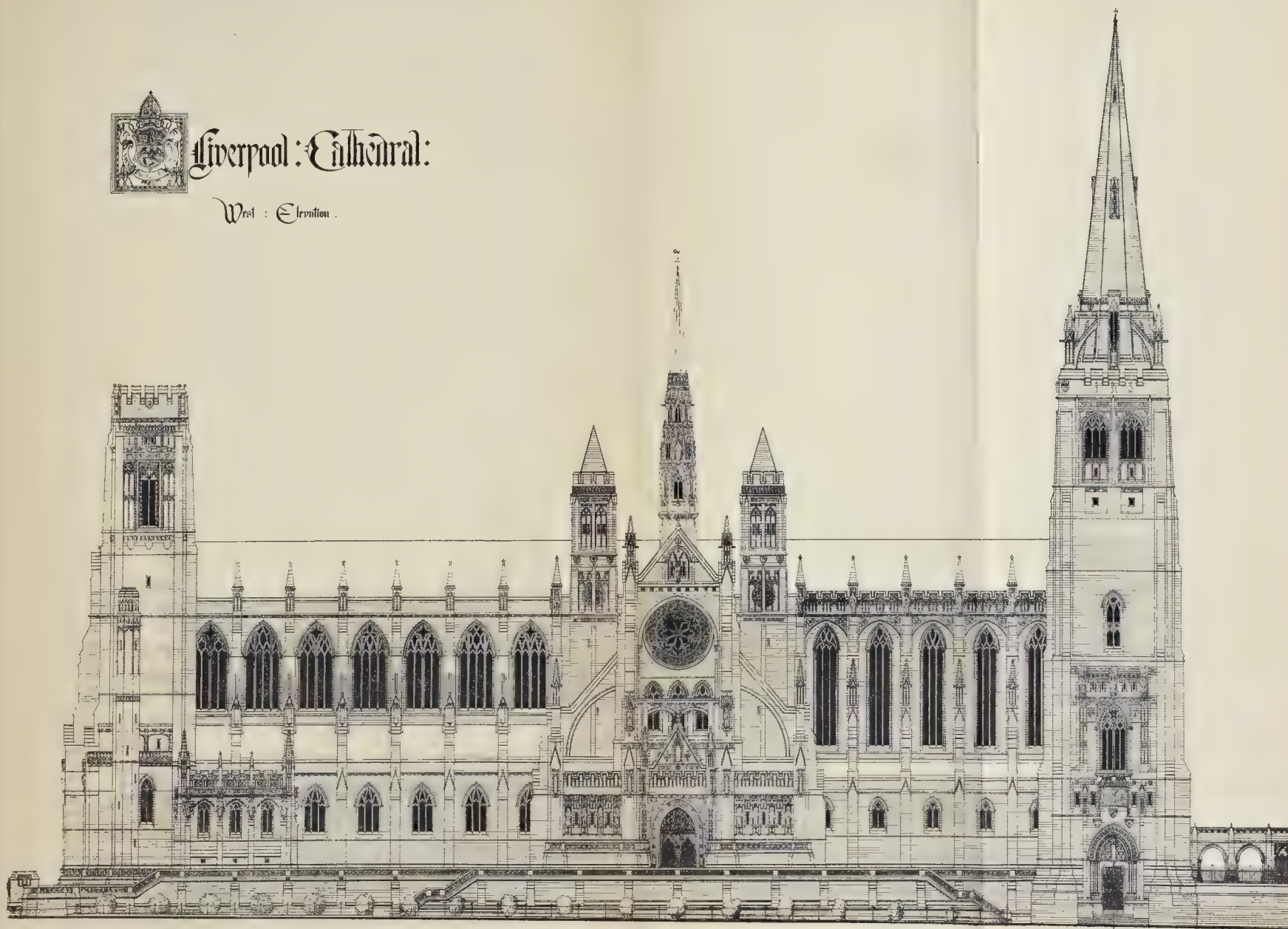






# Liverpool: Cathedral:

West: Elevation.



Chas. G. Brown









# Liverpool Cathedral:









## THE LONDON COUNTY COUNCIL.

The first meeting of the London County Council after the Whitsun recess was held on Tuesday in the County Hall, Spring-gardens, Lord Monkswell, Chairman, presiding.

**Loans.**—On the recommendation of the Finance Committee it was agreed to sanction the borrowing of 1,274,000*l.* by the Council of the Metropolitan Borough of St. Marylebone for the purchase of that portion of the undertaking of the Metropolitan Electric Supply Co., Ltd., which is within the borough; and 1,250*l.* by the Kensington Borough Council for mortuary buildings. It was also agreed to lend Chelsea Guardians 41,400*l.* for the extension of the parish workhouse; Hammersmith Guardians 12,000*l.* for the erection of Board-room and offices, &c.; Islington Guardians 5,000*l.* in connexion with the erection of new infirmary buildings, Highgate Hill; St. George-in-the-East Guardians 5,345*l.* for reconstruction of workhouse and infirmary, &c.; White-chapel Union Guardians 14,151*l.* for purchase of leasehold interest in Nos. 403, 405, and 407, Mile End-road; Lambeth Borough Council, 7,295*l.* for paving works; St. Marylebone Borough Council, 5,200*l.* for purchase of site for dwellings; and Stepney Borough Council, 3,000*l.* for dust-destructor.

**Additional Land, Plumstead Common.**—The Parks Committee recommended, and it was agreed after discussion, to expend the sum of 8,825*l.* for the purchase of the Squatter's Retreat, at Plumstead Common.

**Manufacture of Aerated Waters.**—The Public Health Committee recommended, and it was agreed that the Report of the Medical Officer of Health submitting Dr. Hamer's Report on the manufacture of aerated waters in London be published, and that a copy be sent to the Local Government Board with an expression of the opinion of the Council that it is desirable that legislation should be promoted in order to enable sanitary authorities register makers of aerated waters, to inspect premises upon which aerated waters are manufactured, and to prevent the manufacture of such waters under conditions likely to give rise to contamination.

**Sanitary Inspectors.**—The same Committee again brought up the Report on the number of sanitary inspectors employed by each Borough Council, &c., which we printed in our issue for June 6, p. 597. The recommendation that the Report of the Medical Officer of Health on the sanitary staffs of the Metropolitan Boroughs be placed on sale was agreed to.

**Paving of Stables.**—The same Committee reported as follows:—

"Several of the London Sanitary Authorities have asked for power to require the paving of stables. We have had frequent complaints of nuisance caused from manure at stables in various parts of London, and we think it would be of great assistance in removing causes of complaint if the sanitary authorities were enabled to require such stables to be properly paved with some impervious material. We are of opinion that the matter could best be dealt with if the Council were enabled to make by-laws on the subject, which should be enforced by the sanitary authorities."

**Application to Parliament for New Powers: Sorting and Sifting by Hand of House Refuse; Paving of Stables; Dust-Receipts; Urinals, &c.**—They also brought up the following Report:—

"Complaints having been from time to time received by the Council as to nuisance alleged to arise from the temporary deposit of offensive refuse and its subsequent manipulation, we thought it well to have inquiries made as to the method of disposal of refuse in London. Numerous wharves, dust-yards, and railway sidings were accordingly visited, but were only able to learn of about a dozen sets of premises at which refuse is deposited in the course of removal for the purpose of being sorted by hand or machinery, and at seven of these premises accumulations of refuse were found which had been allowed to remain for periods of time exceeding twenty-four hours. In London generally the refuse is either taken to a destructor depot, or else it is tipped straight into barges or placed directly into railway trucks. It is evident, therefore, that where the intention is to remove the refuse from London without manipulation there is no need for its temporary deposit in course of removal.

The result of our inquiries, we addressed a letter to the sanitary authorities inquiring whether they would be in favour of a by-law altogether prohibiting deposit in course of removal, but the replies showed very considerable divergence of opinion. We therefore thought it advisable that we should visit a number of dustyards and make ourselves conversant with the conditions under which the

refuse is dealt with. The inspection which we made convinced us of the necessity for action on the part of the Council. At certain yards in Lambeth we found that the sorting of refuse was done by women under most objectionable and insanitary conditions. We have approached the Local Government Board on the subject, but they are not prepared to approve a by-law which would prevent the temporary deposit of refuse in course of removal, and we therefore think the Council should itself promote legislation, with the object of altogether prohibiting the sorting and sifting of refuse by hand in London.

We have, in accordance with the standing orders, consulted the solicitor, and he is of opinion that the Council has power to promote legislation on the questions above referred to. We have not yet had an opportunity of ascertaining the views of the Metropolitan Borough Councils with regard to them, but if the Council adopts our recommendations we think that a copy of our Report should be sent to these authorities, and that they should be asked to support the proposed legislation, which, it will be observed, would confer additional powers upon them. We recommend—

(a) That the Council be made in the next Session of Parliament for powers—

1. Enabling sanitary authorities to require the cleansing or destruction of articles of clothing which are in a filthy, dangerous, or unwholesome condition.

2. Enabling sanitary authorities to require the owners of premises to strip the walls and ceilings of any rooms infested with vermin, and enabling owners to recover the cost of the work from tenants in certain cases.

3. Enabling sanitary authorities to require the reconstruction or removal of urinals or other conveniences opening on to streets and constructed before the passing of the Public Health (London) Act, 1891, and placed as to be a nuisance or offensive to public decency.

4. Enabling the Council to make by-laws to be enforced by sanitary authorities requiring the paving of stables with impervious material.

5. Enabling sanitary authorities to require the removal of fixed dust receptacles after movable receptacles have been provided.

6. Enabling sanitary authorities to examine premises on which food is prepared for sale, and to require the removal of conditions likely to give rise to contamination.

7. Amending Part VIII. of the London County Council (General Powers) Act, 1902, so as to make penalties against ice-cream manufacturers and vendors payable to the Metropolitan Borough Councils.

8. Prohibiting the sorting and sifting of house refuse by hand in London.

(b) That a copy of this Report be sent to each of the Metropolitan Borough Councils, with an expression of the Council's hope that they will support the proposals contained therein."

The recommendations were agreed to.

**Scientific Inquiries relating to the Public Health.**—It was also agreed to seek power in Parliament to enable the Council to expend a sum of money on scientific investigations relating to the public health.

**District Surveyor for Kensington.**—The following adjourned Report of the Building Act Committee was then considered:—

"The Council on March 17, 1903, decided to form a new district of Kensington with its boundaries co-terminous with those of the Royal Borough of Kensington. The recommendation that Mr. S. F. Clarkson, who is at present District Surveyor for North Chelsea, should be appointed to the new district of Kensington was withdrawn, as a question arose as to its being contrary to the standing order of the Council (No. 250) which provides that no person shall be accepted as a candidate for the appointment of district surveyor unless he be under fifty years of age, and further that every candidate shall sign a declaration that he will accept the appointment on the condition *inter alia* that he will retire, if required to do so, upon attaining the age of sixty-five. We would point out Mr. Clarkson was appointed a district surveyor in 1880, and is therefore not subject to any of the conditions which the Council attaches to the appointments made by it. He cannot be called upon to retire from his office as District Surveyor of North Chelsea on attaining any specified age, nor can he be prevented from carrying on business as an architect except within his own district. In consideration, however, of his being transferred to the more valuable district of Kensington, Mr. Clarkson is willing to subscribe to the conditions which the Council attaches to new appointments, provided the age at which he will be compelled to retire be made seventy instead of sixty-five, and he has signed the usual declaration which has to be made by candidates for the appointment of district surveyors, with the slight modification just mentioned. Mr. Clarkson, who is sixty-two and a half years of age, appeared before us, and he is, in our opinion, quite capable of personally discharging the duties in the district of Kensington. The Council has in a similar case waived altogether the condition which provides that a district surveyor shall, if required to do so,

retire on attaining the age of sixty-five, and we think that in the present case it would be well to modify the condition. If the Council decide to appoint Mr. Clarkson to the district of Kensington, we will as soon as possible submit a recommendation as to the arrangements that should be made with regard to the district of North Chelsea, which the Chelsea Borough Council have urged should be added to that of South Chelsea. We recommend—(a) That standing order No. 250 relating to the appointment of district surveyors be suspended so far as may be necessary to enable the Council to consider the following recommendation with reference to the appointment of Mr. S. F. Clarkson to the district of Kensington. (b) That Mr. S. F. Clarkson be appointed district surveyor for the district of Kensington as from June 30, 1903, subject to the standing conditions of the Council as to the appointment of district surveyors, with the exception that 'seventy' shall be substituted for 'sixty-five' in condition (f) as the age at which he will be required to retire; and that the resignation of Mr. Clarkson as District Surveyor for North Chelsea be accepted as from June 30, 1903."

Mr. Campbell moved that the following words be substituted for the words after "appointment of district surveyors" in recommendation b:—"With the exception that as long as Mr. Clarkson is able to and does perform his duties in an efficient manner, seventy shall be substituted for sixty-five in the condition (f) of the standing order as the age at which he will be required to retire."

The amendment was accepted by the Chairman of the Committee, and the recommendations were, as amended, agreed to.

**Pumping Stations: Work done during the Recent Storms.**—The Main Drainage Committee reported as follows:—

"The fall of rain during the heavy storm on June 13, 14, and 15, was unprecedented in the history of the main-drainage system, and, in the circumstances, we think that the Council will be interested to know the amount of work done at the several pumping stations under its control.

It is a source of the greatest satisfaction that during the continuance of the storm, in spite of its unusual severity, there was no break-down of either pumps or engines at any one of the stations, and we desire to place on record our appreciation of the manner in which the whole of the staff performed the duties which devolved upon them over a period which has never been equalled or approached.

We would, in the first place, point out that the storm followed the unusually heavy rainfall amounting to nearly 2 in., which occurred on June 9, 10, and 11, and that the difficulties which had to be contended with were thereby rendered all the greater, as the volume of water in the sewers was much greater than that which passes through in normal dry weather.

We state below the quantity of storm-water pumped at each station during the three days, and, except in the case of stations specially provided for pumping in times of storm, the average quantities pumped in dry weather, and the amount of rainfall.

**Western Pumping Station.**

Quantity pumped. Rainfall.	
June 13 .....	550 million gallons '98 in.
June 14 .....	811 " " 117 "
June 15 .....	876 " " 70 "
Normal .....	27 87 " "

At the Western pumping station in Grosvenor-road, Finsbury, the average height to which the sewage brought down by the Northern low-level sewer is lifted by the pumps is about 21 ft.

**Abbey Mills Pumping Station.**

Quantity pumped. Rainfall.	
June 13 .....	117 2 million gallons 116 in.
June 14 .....	162 5 " " 142 "
June 15 .....	177 9 " " 98 "
Normal .....	75 12 " "

At this station the flow in the Northern low-level sewer, the Hackney Wick and Isle of Dogs relief sewer, and the Hackney Wick to Abbey Mills relief sewer has to be pumped, and the average lift for the sewage in ordinary weather is 38 ft. On Saturday, June 13, the water in the pump-chamber rose, between two and three o'clock p.m., to a height of 27 ft. above its normal level, and the quantity pumped on Monday, June 15, is the highest on record at this station. It may be added that on the preceding Wednesday, June 10, the water rose 15 ft. in an hour.

**North Woolwich Pumping Station.**

Quantity pumped.	
Gallons.	
June 13 .....	6716,780
June 14 .....	6,984,640
June 15 .....	9,022,520
Normal .....	3,000,000 (about)

**Crossness Pumping Station.**

Quantity pumped. Rainfall.	
June 13 .....	115 4 million gallons '38 in.
" 14 .....	186 3 " " 100 "
" 15 .....	131 3 " " 109 "
Normal .....	86 62 " " — "

At the Crossness pumping station the sewage



brought down by the Southern outfall sewer is generally lifted about 30 ft.

#### Defford Pumping Station.

	Quantity pumped.	Rainfall.
June 13 .....	911 million gallons	1.20 in.
June 14 .....	1110 " "	1.40 in.
June 15 .....	1215 " "	0.86 in.
Normal .....	5257 " "	—

At this station the average height to which the sewage brought down by the Southern low-level sewer is raised is about 20 ft.

#### STORM RELIEF STATIONS.

##### King's Scholars' Pond Sewer Pumping Station.

	4,875,000 gallons in	525 hours.
June 13 .....	2,835,000 " "	525 "
June 15 .....	6,849,000 " "	1250 "

##### Isle of Dogs Pumping Station.

	2,165,630 gallons in	58 hours
June 13 .....	1,480,410 " "	36 "
June 15 .....	5,730,510 " "	138 "

Colonel Rolton condemned the condition of affairs. He stated that at Wandsworth and Putney sewage to the depth of 5 ft. had in many cases been left in the basements. Though the Wandsworth Board had pressed upon the Council the necessity for something to be done, their complaints had not received attention.

Mr. Burns considered that the authorities had done everything possible in the unprecedented circumstances. The fault rested really upon the heads of the landlords, who were allowed years ago to build basement dwellings on a level with the sewer.

Mr. Cousins considered that in blaming the builders and owners Mr. Burns was raising "false issues." The authorities, and not the landlords, were to blame, and he was glad now to see that for some years past miles of low-lying land at Wandsworth had been filled up for building purposes.

Mr. Goodman, Chairman of the Committee, said they were making all possible haste with the work of the new drains.

The Report was adopted.

#### Greenwich Tunnel—Commemorative Tablets.

—The Bridges Committee reported as follows:—

"On December 16 last we recommended the Council to sanction an expenditure of 250l. for fixing two bronze commemorative tablets, but the Council substituted an amount of 100l. for the purpose. We have given the matter further consideration and having gone very fully into the question of the cost of such tablets, we had that it is impossible to obtain a suitable tablet for the smaller amount. In the case of Blackwall Tunnel the cost of the tablets was 350l. We would mention that no sum has been spent for decorative purposes at Greenwich Tunnel, and that in addition a considerable saving was effected by the decision not to hold a formal opening ceremony. Under these circumstances, we think that the original design submitted by Messrs. Singer & Son should be agreed to. A sum for this purpose was included in the supplemental vote of 433l. on account of the construction of the tunnel which was passed by the Council on May 13 last. We recommend—(a) That the resolution of the Council on December 16, 1902, authorising an expenditure of 100l. for commemorative tablets at Greenwich Tunnel, be rescinded. (b) That an expenditure of 250l. be sanctioned for fixing two commemorative tablets at Greenwich Tunnel, and that the offer of Messrs. J. W. Singer & Son, Limited, to do the work for that amount be accepted."

It was moved that recommendation a be not agreed to. This was carried after discussion, in the course of which it was stated that a design for the tablets had been prepared by an R.A.

Mr. Sidney Low said that the design was a shameless abortion. An attempt had been made to construct an allegorical representation of a male and female employee of the Council working in Blackwall Tunnel under compressed air.

Vauxhall Bridge—Superstructure.—The same committee reported as follows:—

"It is anticipated that Messrs. Pethick Bros. will have completed their contract for the demolition of the old bridge and the partial construction of the new one by August next. Since the Council decided, on May 10 last, as to the design for the superstructure of the bridge no efforts have been spared to get out the contract drawings, and in order to expedite matters and thus reduce to a minimum the interval which must elapse between the time of completion of Messrs. Pethick's contract and the letting of the contract for the superstructure, arrangements were made during the recess for the reproduction of the drawings, and this will save at least three weeks. We propose that the advertisements inviting tenders for the execution of the work should be issued in September next, with a view to

the tenders being opened by the Council at its first meeting after the summer vacation.

In connection with the preparation of the specification the question has been raised as to whether or not a clause should be inserted providing that all materials shall be British manufacture. The engineer strongly supports the proposal, and points out that he can then, through the inspectors, exercise better supervision than could possibly be done if the materials were manufactured on the Continent. Further, the rates of wages and hours of labour would be more in accordance with the views of the Council. We understand that this question was before the General Purposes Committee in the early part of this year, and that that Committee came to the conclusion that each case should be considered on its own merits. In the exercise of our discretion we have decided almost unanimously in favour of the insertion of such a clause. We recommend—

(a) That the Engineer be instructed to prepare the necessary plans, specification, &c. in connection with the superstructure of new Vauxhall Bridge; that an expenditure not exceeding 250l. for reproducing the drawings be sanctioned.

(b) That a clause be inserted in the specification providing that all materials shall be of British manufacture only."

An amendment to refer the matter back was carried.

#### Housing: Stirling-buildings, Russell-court, Drury-lane.—The Housing of the Working

Classes Committee reported as follows:—

"We have to report that Stirling-buildings, Russell-court, Drury-lane, are now complete and ready for occupation. These buildings provide for 180 persons in fifteen tenements of three rooms, twenty tenements of two rooms, and five tenements of one room, and have been built for the accommodation of persons displaced by the Clare-market scheme and the Holborn to Strand improvement in the proportion of three to one."

Having transacted other business, the Council adjourned.

#### APPLICATIONS UNDER THE 1894 BUILDING ACT.

THE London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses:—

##### Lines of Frontage and Projections.

Wandsworth.—Wood and tile porches to eight houses on the south side of Howard's-lane, Wandsworth, and of a wood and tile hood to a house on the east side of Upper Park-fields abutting upon Howard's-lane (Mr. J. C. Radford, for Mr. C. S. Merrett).—Consent.

Norwood.—Houses on the western side of a continuation southward of Herne Hill-road, Herne Hill (Mr. J. A. Clarke).—Consent.

Chelsea.—A portico at the entrance to, and the retention of balconies at the first, second, and third floor levels of, Sloane Gate-mansions, on the east side of D'Oyley-street, Chelsea (Mr. C. J. C. Pawley).—Consent.

Finsbury, East.—A porch at the angle of No. 50, Finsbury-square, Finsbury (Messrs. Gilbert & Constanduros, for the London and Manchester Industrial Assurance Co., Ltd.).—Consent.

Greenwich.—Houses with shops on the north side of Woolwich-road, Greenwich, to abut also upon Morley-road (Mr. A. E. Parnell, for Mr. J. Sanford).—Consent.

Hackney, North.—Houses on the site of No. 1, Clapton-common, Hackney, to abut upon the north side of Filly-avenue and the west side of Upper Clapton-road (Mr. C. Cheston, for Lord Amherst of Hackney).—Consent.

Lewisham.—Wood and tile pents over the entrances to a pair of semi-detached houses on the west side of Leyland-road, Eltham (Mr. W. W. Galer).—Consent.

Peckham.—A one-story shop upon part of the forecourt of No. 674, Old Kent-road, Camberwell (Messrs. Holman & Goodham, for the Royal London Friendly Society).—Consent.

St. George, Hanover-square.—The bringing forward of the frontage of No. 3, Hamilton-place, Mayfair (Messrs. W. H. Romaine-Walker & Besant).—Consent.

Strand.—A projecting clock at No. 126, Regent-street, St. James's, Westminster (Mr. H. F. Tomalin, for Dr. Jaeger's Sanitary Woolen System Co., Ltd.).—Consent.

Wandsworth.—Buildings, on the Norfolk House estate, on the west side of Streatham High-road, Wandsworth, southward of Mount Ephraim-road (Mr. W. N. Dunn).—Consent.

Wandsworth.—Wood and tile pents in front of five houses on the south side of Howard's-lane, Putney (Messrs. Webb & Neilson, for Mr. E. Parry).—Consent.

Kensington, North.—Permission to retain the letters forming the words "Ladbroke Hall" fixed in the framework on each side of the shelter in

front of Ladbroke Hall, No. 124, Ladbroke-grove, Kensington (Mr. M. Zimmermann).—Consent.

St. George, Hanover-square.—The retention of an iron and glass shelter in front of the porch of the Coburg Hotel, Carlos-place, St. George, Hanover-square (Mr. F. W. Anson for the Coburg Hotel, Ltd.).—Consent.

Wandsworth.—Buildings on the east side of Upper Tooting-road, Tooting, to abut upon Derinton-road, Lessingham-square, and Cowick-road (Messrs. Walton & Lee for Mrs. M. J. Miller).—Consent.

Lambeth, North.—An addition in front of No. 202, Lambeth-road, Lambeth (Mr. J. A. Reeve for the trustees of the Lambeth Boys' Parochial Schools).—Consent.

Clapham.—A one-story shop upon part of the forecourt of No. 299, Laverend-hill, Battersea, and the erection of one-story addition at the rear, to abut upon Beauchamp-road (Mr. W. West for Dr. R. H. Barkwell).—Consent.

Dulwich.—An oriel window and wooden porch to each of ten semi-detached houses on the west side and ten semi-detached houses on the east side of Turney-road, Dulwich (Mr. G. A. Lansdown for Mr. H. J. Williams).—Consent.

Finsbury, Central.—A one-story shop upon part of the forecourt of No. 37, Penton-street, Pentonville-road, Finsbury (Mr. I. H. Watson for Mr. H. Vincent).—Consent.

Haggerston.—A building upon the site of Nos. 225 and 227, Hackney-road, Haggerston (Mr. C. E. Jackson for Messrs. E. Lucas & Sons).—Consent.

Hampstead.—A porch in front of Lune Lea, No. 51, Fitzjohn-avenue, Hampstead (Messrs. Young & Hall for Mr. J. Mansergh).—Consent.

Lewisham.—A verandah in front of Oakdene, Canonbie-road, Forest Hill (Mr. G. R. Sexton for Mr. T. Browne).—Consent.

Lewisham.—One-story shops upon part of the forecourt of No. 138, Sydenham-road, Lewisham, to abut upon Knighton Park-road (Mr. T. Wilson for Mr. A. V. Zwanenberg).—Consent.

Lewisham.—The retention of an iron, concrete, and wood balcony in front of No. 46, Undercliff-road, Lewisham (Mr. H. J. Harrop for Mr. H. J. Mogridge).—Consent.

Paddington, North.—Completion of residential flats at Nos. 63-73, Maida-vale, Paddington (Mr. J. A. G. Knight for Mr. H. Johnson).—Consent.

Woolwich.—That the application of Mr. R. Stewart for an extension of the periods within which the erection of eighteen houses on the north side of Berkeley-road, Eltham, eastward of Elderslie-road, was required to be commenced and completed, be granted.—Agreed.

Hammersmith.—Buildings at the rear of Nos. 176, 178, 180, and 182, Goldhawk-road, Hammersmith, to abut upon Cathnor-road and Conningham-road (Col. E. Clarke).—Refused.

Lewisham.—One-story buildings upon part of the forecourts of Nos. 7, 9, 13, and 15, London-road, Forest Hill (Mr. J. R. Vining for Messrs. C. A. Clark and E. Mortlock, and Dr. C. P. W. Neate).—Refused.

Finsbury, Central.—Buildings upon the site of Nos. 6, 8, and 10, Emouth-street, Clerkenwell (Messrs. C. Bell, Withers, & Meredith for Mr. G. H. Schofield).—Refused.

Peckham, Central.—Eight houses on the south side of Richmond-road, Mare-street, Hackney, westward of No. 269, Mare-street (Messrs. Hodson & Whitehead for Messrs. Hodson & Co.).—Refused.

Hampstead.—A one-story shop upon part of the forecourt of No. 1, Netherwood-street, Hampstead (Mr. L. Solomon for Messrs. Alexanders).—Refused.

Islington, East.—The retention of a one-story building on the north side of Northampton Park, Islington, eastward of Putney Lodge (Mr. G. H. Lovegrove).—Refused.

Kensington, South.—A wood and zinc verandah over the portico at the entrance to No. 114, Cromwell-road, Kensington (Messrs. T. W. Heath & Son for Mr. J. La Fontaine).—Refused.

Lewisham.—A house on the east side of Clarence-road, Lewisham, to abut upon Neuchatel-road (Mr. T. W. H. Standen).—Refused.

##### Width of Way.

Clapham.—A foundry building on the site of Nos. 31, 33, 35, and 37, Sleaford-street, Clapham, to abut upon Foote's-row (Mr. H. W. Phillips for Messrs. J. Oswald & Son).—Consent.

Waltham.—Buildings at the rear of the South London Jewish Schools, Heygate-street, Waltham-road, Waltham, with external walls at less than the prescribed distance from the centre of the roadway of Deacon-street (Mr. L. Solomon for the Trustees of the South London Jewish Schools).—Consent.

Hackney, Central.—A warehouse building on the site of Nos. 74 and 76, De Beauvoir-crescent, Kingsland, with external walls at less than the prescribed distance from the centre of the roadway of Hertford-road (Mr. G. H. Lovegrove for Messrs. J. King & Co., Limited).—Consent.

Kensington, North.—Permission to retain a motor shed on the south side of Portobello-road, Notting-hill (Mr. J. G. M. Brownjohn for Mr. A. Lever).—Consent.

Lewisham.—That the Council do make no order upon the application of Messrs. Sills & Leeds, on behalf of Mr. Harry (trading as Messrs. Winning & Co.) for consent to the erection of a building to be used as a furniture depository, upon a site



approached from High-street and Rhyme-road, Lewisham.—Agreed.

#### Width of Way and Lines of Frontage.

**Chelsea.**—New buildings on a site on the south side of King's-road, Chelsea, and the west side of Flood-street (Mr. H. A. Hunt for Earl Cadogan, K.G.).—Consent.

**Wandsworth.**—A two-story addition, with projecting one-story bay window, on the south-western side of Border Lodge, Honor Oak-road, Forest Hill (Mr. A. C. Remnant for Mr. J. Hummel).—Consent.

**Hackney, South.**—A deviation from the plan approved on January 20, for the erection of a building upon the site of 155, Mare-street, Hackney, so far as relates to the erection to such building of bay windows (Mr. W. W. Gwyther for the Directors of the National Provincial Bank of England).—Consent.

**Peckham.**—Six houses on the site of No. 26, Elm-grove, Peckham, with external fences at less than the prescribed distance from the centre of the roadway of the street and the houses (Mr. E. Grosse for Messrs. J. and A. Oldman).—Consent.

**Chelsea.**—Projecting pilasters to a shop front of a proposed new building on the south side of King's-road, Chelsea, to also abut upon the west side of Flood-street (Mr. R. G. Hammond for Messrs. J. Humphry & Son).—Refused.

**Kennington.**—Buildings on the eastern side of Richmond-terrace, Kennington, to abut also upon Palfrey-place (Messrs. J. A. J. Woodward & Sons for Miss M. Ware).—Refused.

**Deptford.**—A building on the site of Nos. 112, 114, and 116, Kender-street, New Cross, Deptford, with external walls at less than the prescribed distance from the centre of the roadway of Dolling-place, and a one-story addition in Kender-street (Messrs. E. Runtz & Co. for Mr. G. Newman).—Refused.

#### Width of Way, Line of Frontage and Construction.

**Stepney.**—An iron and concrete gangway to connect the new nurses' home on the south side of Oxford-street, Whitechapel, with the existing nurses' home on the north side of that street (Messrs. R. Plumb and Harvey for the Chairman and Committee of the London Hospital).—Consent.

#### Width of Way and Construction.

**Fulham.**—A public convenience on the approach road from Effie-road to Eelbrook-common (Mr. F. Wood for the Council of the Metropolitan Borough of Fulham).—Consent.

#### Space at Rear.

**Finsbury, Central.**—A modification of the provisions of Section 41 of the Act of 1891 as far as relates to the proposed erection of a building upon the site of No. 77, Chapel-street, Islington (Mr. G. Hamilton-Briggs for Mr. J. R. Parker).—Consent.

**St. George, Hanover-square.**—A wood and glass conservatory at the rear of No. 31, Green-street, Park-lane, St. George, Hanover-square (Sir Arthur Blomfield & Sons for Mr. R. Norman).—Consent.

**Islington, South.**—Two buildings on the site of Nos. 7, 8, 9, 10, and 11, Norfolk-street, Islington, with irregular open spaces at the rear (Mr. H. Smith for Mr. C. King).—Consent.

**Paddington, South.**—A modification of the provisions of Section 41 with regard to open spaces about buildings, so far as relates to the proposed erection of a conservatory at the rear of No. 9, Sunhope-terrace, Hyde Park (Messrs. Hart & Waterhouse for Miss Hicks and the trustees of the Paddington Estate).—Consent.

**Southwark, West.**—A bath-room addition at the rear of No. 4, Gladstone-street, Southwark (Mr. H. Smith for Mr. G. F. Vermig).—Consent.

**Whitechapel.**—Dwelling-houses and shops on the north side of Whitechapel-road, Whitechapel, between Nos. 209 and the Queen's Head public-house (Mr. H. L. Florence for the Whitechapel and Bow Railway Co.).—Consent.

**Fulham.**—Buildings upon a site abutting upon New-street and Basil-street, Fulham (Mr. R. Bennett).—Refused.

#### Formation of Streets, &c.

**Hackney, South.**—That an order be issued to Mr. H. Brodey sanctioning the formation or laying out of two new streets for carriage traffic to lead from Ashenden-road to Marsh-hill, Homerton, and in connexion therewith the widening of a portion of Marsh-hill (Messrs. A. & A. Simpson and Mr. A. E. Simpson).—Consent.

**Woolwich.**—Houses on the east and west sides of Back-lane, Artillery-place, Woolwich, and the widening of Back-lane (Mr. H. O. Thomas).—Consent.

**Bow and Bromley.**—A deviation in the formation of "Waterden-road," to lead from Carpenter's-road to Homerton-road, Hackney-wick (Messrs. Deakin & Cameron for the trustees of the late Viscount Eversley and the trustees of Major Clayton).—Consent.

**Wandsworth, E.**—That an order be issued to Mr. J. C. Radford sanctioning the formation or laying out of new streets for carriage traffic out of Gwendolen-avenue, Putney, and in connexion therewith the

widening of portions of Putney Park-lane and Howard's-lane (Lord Westbury and Mr. S. Taylor).—Consent.

**St. George-in-the-East.**—That the Council do sanction a deviation from the scheme for the erection of twenty houses in Samuel-street, James-street, Langdale-street, and Villiers-street, St. George-in-the-East, and the widening of those streets, so far as relates to the erection of the four houses on the east side of Langdale-street (Mr. H. H. Collins for Messrs. N. & R. Davis).—Consent.

#### Means of Escape at Top of High Buildings.

**St. George, Hanover-square.**—Means of escape in case of fire, proposed to be provided on the eighth story of Regent House, Regent-street, St. George, Hanover-square, for the persons dwelling or employed therein (Messrs. Gordon & Gunton for the Regent Estate Co., Ltd.).—Consent.

**Sirand.**—Means of escape in case of fire, proposed to be provided on the fourth and fifth stories of Seymour House, No. 9, Pall Mall, and No. 17, Waterloo-place, Sirand, for the persons dwelling or employed therein (Mr. A. E. Thompson for Sir H. S. King, M.P.).—Consent.

**St. George, Hanover-square.**—Means of escape in case of fire to be provided for the persons dwelling or employed on the sixth and seventh floors of a block of residential flats on the site of No. 25, Hanover-square, at the corner of George-street, St. George, Hanover-square (Messrs. C. Bell, Withers, & Meredith).—Consent.

#### Cubical Extent.

**Hammersmith.**—That the Council do make an order on the application of Messrs. J. Baker & Sons, Ltd., for consent to the completion of an engineering workshop, exceeding in extent 250,000 cubic feet, at the engineering works, Hythe-road, Willesden.—Agreed.

**City Alterations.**—At the premises of Messrs. Edward Lloyd, Limited, in Salisbury-square, White Lion-court, Crown-court, and Hanging Sword-alley, Fleet-street, City, with divisions of such premises, to exceed in extent 250,000 cubic feet, but not 450,000 cubic feet (Mr. H. A. Satchell for Messrs. Edward Lloyd, Limited).—Consent.

#### Working-class Dwellings.

**Hackney, South.**—Dwelling houses, to be inhabited by persons of the working class and proposed to be erected, not abutting upon a street, on a site at the rear of houses on the south-west side of Windsor-road, Hackney-wick, Hackney (Mr. W. M. Dabbs).—Consent.

#### Buildings for the Supply of Electricity.

**City.**—An electricity distributing-station on the south side of Beech-street, between Brainiac-buildings and Three Herring-court (Mr. W. E. Clifton for the Charing Cross and Strand Electricity Supply Corporation, Ltd.).—Consent.

**Greenwich.**—Additions to the boiler-house at the London Electric Supply Corporation's generating station, The Stowage, Deptford (Mr. G. A. Lansdown for the Company).—Consent.

#### Line of Frontage and Construction.

**Marylebone, East.**—Permission to retain a show-case erected upon part of the forecourt of No. 14, Finchley-road, St. Marylebone (Mr. H. Ernst).—Agreed.

**Strand.**—Retention of three wood and glass showcases in front of No. 1, Piccadilly Circus, St. James, Westminster (Mr. A. Aldcorn).—Consent.

#### Line of Frontage and Space at Rear.

**Hampstead.**—The erection to a two-story stable on the east side of Fortune Green-road, Hampstead, to abut upon Weech-road, of a projecting bay and staircase next Weech-road, and an iron and glass shelter next Fortune Green-road (Mr. C. H. B. Quennell for Mr. C. Pain).—Consent.

#### Width of Way and Space at Rear.

**Deptford.**—That the application of Mr. R. Robertson for an extension of the periods within which the erection of buildings on the north and south sides of Blake-street, New King-street, Deptford, was required to be commenced and completed, be granted.—Agreed.

#### Deviation from Certified Plans.

**Hammersmith.**—Rebuilding of a portion of the Rose and Crown public-house, No. 203, Hammersmith-road, Hammersmith, abutting upon Rose and Crown-lane (Messrs. Harrison & Ward for Messrs. Fuller, Smith, & Turner).—Consent.

**Southwark, West.**—A stable with loft over on the site of Nos. 1 and 2, Eve's-place, Borough High-street, Southwark (Messrs. Battley, Sons, & Holness for Mr. F. Redman).—Consent.

#### Dwelling-houses on Low-lying Land.

**Deptford.**—Three blocks of buildings on low-lying land situated at Rollins-street, Peckham (Mr. G. Whitwell-Alan for Mr. E. Bowering).—Consent.

\*.\* Recommendations marked † are contrary to the views of the Local Authorities.

#### THE INTERNATIONAL FIRE PREVENTION CONGRESS.

The arrangements for the International Fire Prevention Congress, convened by the British Fire Prevention Committee, have now been completed in detail, and it may be of interest to observe that the Congress membership will comprise 800 professional men, mainly engineers, architects, surveyors, together with a large number of fire brigade officers and municipal councillors and public officials. The gathering will be representative of all parts of the United Kingdom, as also the Colonies and the principal foreign countries.

The Congress will be conducted in general meeting and in sectional meeting, and there will be six sections, each of which will have its own Honorary Chairman and Acting Vice-President.

The sections, with their Honorary Chairman, will be as follows:—

**Section 1. Building Construction and Equipment.**—Sectional Chairman: Privy Councillor J. Stubbey, Past President German Amalg. Societies of Architects and Engineers, late City Architect, Cologne.

**Section 2. Electrical Safeguards and Fire Alarms.**—Sectional Chairman: Chevalier Goldoni, C. O. Fire Brigade, Milan, President Italian Fire Brigades' Federation.

**Section 3. Storage of Oils and Spontaneous Combustion.**—Sectional Chairman: Louis Bonnier, Architect to the City of Paris and to the Government, Past President Society of French Official Architects.

**Section 4. Fire Survey and Fire Patrols.**—Sectional Chairman: Prince Alexander Lvoff, President Imperial Fire Brigades' Association, St. Petersburg.

**Section 5. Fire Losses and Fire Insurance.**—Sectional Chairman: C. A. Hexamer, President National Fire Protection Association, New York, U.S.A.

**Section 6. Fire Tests and Standardisation.**—Sectional Chairman: Alcide Chausse, Superintendent Architect, Montreal, Canada.

The seat of the congress will be the Caxton Hall, Westminster, where all meetings except the opening meeting will be held, and the whole of the executive arrangements will be in the hands of Mr. Edwin O. Sachs, as Congress Chairman, with Mr. Ellis Marshall as Honorary General Secretary, and assisted by Mr. J. Sheppard, in respect of the conduct of meetings, and Mr. Fred R. Farrow, F.R.I.B.A., in respect of publications. The general opening meeting will be held at the Empress Theatre, Earl's Court, lent by the Executive of the International Fire Exhibition. The opening of the congress is timed for 11.30 a.m. for 11.45 sharp, Monday, July 6, and the Lord Mayor of London will attend in state and conduct the opening proceedings.

#### ROYAL COMMISSION ON LONDON LOCOMOTION.

SIR DAVID BARBOUR (Chairman) presided on Friday last week over a further sitting of this Commission at the Westminster Palace Hotel, when further evidence was given by Mr. G. L. Gomme, the Clerk to the London County Council.

Witness first dealt with the powers possessed by the London County Council with regard to subways, and advocated an enlargement of the Council's powers to make subways both for the reception of wires and pipes and for tramways. The Highways Committee in 1901 presented a report to the Council on the question of the construction of tramway subways, and subways for the reception of pipes, wires, &c., and legislative proposals were introduced as the result of the Council's resolutions. The Council did obtain powers to construct a tramway subway in the new street from Holborn to the Strand, but the proposals for general powers were withdrawn in consequence of opposition. He considered that it had become almost necessary to have an extensive system of subways in consequence of the great evils caused by the continual breaking up of the streets.

Replying to Sir Robert Reid, witness said the Council wanted general powers to construct subways in streets where they thought it necessary. All the companies having wires or pipes would be kept them in the subways, and would be charged a rent, which would be adjusted according to the cost to which the Council had been put. Roughly, he believed that the charge for rent to the companies would not be heavier than the charge they were now put to in breaking up the streets.

Witness was next examined by the Chairman with reference to the subject of street improvements and gave a history of the improvements effected during the existence of the Metropolitan Board of Works, 1855 to 1899. The gross cost of the thoroughfares widened by the Metropolitan Board of Works was 5,275,104. The value of the land obtained or amount received by the sale of the materials of the old buildings was 1,281,850, leaving the net cost 3,993,254. The gross cost of the new thoroughfares constructed by the Metropolitan Board of Works was 7,023,451, and the net cost was 3,708,809. The gross cost of the construction of the Victoria, Albert, and Chelsea Embankments was 3,300,872, and the net cost 2,441,097. The reason for the recoveries in the case of the Victoria Embankment was that the cost of widening the street was larger than in the case of widened thoroughfares was because in the first case the Board was able to take in land on either side which of course im-



proved in value when it had a street frontage. In the case of widening they took only the fringe of the property.

By Sir G. T. Bartley: In the case of Northumberland-avenue there was a surplus, but this was the only case in which he knew of a surplus. In the Holborn to Strand improvement the Council took more land than usual, and the result would be that the net cost was estimated to be comparatively small.

The Chairman: Do you consider that the construction of new thoroughfares is generally more advantageous from a traffic point of view than the widening of existing streets?—Yes.

Why?—Because it adds, not a small strip, but a new thoroughfare to London. Another advantage is that, as a rule, a new street does away with a good deal of insanitary property; and thirdly, it is less expensive.

Continuing, witness said that the London County Council preferred to carry out improvement schemes on a large scale because all the requirements of London were large. If it was carried out piecemeal they only did partial good. For instance, taking the Kensington High-street widening that was carried out under several Acts of Parliament. If it had been carried out at once it would have been less expensive. The same thing was being done with regard to the widening of the Strand and Fleet-street. The expense was very great, and when opportunities came advantage was taken of them. It was a natural apprehension on the part of a Local Authority that, however good a scheme might be, it cost a lot of money. The reason why Northumberland-avenue turned out so well was because a large area was taken, and money having been spent on it, it acquired a business value. He did not consider that the Metropolitan Board of Works did sufficient in the way of street improvements to adequately meet the needs of London, but, of course, the question of expense came in.

Do you think it would be possible to deal with this question on a general plan, or must you continue to just deal with special cases as they arise?—If we had the means I think it would be possible.

Would it involve much greater expenditure? Could you not form a general plan to carry out particular improvements as opportunity offered, when you could carry it out cheaply?—I do not think we shall ever find it cheap. Whenever the Council decides to carry out an improvement the cost of the property immediately goes up. It would not do to publish a general plan of contemplated improvements, or the property would go up in value.

Continuing, witness said he did not think street improvements had been sufficiently dealt with in London, for the expense had been so great that the London County Council, quite early in its career, passed a resolution not to proceed with improvements unless they had a new source of revenue. Proceeding, witness described the statutory powers in respect of improvements conferred upon the Council by the Metropolitan Local Management Act, 1855, and the Metropolitan Management Amendment Act, 1862 and also referred to the Local Government Act, 1888, and Michael Angelo Taylor's Act, 1871, which gave certain powers with respect to street improvements. Under the London Building Acts the Council possessed powers regarding the width of new streets, &c., and he did not think they wanted further powers in that respect. He placed before the Commission the details of fifty-four improvements effected by the County Council, or in course of being carried out. The actual, or estimated, net cost of these improvements was £6,133,129, the total length of the improvements was about 11½ miles. These improvements were classed under the heads of "county" and "local," the latter being the sphere where the Local Authorities contributed. All schemes were considered by the Council on their merits, but generally the local contribution was one-third or one-fourth. There was very often considerable difficulty in coming to an agreement with the Local Authority regarding the contribution, and there was no body to which an appeal could be made. In the case of street widenings for tramway purposes the Council bore one-third of the cost, the Local Authority one-third, and the tramways, &c., one-third. If the Borough Council refused to contribute, the tramway generally had to wait. He did not know that it would be desirable to have an authority to whom could be referred the question of fixing the contribution, because he believed that public opinion was having its effect upon the Local Authorities, and the objections raised in the past would not be heard so much of in the future. When the Council sought Parliamentary powers with respect to improvements, they inserted clauses for particular purposes connected with the improvements in reference to such subjects as non-payment of compensation in respect of the creation of new interests in property, and the acquisition of land outside the limits of deviation by agreement with the owners, insanitary property, and subways. With regard to the method of meeting the cost of improvements, the Council had devoted serious attention to three important suggestions, viz., taxation of land values, "betterment," and recoupment by disposal of surplus lands. With

regard to "betterment" clauses had been inserted in various Bills which had become law, but the actual results were not available yet. In the case of recoupment, he instanced the acquisition of a large amount of property in connexion with the new street from Holborn to the Strand, which had lessened the estimated ultimate net cost of the whole improvement by more than 1,000,000, owing to the values of the commanding buildings sites thus formed. He considered that the traffic requirements of London had not been nearly met, and that until some method was sanctioned for increasing the revenue available for the construction of necessary new streets and the widening of existing main thoroughfares, either by the taxation of land values or in some other way, it would be impossible to deal adequately with the problem of London locomotion.

## THE LONDON BUILDING ACT, 1894:

### TRIBUNAL OF APPEAL CASE.

THE Tribunal of Appeal under the London Building Act, 1894, sat at the Surveyors' Institution, Great George-street, S.W., on the 19th inst., to hear an appeal made by Messrs. C. J. Mann & Son on behalf of Mr. Henry Lewis Arnold against the certificate of the Superintending Architect of Metropolitan Buildings, date May 18 last, under Sections 22 and 29 of the Act, defining the general line of buildings on the east side of York-road, Islington, between Dennis-street and the Regent's Canal, in which street he further certified certain structures as defined on the plan annexed to the certificate to be situate. The members of the Tribunal sitting were Messrs. J. W. Penfold (chairman), A. A. Hudson, and E. A. Gruning.

The appellants were represented by Mr. Alexander Glen, K. C., barrister; and Mr. Andrews, from the Solicitors' Department of the London County Council, was for the respondents.

The grounds on which the appeal was made were that the general line of buildings in York-road should be regarded in defining the general building line, and not that portion only of York-road between Dennis-street and Canal-terrace. For the appellants it was argued that the fact that there is, and has been for many years, a wooden structure in front of 112, York-road, and from time to time in front of 101 and 102, clearly showed that the line dividing the forecourts of the houses between Dennis-street and Canal-terrace from the public footway had been accepted as a general building line of those houses. Apart from this, the general line of buildings in York-road, which they considered should be taken as the line of building of these houses (including No. 106), was far in advance of the line now certified. The road at this point was about 70 ft. wide from the line dividing the forecourts of the houses from the public footway to the boundary of the Great Northern Railway goods depot opposite, and then this goods depot was to a very large extent an open space. As Section 22 of the Act provided for the roads in London enjoying a plentiful supply of light and air, there could not in this case be such an arbitrary reading of the section as was implied by the Superintendent Architect's certificate. Moreover, the fact that Section 24 laid down that the architect's certificate was to be signed on the owner of the houses within a distance not exceeding 50 yards on either side of the building to which the certificate related, encouraged the appellants to believe that the general line of building at least embraced the building line of all such buildings. Mr. Glen pointed out that the injury to the owner of the proposed new building would be serious by defining the building line as set out by the Superintendent Architect. The three structures, which answered the purpose of street stalls, had been there for many years.

After Mr. Glen had completed his opening statement, the Tribunal consulted on a suggestion which, it was thought, might lead to a compromise.

Mr. Hudson spoke of the possibility of compromise by the freeholders giving up a certain strip of land between Dennis-street and Tigris-street.

Mr. Glen thought he was justified in asking for an adjournment while the suggestion was being considered by the freeholders. He gave a qualified assent.

Mr. Andrews, however, pointed out that the public authority could not be called upon to accept a general line which had been set through the laches of persons in putting up buildings, which could not be taken into account as the general line. These structures had been built on a creeping process—they began with four props sufficient to shelter a person.

Mr. Hudson remarked that the Tribunal had nothing to do with facts as to how these stallholders got the spot before the passing of the London Building Act, 1894. He thought an adjournment would give an opportunity for the parties concerned to make an application to the County Council on the lines suggested.

Mr. Andrews: Any application of that kind will be dealt with in the ordinary way.

Mr. Hudson: The question is whether you would favour an application for the granting of an application by these people.

Mr. Andrews feared that in doing this the Council would then be driven to abdicate their authority.

The appeal gave rise to a concrete case. The Council had already been compelled to go to the police-court for the demolition of one of these structures. As a part of the evidence necessary to obtain the removal of that structure they had had to obtain the certificate of the Superintending Architect, defining the general building line. That certificate had been issued, the magistrate had made an order as to demolition, and they were brought there to discuss the general question as to the building line. They were there to say whether the certificate of the Superintending Architect was right or whether it was wrong, and he thought it quite outside the present case that the appeal should be hung up while quite a speculative matter was investigated.

Mr. Hudson pointed out that the suggestion was made *bona fide* in the hope of assisting at a solution.

Mr. Andrews said no one appreciated more than he did such valuable hints from the Tribunal, and he was always ready to acquiesce when the interests of the public were not prejudiced. In this instance, however, he was sorry he could not acquiesce.

After hearing the evidence for the appellant, Mr. Andrews submitted that the line as defined by the Superintending Architect was in accordance with the Act. He contended that in arriving at the general line the structures referred to—structures which were erected in contravention of the law—should be ignored. Although he consented granted by the Metropolitan Board of Works was prior to the Act of 1894, it could not have the same validity and effect as if it was granted under the latter Act.

The Tribunal intimated that they would consider their decision.

## Correspondence.

### BUILDING BYE-LAWS REFORM ASSOCIATION.

SIR,—The above Association, of which the Duke of Westminster is President, has been formed to secure that official control of private buildings shall not extend beyond the demands of public health and safety. That some such organisation is needed is obvious from the fact that it is practically impossible for individuals to resist successfully unreasonable encroachments on their liberty.

The Association recognises the necessity for building regulations in places where the interests of public health and safety demand them, but in many districts the existing bye-laws and regulations go far beyond this need, and the interference with individual liberty has become intolerable. The Local Government Board, recognising this, has issued a new set of model bye-laws for rural districts, which, with due regard to health and safety, omit some of the objectionable clauses which have hitherto been included.

As a first step the Association will turn its attention to the work of getting the old unreasonable bye-laws amended, particularly in rural districts, where the hardship is greatest. It is important to point out that these oppressive bye-laws have had, and are having, an injurious influence upon the provision of dwellings for the working classes, and it is hoped that by removing unnecessary restrictions on building operations the desired results will be given for the erection of new cottages so greatly needed in many districts. The amendment of bye-laws in Urban Districts will also have the attention of the Association, in order to secure that more reasonable measures shall gradually be introduced.

R. A. READ.

Honorary Secretary.

45, Parliament-street, Westminster,  
June 24.

\*\* We are very glad to give publicity to the above letter, but we wish the Association would commence by reforming their own spelling, and write "by-law" instead of the incorrect form "bye-law."—ED.

### INTERNATIONAL CONGRESS OF HYGIENE AT BRUSSELS:

SEPTEMBER 2 TO 8.

SIR,—May I ask you to allow me a little space in your valuable paper to draw the attention of your readers to this Congress, which—as far as I can make out—does not appear to have received that notice which, in my judgment, it deserves?

The Congress has been fixed somewhat earlier than usual, so as to be more convenient as regards the time of general holidays, and it is to be hoped that, when making the necessary arrangements for this purpose, all interested in sanitary matters will make a point of including the Congress within their circle of holiday travels.



The General Secretary of the Congress is Professor Dr. Putzeys, of Liege, Belgium, and the Secretary of the English Committee is Dr. P. F. Moline, of 42, Walton-street, Chelsea, S.W., who will, no doubt, be pleased to supply all desired information; but, for the convenience of your readers, I may be allowed to give a few particulars from the programme.

The Congress is divided into seven sections, as follows:

The first section deals with bacteriology, the second with alimentary matters, the third with building and engineering matters, the fourth with industries and professions, the fifth with traffic, the sixth with administrative matters, and the seventh with colonial subjects. In all these sections various subjects have been selected with a view to elucidating thereon the latest views, and gentlemen have been asked to speak thereon who are known to be experts. In addition to this, so far as time will permit, other subjects may be brought forward for discussion after they have received the sanction of the Executive Committee.

It would be quite impossible for me to give here all the names of the readers of the various papers or their subjects, but amongst the readers of papers in the first section I may mention such names as Bordet, Denys, Gruber, Pfeiffer, Wassermann, Ehrlich, Roux,oeffler, Malvoz, Netter, and many others, names which speak for themselves, and are a guarantee that the subjects to be discussed will be fully and well treated, and that the latest researches and developments will not be omitted from the discussion.

The third section, which deals with the work of the architect and engineer, will discuss the following subjects:

The first set of papers will be on the bacterial purification of sewage and trade wastes, and the names of the authors are G. F. Fowler, Launay, Pagliani, Rideal, Rolants.

The second subject to be discussed deals with the advantages and disadvantages of the combined separate systems of sewerage, and here the following gentlemen have promised to contribute papers: Buesing, Imbeaux, E. Putzeys, and Spataro. It is hardly necessary to point out that the authors, in most cases, occupy different standpoints, so that the pros and cons of the various subjects may be fully discussed.

The third question to be submitted deals with the sanitary precautions to be adopted in case of underground water supplies taken from limestone formations, so that in this the following gentlemen will speak: Gravelius, J. A. Howe, of H.M. Geological Survey, Janet, Martel, Nicolis, Schardt, Broeck, and H. B. Woodward, F.R.S., Assistant Director of H.M. Geological Survey.

On the fourth subject of street hygiene, which embraces the whole subject of scavenging of towns and the destruction of the refuse by fire, the Chairman of the International Committee of Street Hygiene has promised to contribute a paper, to which will be attached the reports from the various members of the Committee, dealing with their respective countries.

The fifth question deals with the progress made during the last twenty years with the heating and ventilation of public and private buildings, and here papers have been promised by Herscher-Geneests, Puetzner, and van Rysselberghe.

The sixth and last subject is the distribution of draught-houses, heating, ventilation, and the decoration of their interiors, on which Bonnier and Nussbaum have promised to speak.

I have not time to-day to deal with the other sections, nor can I do more than draw attention in passing to the exhibition of sanitary objects which will take place in connexion with this Congress, but I hope I may have time before long to give a few further particulars concerning the latter.

Those who know Brussels will not require to be reminded of the charms this city possesses in many respects, and that it has only lately shown marked hospitality to the Lord Mayor of London. It is a very interesting town, and every one ought to greatly enjoy a week spent there.

ALFRED ROECHLING.  
39, Victoria-street, Westminster, S.W.

#### LIVERPOOL CATHEDRAL.

SIR,—May I point out an inaccuracy in the Report of the Executive Committee made on the 12th inst., as published in your issue of the 10th?

The length "over all" of Mr. Scott's design is 534 ft., exclusive of the atrium. The Report gives this dimension as 450 ft., an error which has probably arisen from the fact that, in the committee's instructions to competitors, it was stipulated that the length of the cathedral, exclusive of subsidiary buildings, should not exceed 450 ft.

It is, moreover, difficult to understand Sir William Forwood's answers to Dr. Porter, since Sir William Emerson's design was certainly not a "classical" one, and the fact that it was judged suitable for St. John's site does not prove its author incapable of surmounting the difficulties of St. James.

Moreover, if, as Sir W. Forwood says, "in the new" cathedral room is to be provided for 3,000 persons to see "and hear," and if "a much larger

number could be accommodated for ceremonial purposes," it is clear that a fresh scheme must be devised by Messrs. Bodley and Scott, and that the Committee are therefore still some way from having obtained a design to satisfy their requirements.

CHARLES A. NICHOLSON.

#### ARTIST AND DEALER.

SIR,—With reference to the judgment on the action brought against me by the Fordham Gallery, may I be permitted to point out my object in allowing the matter to come into court? I suppose it would be considered idealistic to expect a judge to realise the great importance to all artists of the point I raised, not being himself an art worker. The action brought against me by this Gallery sought to recover a commission of 25 per cent. on a gold pendant which I designed and carried out for a patron of the Gallery. The pendant was delivered and I received a cheque in due course from the client. The point under discussion was as to whether the dealer was entitled to charge commission on the whole order or on the order for the amount of gold employed in its execution, which, in this instance, amounted to one-third of the whole commission. I think your readers will agree with me that this point is of paramount importance to the art worker, for it will be easily realised, as my counsel lucidly explained yesterday, that as the artist's expenses in making his profits naturally diminish, whereas the dealer's profit of 25 per cent. under the present recognised arrangement remains the same. In my case the dealer and agent claimed 25 per cent., while the producer was expected to be contented with only 35 per cent.

In summing up, the learned judge evidently did not attribute importance to this, the point of the whole action, and left me to split the difference with the dealers and pay costs.

If the point I raised, which I trusted would be properly thrashed out and so give every artist who may be compelled to arrange his affairs through the middleman a fair footing, was not considered legally practical, may I venture to suggest that it was at any rate a very reasonable one.

I feel sure that if the public could be brought to realise that it is far more satisfactory to deal with the producer direct than through the shopkeeper, the hardships and struggles of the artist's career would be minimised, and an improvement not only in his productions but also the art of the country would be appreciable in exact proportion.

ALFRED FAHEY.

#### "ARCHITECTURE AT THE ROYAL ACADEMY.—IV."

SIR,—Your notice of last Saturday says with respect to No. 1,600, "it has a green-tinted ground story (probably glass blocks)."

The material, including the entablature, is a slightly glazed terra-cotta, green in tint, in blocks as indicated by the drawing.

It is made by Messrs. Doulton, and by them called "Carrara." W. A. AICKMAN.

#### BOOKS RECEIVED.

BUILDING SUPERINTENDENCE: A Manual for Young Architects. By T. M. Clark, Fellow of the American Institute of Architects. New Edition. (Macmillan & Co., 12s. 6d.)

#### OBITUARY.

MR. BATEMAN.—We regret to announce the death on June 13<sup>th</sup> at his residence, Hawkesford, Four Oaks, Sutton Coldfield, in his eighty-sixth year, of Mr. John Jones Bateman, architect, of Birmingham, and formerly of Birnam, Castle Bromwich. Mr. Bateman, a son of Joseph Bateman, Birmingham, architect, was senior member of the firm of Messrs. Bateman & Bateman, architects and surveyors, of No. 83, Edmund-street, Birmingham, his son, Mr. Charles E. Bateman, F.R.I.B.A., being his partner. Mr. Bateman was the first President of the Birmingham Architectural Association, and until very recently, despite his advanced years, continued in the active practice of his profession. Of the more recent buildings planned and designed by him and his firm, we have illustrated the undermentioned in our columns: Vectis Lodge, Edgbaston, additions with billiard-room, &c., May 29, 1897; premises to be converted of steel and concrete, the latter being finished with rough cast in Cornwell-street, Birmingham, for Messrs. Geo. Jones & Sons, printers (1895), and in Cannon-street, Birmingham, for Messrs. S. C. Larkins & Son, Manchester warehousemen (1900), July 19, 1902, the building of which has been for some reason postponed; some houses, purposely of a comfortable yet inexpensive character, in Station-road, King's Heath, Victoria-road, and other suburbs of the city, April 23, 1893; the Gable House at King's Heath, Worcestershire (1896), and the Homestead, Woodbourne-road, Edgbaston (1897), March 2, 1901; a house at Barn Green, Worcestershire, June 1, 1901, and another on the Lickey Hills in that same district, November 23, 1901; and, in conjunction with Alfred Hatfield, of Birmingham, competitive designs for the Municipal Buildings, Hereford, August 10, 1901—perspective drawing,

section, and two plans. Of their other architectural works we may mention Mr. Bateman's own residence at Castle Bromwich, erected after plans and designs by Mr. C. E. Bateman; a house in Woodbourne-road, Edgbaston, for Mr. Percy Jones; a block at the corner of Broad-street and Sheepcote-street, with two frontages, for the Edgbaston branch of the Birmingham District and Counties Sanitary Authority; the rear portion of Messrs. Stacey & Byner, veterinary surgeons, erected in 1899, at a cost of nearly 6,000l.; the Unitarian Church of the Messiah, in Broad-street, 1860-2, with a tower and lofty banded spire, erected at a cost of 15,000l., for 950 sittings (J. J. Bateman); the Birmingham Workhouse in Western-road, built at a cost of 45,000l. in 1850-2, after designs in the Elizabethan style, with a chapel, and since enlarged for a total of 2,900 inmates by Messrs. Martin & Chamberlain; the Free Library and School of Art, and Art Gallery at Dudley, built of red terra-cotta and brick in 1884, for about 6,000l. from designs after the Renaissance manner by Messrs. Bateman & Corser; Church of St. Guthbert, Winslow Green, 1871-2, in the Early Decorated style, for 720 sittings; various branches in the suburbs of the Central Free Library; the Cannon-street Hotel, Birmingham; a house at Four Oaks Park, Sutton Coldfield; and manufactory and offices for Messrs. Westley Richards & Co., at Bourne Brook. In 1898 Messrs. Bateman & Bateman were invited to compete, and in August of that year submitted their proposed designs for the erection of a new church at Sparkbrook, by the Trustees of the Birmingham Churches Fund, on which occasion Sir A. W. Blomfield acted as assessor. Two years ago they won the first premium, upon the award of Messrs. William Henman and Thomas Cooper, in a competition limited to five nominated Birmingham architects for the new Dental Hospital. In May last they, as architects, conjointly with Mr. Alfred Hale, were awarded, upon the adjudication of Mr. T. E. Colcott as assessor, the first premium of 100 guineas in the competition for the proposed town-hall and municipal buildings to be erected in Queen Victoria-road, High Wycombe.

MR. ROBERT WALKER.—We regret to announce the death of Mr. Robert Walker, architect, Windermere, who died at his residence, The Gables, Windermere, on Wednesday, the 10th inst., in his sixty-second year. After obtaining a varied experience as clerk of works, he commenced practice some twenty-five years ago, first in Kendal, then in Windermere. In 1893 he was elected a Fellow of the Royal Institute of British Architects. On June 6 last we announced that he had taken into partnership his son, Mr. Frank H. Walker, and Mr. James Carter, of Windermere (late of Darwen), under the style of "Walker, Carter, & Walker." Mr. Robert Walker established a good practice in the locality. Among the buildings for which he prepared the plans and designs are the following:—The Carver Memorial Congregational Church at Windermere; a Roman Catholic church dedicated to St. Herbert, opened in June, 1884, and standing near the shore of Windermere Lake; new banking premises at Bowness, 1893, for the branch Liverpool Bank; a large block of buildings at Carnforth for the Co-operative Society, containing workshops, three warehouses, shops, show-rooms, bakery, offices, &c.; a house at Bowness, together with homesteads and farm-buildings, and model cottages upon Mr. John Carver's estate at Ravenstonedale, Westmorland, and a new hotel of stone, on the lines of the old "manor-houses" in that neighbourhood, having a stone staircase with an oak gallery above it, leading from the roadway up to a public room for sales, &c.; a hotel on the same estate, 1898; alterations and enlargement of Mr. E. Bousfield's house at Burnt How, Loughrigg; additions to the Centenary Church, Lancaster, in 1890, including new vestries, organ chamber, church-parlour, hall for 450 persons on the first floor, with recreation and class rooms, and a range of six shops, with a restaurant on the ground floor, at an outlay of 4,000l.; a house at Bowness for Mr. T. Harrison; the "John Ruskin" Museum, Conistone, as an extension of the Conistone Institute; the Post-office, Windermere; several private residences in Windermere and the neighbourhood; an enlargement of the Netherfield works at Windermere for Messrs. Snemwell Bros.; additions to the hospital for the Bowness and Windermere Urban District Council; and further premises at Warton Carnforth for the local Co-operative Society. In 1898 Mr. Robert Walker was appointed architect by the District Council for their public offices at Windermere. In June, 1894, he obtained the first premium for his competitive designs for the Lancaster School Board's schools in Bowerham-road.

#### GENERAL BUILDING NEWS.

REOPENING OF THE PARISH CHURCH, SWANSCOMBE.—This church was reopened on Tuesday, the 2nd inst., after the repair and restoration work necessary in consequence of the fire caused by lightning in August of last year. The old Saxon font was much broken, but has been carefully put together, and can now be used again. The stained glass was very much injured by water and fire; this has been repaired, and all fragments carefully refitted. The nave roof is new, and the north and south aisle roofs have been renovated, and the work



presents no signs of restoration. No clerk of works has been employed, but the whole work has been carried out by Messrs. Mutton & Wallis, builders, of Gravesend, under the direct supervision of the architect, Mr. J. Biggell.

**ENLARGEMENT OF CHINGFORD PARISH CHURCH.**—Last week the Bishop of St. Albans dedicated the new chancel and aisles which have been added to Chingford parish church. The new part of the church provides room for about 300 additional sittings, and a chancel organ-chamber, and vestries. The plans for the building were prepared by the late Sir Arthur Blomfield, and the work has been carried out by Mr. C. J. Blomfield. The steps in the chancel are made of green Elterwater stone, and the chancel is paved with green mosaics. The total cost of the work is about 6,000l. Messrs. C. S. Foster & Son, Loughton, being the builders.

**BAPTIST CHURCH AND SCHOOLS, GLOUCESTER PLACE, BRIGHTON.**—The tender submitted by Messrs. Batley, Sons, & Holmes, Old Kent-road, London S.E., has been accepted for the new buildings, the contract amount being 5,381l. 10s. 10d. The accommodation provided in church is 725 adults. A square tower terminating with a spirelet forms a feature at one side of the church. The architects are Messrs. George Baines & R. Palmer Baines, Clements-inn, Strand, London W.C.

**NEW CHURCH, GRANGETOWN.**—The foundation stone of the new Roman Catholic church, Grange-town, was laid on Wednesday, the 24th inst. The new church, which is to be erected from plans prepared by Messrs. Brodick, Lowther, & Walker, of Hull, is designed on lines dictated by the Early Decorated period of Gothic architecture, and consists of nave with north and south aisles, belfry, and small octagon turret; and narthex at the west end; sanctuary and two side chapels, baptistry and two confessionals, and sacristy at the east end. It is to be built of red bricks, with stone dressings, and the roof covered with slates. The walls internally are to be plastered, and the roofs of nave, aisles, sanctuary, chapels, &c., vaulted, in wood with moulded wood ribs. The extreme dimensions are—Length, 108 ft.; width across body of church, 50 ft.; height from floor of nave to apex of roof, 47 ft. The sanctuary is to be divided from the nave by an elaborate screen composed of moulded stone to the nave, with its high vaulted roof. Seating accommodation is provided for 600 people.

**SCHOOL, BEDWAS, MONMOUTHSHIRE.**—A new school at Bedwas has just been opened. The infants' school provides accommodation for 200. The new mixed school forms a detached block and has entrances for boys and girls, with cloakrooms, &c. Accommodation is provided in this department for 250. The amount of the contract was 2,750l., the contractor being Mr. Marcus Harding, Caerphilly. The architect was Mr. J. H. Phillips, of Credit and Caerphilly.

**METHODIST CHURCH, BIRMINGHAM.**—The memorial stone has just been laid of a new Methodist New Connexion church on Dudley-road, Birmingham. The plans have been prepared by Mr. John G. Dunn. It will have a frontage of about 60 ft. to Dudley-road, and in the centre there will be a porch. Above this there are to be three lancet windows. In length the building will be 70 ft., and in width 40 ft., with an additional 8 ft. at the transepts. Altogether accommodation will be provided for about 500 worshippers, while the cost (exclusive of the land) is expected to amount to about 3,500l. Mr. Thomas Elvins is the builder.

**WESLEY MEMORIAL CHURCH, ST. GEORGE, BRISTOL.**—The foundation stone of the new Wesley Memorial Church at White's Hill was laid on the 17th inst. The site is at the summit of White's Hill, also called Bryant's Hill, on the main road leading from St. George to Hanham. The dimensions of the new building will be 70 ft. by 40 ft. The transepts will be 57 ft. 6 in. wide, and the orchestra 25 ft. wide. The exterior will be Pennant stone with Bath stone dressings, and the interior woodwork of polished pine. The building is estimated to cost 5,000l. The architect of the new chapel is Mr. W. H. Disley, of Chorley.

**CALVINISTIC METHODIST CHURCH, CARDIFF.**—The opening services of the new English Calvinistic Methodist church in Cathedral-road, Cardiff, were held recently. The new church was erected by Mr. W. T. Morgan, contractor, Cardiff, from the designs of Mr. Edgar G. C. Down, architect, Cardiff. The building, which is in the Early Perpendicular style, has been built of Pontypridd stone, with Bath stone facings, and seating accommodation is provided for 800 worshippers. The seats, pulpit, and doors are of oak. The church was erected, together with the organ, at a cost of 6,500l.

**CHURCH, DERRY.**—The opening and dedication of St. Christopher's Church, Shaftesbury-crescent, Derry, took place on the 13th inst. The new structure is in the thirteenth-century style, and is built of brick, with Derbyshire stone facings. There is a bell turret, and, in addition to eleven windows in the nave, the chancel is lighted by a large window, while there is another at the north end of the church. Seating accommodation for nearly 300 people is provided, the seats being of pitch-pine, and the flooring of mosaic work. The choir stalls, lectern, &c., are of oak and the pulpit is made of Caen stone and Connemara and Devonshire marble. Caen stone and alabaster have been utilised in the

construction of the reredos, the steps being of marble, and the paving mosaic work. There are two vestries—one for the clergy and one for the choir. The architect has been Mr. Ernest Ridgway, of Long Eaton, and the contractors were Messrs. Walker & Slater, of Derby. The organ is by Messrs. Brindley & Foster, of Sheffield. The building is heated by hot-water pipes, the apparatus being supplied by Messrs. Danks & Co., of Nottingham. The total cost was between 5,000l. and 6,000l.

**BUILDINGS IN ABERDEEN.**—The Plans Committee of the Town Council has passed the following new buildings—Dwelling-house on the north side of Howburn-place, for Messrs. Cameron & Watt, architects. Two dwelling-houses on the west side of Cairnfield-place, for Mr. George Taylor, per Messrs. Cameron & Watt, architects. Alterations at 18, St. Paul-street, for the University Press. Alterations in connexion with the premises No. 607, Great Northern-road, for Mr. Alexander Repper, per Messrs. D. & J. R. McMillan, architects. Six dwelling-houses on the south side of Westburn-road, for Messrs. R. Beattie & Son, builder, per Messrs. Sutherland & Pirie, architects. Alterations in connexion with the dwelling-houses Nos. 374 and 376, Holburn-street, for Mr. John Milne, per Mr. John Milne, jun., architect. Dwelling-house on the north side of Beechgrove-terrace, for Mr. William Milne, per Messrs. Walker & Duncan, architects. Alterations and additions in connexion with the dwelling-house No. 8, Bon-Accord-street, for Mr. R. S. Sutherland, per Messrs. Walker & Duncan, architects. Dwelling-house on the north side of Cedar-place, for Mr. William McCross, per Mr. Harvey Menzie, architect. Polishing-mill and dressing-sheds on the north side of Merikland-road East, for Mr. J. Inglis, granite merchant, per Messrs. D. & J. R. McMillan, architects. Addition to premises, No. 480, Union-street, for Mr. Joseph Elliott, per Messrs. Brown & Co., architects. Alterations in connexion with premises on the south side of Poynernock-road, for Mr. James Clark, per Mr. Duncan Hodge, architect. Copperage at the junction of North Esplanade and Ferry-road, for Messrs. Stewart, Duthie, & Co., per Messrs. D. & J. R. McMillan, architects. Alterations Market-street at its junction with North Esplanade, for Mr. John Hector, per Messrs. Sutherland & Pirie, architects. Workshop on the east side of Market-street, for Mr. James Wilson, per Mr. George J. Milne, architect. Alterations in connexion with premises on the east side of Market-street, for Mr. C. G. Wells, per Messrs. Sutherland & Pirie, architects. Alterations and additions in connexion with premises on the south side of Albert Quay, for Messrs. Richard Irvin & Sons, per Messrs. Kelly & Nicol, architects.

**ASHEPHERDS' HALL, CHORLEY.**—The foundation stone has just been laid of a shepherds' hall to be built at the junction of Clifford and Chapel streets, Chorley. The hall will consist of a brick building of three stories, surmounted by a corner turret. The ground floor will be devoted to shops, the first story to a room for friendly society purposes, with secretary's office, and the third story will be divided into recreation, reading, and other rooms. The design was selected by competition, and is by Mr. Dyson, architect, of Horwich. The cost is estimated to be 3,200l.

**THE "EDWARD MANN" BUILDINGS, DORSET-STREET, COMMERCIAL-ROAD, E.** The buildings, which were formally opened on the 18th inst., are erected on a portion of an area dealt with by the London (Queen Catherine-court, Limehouse) Improvement Scheme, and are the first dwellings designed and erected by the Borough Council under the provisions of the Housing of the Working Classes Act, 1890. In the year 1891 the Limehouse District Board of Works directed a scheme to be prepared under Part II of the Housing of the Working Classes Act, 1890, for the improvement of an area at Queen Catherine-court, Limehouse, in the hamlet of Ratcliffe. Application for the sanction of the Local Government Board to the scheme was made in the month of November, 1892; a local inquiry was held on March 10, 1893; and an order sanctioning the scheme was made by the Local Government Board on October 13, 1893. The scheme (as sanctioned) provided for the extension of Dorset-street from the south end of the existing 126 ft.; for the erection of working-class dwellings on the area when cleared; and for the accommodation of 108 persons. The number of persons displaced was 133. The whole of the properties have been purchased, and Dorset-street continued through to Brook-street, and the surplus land, having an area of about 9,000 ft. superficial, fenced in. The buildings were designed by the Borough Engineer (Mr. M. W. Jameson) upon the instructions of the first Housing of the Working Classes Committee of the Council. The walls are constructed of brickwork, and the partitions and floors of concrete, so that, with the exception of the fireproof and floor ceiling, the buildings are fireproof. Tenants will, if they so desire, be able to have a supply of gas from the Commercial Gas Co.'s mains, which have been laid to each balcony. The buildings consist of twenty-five tenements, each tenement being entirely self-contained. There are eleven two-roomed tenements, each containing a

living-room, bedroom, scullery, and water-closet; and fourteen three-roomed tenements, each containing a living-room, two bedrooms, scullery, and water-closet. The buildings will accommodate 128 persons, or twenty more than the Council were required to accommodate, and only five less than were originally displaced from the whole area. There is still some vacant land at the rear of the dwellings which will be available for future development.

**BIRMINGHAM ROWTON HOUSE.**—The foundation-stone of a new Rowton House has just been laid near Highgate Park, Birmingham, by her Royal Highness Princess Christian of Schleswig-Holstein. The house is to be erected by the Birmingham Rowton Houses, Ltd., and will be from the designs of Mr. H. B. Measures, the architect of the houses in London. The building, which will have a frontage to Alcester-street of 161 ft., will be of brick, with terra-cotta dressings. It has been possible to plan the buildings with wide forecourts on each of the three frontages, and in addition to form a courtyard 90 ft. wide, open at one end. The ground floor, of concrete, will be covered by wooden floors, of oak blocks, and the other floors of cement and granite chippings, with board flooring. The house will accommodate nightly 870 men, at a charge of 6d. per head, which will also entitle them to remain indoors during the day. The sleeping accommodation will be five floors of cubicles, in each of which there will be one bed, and every cubicle has a window, under the control of the occupant. The cubicles will be approached by fireproof staircases (built in ivory-glazed brick-work), and the cubicle corridors run from staircase to staircase, thereby leaving open a way for retreat in the event of access to any staircase being blocked. In addition, each floor is divided by division walls into eleven sections. There are dining-room, reading-room, smoking lounge, locker-rooms, crockery and service store, and a writing-room, which is an addition to what is to be found in the London houses, and there is also connected with the building a shop, a barber's establishment, and shops for the repairs of clothing and boots. Every facility will be given for the preparation of meals by the lodgers themselves, all the necessary apparatus being provided without cost, and arrangements will be made for the preparation and sale of cooked foods. The dining-room has a floor space of 6,748 ft., and seating is provided at tables for 448 men. The interior walls will be of glazed brickwork. At the end of the dining-room two recesses will be formed, 10 ft. by 12 ft. each, with arched openings into same, fitted with large cooking-ranges, with ovens, hot plates, and grills as a provision for those lodgers who may desire to prepare their own food. Large boilers at the back will provide a supply of boiling water for lodgers and for making tea. The recesses will have large top ventilating lights, and be built of glazed brickwork.

**HOSPITAL, ARBROATH.**—The new Epidemic Hospital which has just been erected at the joint expense of the Burgh of Arbroath and the Arbroath District Committee of the Forfar County Council, is now almost completed. The total cost of the buildings is about 10,000l. The plans for the new hospital were prepared by Mr. Hugh Gavin, architect.

**THE AUCTION MART, LONDON.**—A further enlargement by way of an additional sale-room on the second floor is being carried out at the Auction Mart, E.C. The architect, who is Mr. C. Herbert Shoppee, who superintended the carrying out of many improvements in the interior of the buildings, including a rearrangement of the principal staircase, three years ago.

**Y.M.C.A. INSTITUTE, TOTTERDOWN, BRISTOL.**—The memorial stones have just been laid of a new Y.M.C.A. hall at Totterdown. The new buildings will comprise a public hall, measuring 60 ft. by 40 ft., with seating accommodation for 500 to 600 persons. Two entrances are provided from Bushy Park, and there is also an exit into the quadrangle in the rear of the institute. The platform will be in an arched recess, with private entrance from the institute, through the committee-room. Connected with the hall are ladies' and gentlemen's cloak-rooms, with lavatories. In the rear of the hall, with entrances from Winton-street and from the institute, is to be a gymnasium, measuring 57 ft. by 19 ft., with cycle store and dressing and bath rooms attached. The front portion of the extensions (next Wells-road) will comprise a restaurant with kitchen and offices, and on the upper floors dining-room, parlour, and bedrooms. The young men who make the institute their home. The contractor is Mr. W. Foster, and Messrs. La Trobe & Weston are the architects.

**ROYAL INSURANCE OFFICE, LIVERPOOL.**—On the 16th inst. the new head office building of the Royal Insurance Co. was opened. The architect was Mr. J. Frank Doyle, of Liverpool, and the work of construction has been carried out by Messrs. Thornton & Sons, also of Liverpool, under the supervision of Mr. Doyle, with the assistance of Mr. R. Norman Shaw, R.A., as consulting architect. The style is Classic, adapted to modern requirements. The sub-structure is of grey Aberdeen granite to a height of 30 ft. above the pavement level, the superstructure being of white Portland



one, roofed with green slate. To the Dale-street front is a gable rising 11 ft. above the pavement. The main entrance is placed in North John-street, and is surmounted by a tower 150 ft. high, which forms one of the principal features of the design. To the south end is the entrance for tenants. The building, rectangular in shape, is about 220 ft. long by 52 ft. wide, and the internal dimensions of the general office on the first floor are—Length, 104 ft. 6 in.; width, 48 ft.; and height, 21 ft. The office of the manager and chief officials are on this floor, facing Dale-street, and separated from the general office by a hall 20 ft. square. On the floors above accommodation is provided for the departments incidental to the conduct of an insurance business, while the basements are reserved for strongrooms and storerooms. The boardroom is an apartment on the first floor, 44 ft. long, 24 ft. 6 in. wide, and 27 ft. 6 in. high. The walls are panelled in Italian walnut to a height of 19 ft. from the floor, and from the cornice of this paneling a plaster ceiling rises which is panelled and enriched with carved ornament.

Suspended from the ceiling are three large brass candelabra adapted for electric lighting. These candelabra were made in the town of Utrecht in 1648-9, and bear the arms of Utrecht and the town. The fire-escape in this room is original made by Stevens. On the upper floors the south end of the building are offices for clerks, electrically worked elevators being provided. The whole of the interior is brightly and heated by hot water on the low-pressure system. The exterior of the building is decorated by sculpture over the main entrance, and frieze consisting of several large sculptured figures, which were designed by Mr. C. J. Allen, of Liverpool, in conjunction with the architect, and executed by Mr. Allen.

**REGISTRATION HALL, BIRKENHEAD.**—The hall erected in connexion with the Oxton-road registration church, Birkenhead, was opened on 16th inst. The building has been erected at a cost of £7,000, and the architect was Mr. James H. Storer, of Liverpool. Externally the building on its south front is finished in Portland stone, and the church-arch and walls are finished in Portland stone. The interior is finished in Portland stone, with smooth plaster above. The work throughout is pitchpine. The work of the hall has been carried out by Mr. Peter Roth, Birkenhead.

**SCHOOL BUILDINGS, IPSWICH.**—The opening ceremony of the new parish school buildings, which have been erected in the parish of St. Clement's parish, Ipswich, in addition to the existing school, was held on 16th inst. There are rooms set apart for committees, and class rooms for the members of the Ipswich Lads' Brigade, a kitchen, cloakroom, &c., in communication with the hall and caretaker's room. Mr. Fred. Bennett carried out the work at a cost of about £2,000, under the supervision of Mr. Symond Bennett.

**SCHOOL, TINSLEY, SHEFFIELD.**—A new school has been opened at Tinsley, Sheffield. The new building, which, together with furnishing and all other charges, has cost 10,000, provides 100 places for 750 children, and will be used for the boys of the old school being transferred to the new building. The school is a part of 350 pupils, and the new building is a part of 100 pupils, which has been erected from the plans of Messrs. Holmes & Watson, corresponds to the old building. The desks and classrooms all have left-hand light, and the boys in every room are able to pass direct into the hall, and the girls into the hall. The headmaster has supervision of the school, and the girls can enter the classrooms or large hall without mixing in the passages. The school buildings, which consist of eleven classrooms, are arranged around the central hall, which is lighted by side and end windows, as well as from the roof. The buildings externally are faced with stone from Bolehill quarries, with ashlar from Mallock, and are roofed with black Westmoreland slates. There are four chimneys. Heat is diffused chiefly by means of hot-water radiators, while the extraction flues for the ventilated air are provided in the roof, and are distributed by means of steam coils fixed in the ventilating shafts.

A low-pressure heating apparatus has been fixed by Messrs. J. Pearson & Sons, and there are separate playgrounds for the boys and girls, and covered playfields for each department, in which drinking fountains are fixed with iron pillars for the children to stand upon. The contract for the erection of the schools was let to Messrs. Ash, Son, & Biggin. Mr. Ripley acted as architect of the work.

**DULWICH COLLEGE NEW LIBRARY.**—Foundations at Dulwich College were celebrated on Saturday, when the opportunity was taken to open the new library which has been erected in memory of Mr. Alleyne, who fell in the South African War. The library is a building in the English Renaissance style, of red brick and Portland stone. The floors are of polished oak, and the roof is of paneled oak, of red brick and Portland stone. The floors are of polished oak. There are two rooms of 100 ft. by 25 ft. for the boys, and the smaller 23 ft. 10 in. for prefects and senior boys. The 80 ft. apartment has a vaulted ceiling and two domed alcoves. The smaller room has also a domed alcove. The height of the rooms is about 25 ft. 6 in. The building is 86 ft. long, and 25 ft. wide. There is accommodation for 700 pupils, with facilities for increasing to at

least any extent. The building is at the north end of the college. The architect was Mr. E. T. Hall.

**WANDSWORTH AND CLAPHAM UNION SCHOOLS.**—The intermediate schools just opened for children of "ins and outs" and children awaiting admission to the district schools are situated on the north side of Swafield-road at its junction with Garrett-lane. The building is designed to accommodate 103 children, and contains the requisite day-room and dormitory accommodation, and the administrative offices, and accommodation for the staff, and is contained in three separate blocks, connected by open covered bridges at each floor level. Access is obtained at each floor level to each of the dormitories from the covered bridges referred to, and to the open balconies, so that in case of an outbreak of fire in either of the children's blocks, these bridges will enable the children to be carried from their respective dormitories to the main building, and the necessity of entering the staircase of the blocks where smoke would accumulate will be avoided. These bridges likewise form a means of escape from the administrative block. The administrative block is placed in Swafield-road and has a south aspect. The administrative block and accommodation for the staff occupies the central position, and the children are placed as follows, viz.—the boys in an independent block to the right and the girls and infants in another block to the left. Separate entrances are provided to each. Day-room and dormitory accommodation is provided for thirty-three girls in the administrative block and thirty-three boys. In each children's block a dormitory for two beds is provided, which will be available for the temporary isolation of children who appear to be sickening for an illness. The dayrooms and dining-rooms are placed on the ground floor, and the dormitories on the first, second, and third floors. The lavatories are placed on the ground floor. Those for boys and girls will have a central trough, with the single-jet system; and that for the infants will be fitted with basins, with a continuous flow of water whilst in use. These means will in each case ensure perfectly clean water for each child washing or being washed. Separate water closets and accommodation for the use of children is provided in the playgrounds, with covered approach. The warming of the dormitories will be by means of open fireplaces, likewise the dayrooms and dining-rooms; but the heating of these latter rooms is supplemented by hot-water radiators. The bathrooms, lavatories, staircases, &c., are likewise warmed by hot-water radiators. The boiler-room is placed in the basement external to the buildings, and with approach from the boys' yard. The administrative block contains on the ground floor the matron's office, necessities and groceries stores, clothing stores, general stores and pantries, kitchen and scullery, and the officers' mess-rooms on the first floor linen and needle rooms, bedrooms and bathrooms for the principal officers; and on the second floor bedrooms and bathroom, &c., for the servants. The whole of the upper floors of the building are of fire-resisting construction. The floors of the dayrooms and dining-rooms are laid with wood-block flooring, and the halls and landings in the children's blocks are finished with granite tiles. The hall and corridors and landings of the administrative block are finished with terrazzo paving. The internal surfaces of walls are finished in plaster, prepared for painting, but dadoes of salt-glazed brickwork 4 ft. high are formed around the walls of the children's dayrooms, dining-rooms, bathrooms, and lavatories, and around the walls of the staircases, halls, and corridors. The staircases throughout are of stone with solid steps and landings. The kitchen is fitted with range, boiling-pans, potato-steamer, milk-stiliser, gas cooking-stove, and small steam boiler, and has ventilating lantern light in addition to windows. The artificial lighting to the building is by means of gas. The front and side elevations of the buildings are faced with red brick up to the first-floor level, with yellow stock-brick facings above, relieved with red brick and Portland stone dressings, and the roofs are slated. The playgrounds and open spaces around the buildings are tar-paved and drained to surface gullies. The building has been carried out from the designs and under the supervision of Messrs. Lansdell & Harrison, of London, by Mr. Walter Wallis, at a cost of upwards of 16,000. The engineering works were carried out by Messrs. May Brothers; the stoves and chimney-pieces throughout supplied by Messrs. Barnard, Bishop, & Barnard; the sanitary fittings by Messrs. Dent & Hellyer, Mr. Harris, and Messrs. Bolding & Sons; the wrought-iron ranges and gates and screens are by Messrs. Keeling & Teale, Hammersmith; wood-block and terrazzo flooring by Messrs. Joseph Ebner; and the granolithic flooring by Messrs. Stuart & Co.

#### FOREIGN.

**FRANCE.**—A subscription committee has been formed with the object of erecting, in the Park Monceau, a monument to Pailleton, the dramatist. The Department of Ponts et Chaussées has approved of the scheme for a new branch of the Metropolitan Railway, to connect Montmartre and Batignolles with the Luxembourg and Vaugirard, passing by Rue Royale, Rue Trousseau, and the Gare

St. Lazare. M. Berlier is the engineer.—The jury in the competition for the decoration of the Mairie of Vanves has selected the design of M. Darien.—The first stone has been laid of the monument to Gambetta in the Allée de Tournay at Bordeaux. The monument was the last work executed by Dalou, in collaboration with M. Formigé as architect.—M. Hainze, architect, of Lille, has been commissioned by the municipality of that town to carry out a new theatre at a cost of 350,000 fr., to replace the Cirque Theatre which was destroyed by fire.—The Municipality of Cannes has voted a sum of 480,000 fr. for various public improvements, including the prolongation of the Boulevard d'Orient and Boulevard du Midi.—The monument to the memory of the novelist Ferdinand Fabre was inaugurated last week in the garden of the Luxembourg. The sculptural portion has been carried out from models by M. Marqueste and by M. J. Paul Laurens, the painter.

—The works are to be commenced immediately for the viaduct which is to carry the Metropolitan railway across the Seine at Bercy. The cost is estimated at 85,000 fr. The excavations under the direction of M. Albert Ballu, at Timagd, two fine mosaics have been discovered, one representing the triumph of Amphitrite and the other consisting of aquatic emblems and ornaments.—The death is announced of M. Laborde, painter and curator of the museum of Toulouse.—M. General Secretary of the Académie des Beaux-Arts since its creation, has died, at the age of 56. He was the author of various well-known pictures.—The Académie des Beaux-Arts has awarded to M. Toudouze, for his designs for tapestries for the New Sorbonne, the Houlléville prize, founded as a reward for the author of any remarkable work in painting, sculpture, architecture, engraving, or musical composition.—The "Prix National" of the Salon has been awarded to M. Albert Guillaud, who exhibited at the Old Salon a group in plaster, "La Goule," and a group in marble, "Eve retrouvant le cadavre d'Abel." The two travelling scholarships in architecture have been awarded to M. Gaston Minier, and to J. Rapin.—The Minister of Fine Arts has decided to transfer the so-called Saitaphanes tiara to the Musée des Arts Décoratifs.—It is probable that M. Thoumy, the architect, will be appointed secretary to the Société des Artistes Français (Old Salon), in place of the late M. Vignerot.—The monument to Charles Garnier was inaugurated on Saturday last. Speeches were made on the occasion by three architects, MM. Chas. Normand, Moyaux, and Pascal; by M. Larroumet, in the name of the Académie des Beaux-Arts.—At Belfort the new Hôtel de la Préfecture has been inaugurated, as also the Palais de Justice, the Pont Carnot, and the Hôpital Civil.—A committee has been formed to erect, in the interior of the Ecole des Beaux-Arts, a monument to the memory of the architect Ernest Coquart.—M. Saint-Anne Louzier has brought before the general assembly of the Association Provinciale des Architectes, which is meeting at Pau, a scheme for the federation of all the architectural societies of France.

**INDIA.**—The damage done to the railway line between Karachi and Kotri by the earthquake of May and June, 1903, is estimated at over a lakh of rupees.—The Bengal Iron & Steel Co. are to supply the East Indian Railway Co. with 12,000 tons of pig-iron annually for some years from the Burrakur works.—The Colombo harbour works last year cost 26½ lakhs of rupees, most of which has been devoted to making the new graving dock.—A grey granite obelisk, about 25 ft. in height, has been erected on the Mall at Rawul Pindi in the Punjab, in memory of the late Sir William Lockhart. On one side of it is a brass panel with a bust of the late Commander-in-Chief in relief, and on the other three sides are suitable inscriptions in three Oriental languages.—The Travancé canal, between Rangoon and the Thongwa district has proved so successful that numerous rice mills have been erected, to take advantage of the facilities of freight, and a sum of Rs. 43,050 has recently been sanctioned for widening the canal during the present year.—The Irrigation Major Works budget estimate for Burma during 1903-1904, is placed at over 19 lakhs of rupees.—A school of engineering is about to be erected at Mysore.—It is proposed to continue the Kalka-Simla Railway via Mundi, through Kulu to Patankot.—The new buildings of the Civil Secretary to the Government of India at Simla, are to be completed by next summer.—A naval sanatorium for the East Indian Squadron is to be built at Diyatalawa, about 130 miles from Colombo, Ceylon.

#### MISCELLANEOUS.

**PROFESSIONAL AND BUSINESS ANNOUNCEMENT.**—Mr. A. E. Geary has left the firm of Geary, Walker & Co., of which he was a managing director, and is now trading alone as a parquetry, wood-block flooring, and mosaic specialist, under the style of Ellis, Geary, & Co., at 139, Cannon-street, E.C.

**TINTERN ABBEY DISCOVERIES.**—Discoveries of much interest have been made at Tintern Abbey in the course of certain works undertaken by the Crown when the latter acquired the ruins from the Beaufort estate. Part of the original system of drainage has been disclosed, and, by the removal



of old cottages built into the Abbey, gateways and windows formerly hidden have been brought to light. Most interesting of all is the discovery of the lay brothers' staircase. On the demolition of an old cottage and subsequent excavation the workmen found a doorway leading from the lay brothers' quarters to the staircase, and thence by the door named after them into the Abbey.—*Standard*.

**PRIVATE DRAINS AND PUBLIC SEWERS.**—On the 18th inst. Mr. Long received the representatives of the twenty-one Metropolitan Borough Councils, who desired him to get rid of the decision of the Court of Appeal, which had decided that a drain pipe receiving water from two houses became a sewer within the meaning of the Metropolitan Management Act of 1855, by which the burden of reform was taken from the private owner and fell upon the Local Authority, resulting in an average burden of 4d. in the £1. on the ratepayers of London. Sir A. Rolitt, M.P., said that the precise point was that where two or more houses were served by way of combination drainage, and where no record could be found in the shape of an express authority by the Local Sanitary Authority, the cost both of maintenance and repair was held to fall upon the authority. They asked the Government to take up this matter. After the Mayor of Battersea, Alderman Collin, and Mr. H. J. Smith (Town Clerk of Lambeth) had spoken, Mr. Long, in reply, said there was no dispute as to the facts, and, he might almost say, the ridiculous condition of things which had arisen. He was invited to ask Parliament to settle in future when was a drain not a drain, or when it became a sewer. It was not an easy question to carry through Parliament. But there did not seem any reason for confusion in fact or in law between two things which were so essentially different as a sewer and a private drain. As had been pointed out, this question did not affect merely the local authority and the private owner, but it might seriously interfere with public improvements. Certainly in regard to a sewer, which a local authority had to maintain, they ought to be masters as to the situation of the sewer, its construction, and everything connected with it before they should be called upon to be responsible for it, and much less to be responsible for its maintenance. He recognised the existence of a very serious difficulty, and that it could only be remedied by the intervention of the Government. He fully accepted the situation, and asked them to be content with his assurance that he would give to the solution of the matter his most careful and earnest consideration.

**TRINITY COLLEGE, DUBLIN.**—The authorities of Trinity College have recently made an appeal for subscriptions to a fund which it is estimated should yield an annual return of 2,750l. in aid of the provision and maintenance of the proposed lecture-rooms and laboratories for the study of physical science, botany, zoology, and mechanical and electrical engineering. It is stated that Lord Iveagh has made an offer to contribute a capital sum of 24,000l. in furtherance of the scheme when the subscriptions (if made during the next four years) shall have amounted to such a sum as will, when invested, produce the income required.

**THE HERMITAGE, HIGHAM, KENT.**—A freehold estate of about 100 acres in the parish of Higham, which is placed in the market, comprises a property of 4½ acres known as The Hermitage, which is situated near Gad's Hill and the Cobham Woods. The house, which stands upon a slope between the Medway and the Thames, on the road to Frindsbury, was built in or about 1736 by Sir Francis Head, Bart., whose family had lived during a long period in Rochester. After the death of his widow, in 1792 the property was subdivided amongst his heirs, and The Hermitage, having for a while been occupied as a Roman Catholic seminary, was ultimately bought in 1886 by Mrs. Pickersgill-Conliffe, who made some additions to the house. The walls and domed ceiling of the dining-room were decorated in high relief with designs to illustrate the history of Bacchus. A curious collection of eight Roman cippi, all sculptured in marble and bearing inscriptions, was arranged by Sir Francis Head in niches in the walls at the back of the house.

**INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY.**—We are asked to mention that full particulars of the eleventh International Congress of Hygiene and Demography, to be held in Brussels from September 2 to September 8, 1903, with the travelling and hotel arrangements, may be obtained from Dr. Paul F. Moline, H. N. Sec. British Committee, 42, Walton-street, Chelsea, S.W.

**INCORPORATED CHURCH BUILDING SOCIETY.**—This Society held its usual monthly meeting on the 18th inst. at the Society's house, 7, Dean's-yard, Westminster Abbey, S.W. The Rev. Canon C. F. Norman in the chair. Grants of money were made in aid of the following objects, viz.:—Building new churches at Beeston Hill, The Holy Spirit, near Leeds, 250l.; and Whitstable, St. Peter, Kent, 75l. for the first portion; and towards enlarging or otherwise improving the accommodation in the churches at Wakefield, St. John, York, 60l.; Witley, St. Matthew, Middlesex, 100l.; making in all 350l.; and Ashton, St. John the Baptist, near Chudleigh, Devonshire, 25l., in lieu of a former grant of 25l. A grant was also made from the special Mission Buildings Fund towards building

Biggin Hill mission church, in the parish of Cudham, near Sevenoaks, Kent, 25l. The following grants were also paid for works completed:—Gainsborough, St. John the Evangelist, 100l.; Stoughton, Emmanuel, near Guildford, Surrey, 70l.; and East Kirby, St. Thomas, near Nottingham, 50l. In addition to this the sum of 270l. was paid towards the repairs of nine churches from trust funds held by the Society. The Society likewise accepted the trust of a sum of money as a repair fund for the Church of St. Philip, Stepney, Middlesex.

**TRADES UNIONS IN SAN FRANCISCO.**—San Francisco is said to be the city where the labour unions have the most power in the United States and where labour is most perfectly organised; indeed, it is difficult to find a trade, calling, or vocation which has not been completely unionised. Mr. Bennett, the British Consul-General, testifies that the power of the unions is immense, and that it is mainly owing to the unions that the scale of wages has increased so largely, and that the hours of work have been cut down at the same time. The current rate of wages for bricklayers is 5d. per day; carpenters, 3d. 50 c.; lath splitters, 4d.; painters, 3d. 50 c.; paperhangers, 4d.; plasterers, 6d.; upholsterers, 3d. 25 c.; and in all these trades the hours per day are limited to eight. Commenting on the power of the unions, Mr. Bennett mentions that in one instance a house was being built by purely union labourers, and, being nearly completed, the owner bought a stove for the house. The man engaged to put up the stove was found to be a non-union man. All the union labourers walked out of the house and would not resume work until a union man was sent for in his place. The situation, proceeds the Consul, "is a difficult one, and the future is viewed with a certain amount of apprehension, especially by builders and contractors, whose estimates may at any time be upset by a strike in any one branch for higher wages. It is even now a subject of apprehension that an ordinary mason should receive six dollars a day and a plasterer and lath splitter the same for an eight-hour day with a half-holiday on Saturday. The organisation of labour also reacts on industry in another way. The trades have become unionised to force up wages and reduce the hours of work on the plea, which is perfectly correct, that living expenses have, within the last few years, gone up 30 per cent. In California. The 'brains,' however, of the large companies, represented by the general management and the upper clerks, cannot unionise. It passes the wit of man to devise a scheme which will give a wage value to brains as it can to the laying of a tale of bricks. The expenses of these labourers in the industrial field have also increased 30 per cent., but their salaries have not. It must not be inferred from these remarks that labourers are in such a much better position in California as the high wages seem to imply. It should be remembered that the purchasing power of money is not so great in California as it is in England. Living and clothing and rent are dearer and practically all incidental expenses are higher."

**VICTORIA UNIVERSITY, YORKSHIRE.**—The Clothworkers' Company of London have offered to transfer to the new University, as its absolute property, all the buildings and equipment of the textile industries, dyeing, and art departments, already provided by that company at an outlay of some 70,000l., and now held in trust by the Yorkshire College at Leeds for the Clothworkers' Company, upon a condition that those departments shall form henceforth integral parts of the University. They have also agreed, it is stated, to make an annual grant of not less than 4,000l. in perpetuity, for maintenance in that behalf. After consultation with the Colleges of Manchester and Liverpool, the council of Yorkshire College have resolved to merge the last-named in Victoria University, and have opened a fund, calculated at 60,000l., for the completion of the main block of the buildings at Leeds. A sum of 5,500l. is subscribed by the colliery owners in the county for the erection of a separate mining department, and it is estimated that a concurrent increase of the staff and equipment for the efficient upkeep of an independent university will demand a minimum additional expenditure of 7,000l. per annum. It is proposed that the charter for the new university shall provide for its foundation upon a non-federal basis, with powers for the affiliation of other institutions, under the governance of a court and an executive council.

**SNOWDON'S IMPROVED PROTRACTOR.**—This instrument is 8 in. in diameter, and can be used as an ordinary protractor for the measurement of angles; but its chief feature consists in the addition of two outer concentric circles whereon the trigonometrical values of angles are indicated. These circles are divided into four quadrants, giving respectively values for tangents and co-tangents, secants and co-secants, sines and co-sines, and versed sines and co-versed sines. In consequence of the double-circle arrangement it is possible to note the fractional value for each degree in figures of sufficient size to be easily distinguishable. The hope of the inventor is that frequent use of the instrument may so familiarise the user to the constants that he may ultimately know them by heart, so that reference to trigonometrical tables may become unnecessary. It is somewhat doubtful whether the average draftsman is possessed of a sufficiently

retentive and reliable memory for the realisation of this hope, and, further, it must not be forgotten that finer subdivisions than those of 1 degree are necessary in connexion with ordinary surveying. Nevertheless, the protractor is an ingenious device, the usefulness of which is increased by the addition of inch and millimetre scales, and by the removal of parts of the inner portion so as to form two set-squares of 30 deg. and 45 deg. The protractors are supplied at prices varying from 3s. in cardboard to 42s. in aluminium.

**CARPENTERS' AND JOINERS' EXAMINATIONS.**—The Carpenters' Company held their annual examination in the above subjects last week at their Hall in London Wall, and at the schools, Great Titchfield-street. This year the Board of Examiners were obliged to act without Professor Roger Smith, whose loss they greatly deplored. The examiners present were Mr. John Slater, Mr. John Wilson, Mr. H. T. Hare (President of the Architectural Association), Professor Elsey Smith and Mr. J. S. Bartlett (of King's College), Mr. King (President of the Institute of Builders), the President of the Clerk of Works Association, and other gentlemen. The number of candidates presenting themselves for examination was larger than for many years past, and they came from various distant parts of England as well as from the environs of London. The following is a list of the successful candidates arranged in order of merit: D. Grant (bronze medal); W. H. Williams, F. H. Sharp, T. B. Day, J. D. Manners, W. H. Ryder, D. Banks, and A. Sheldrick (first-class certificates); C. R. Wilkins, Gentile, D. Rees, D. Kerr, F. W. Blake, J. McCurdy, S. Massey, T. Embury, F. J. Gifford, R. Foxcroft, W. Stanbury, A. Glyn, J. Pepperell, S. B. Savill, P. C. Adkins, A. Clwyd, W. T. Bryant, J. T. Pridmore, and J. W. Overy (second-class certificates).

**APPOINTMENT OF SANITARY OFFICERS.**—The Local Government Board has sanctioned 11 appointments of the following sanitary inspectors:—Mr. H. J. Gentry, assistant inspector, Greenwich (further period of six months), at a salary of 12 per annum; Mr. J. O. G. Weeks, sanitary inspector, Bethnal Green (in place of Mr. B. S. West resigned), at a salary of 120l. per annum.

**LOCAL SEWERS, LONDON.**—The Main Drain Committee of the London County Council report follows at Tuesday's meeting of the Council. We have sanctioned subject to certain conditions recommended by the Engineer, the construction of the following local sewers:—Greenwich: 330-ft. 6-in. pipe and concrete sewer in Harden's-man way. Lambeth: 276 ft. and 164 ft. of 12-in. p. and concrete sewers in Bond-place and Bazon-street respectively. Lewisham: 137 ft. of 12-in. pipe; concrete sewer in Embledon-road, Ellerdale-road part substitution of plan approved by Metropolitan Board of Works, on December 19, 1891. St. Marylebone: 200 ft. of 18-in. pipe and concrete sewer in proposed new street, between High-street and Lower William-street. Westminster: 180 ft. and 200 ft. of 9-in. pipe and concrete sewers in Hyde Park-gate and Chapel-mans respectively; 200 ft., 85 ft., and 145 ft. of 12-in. pipe and concrete sewers in William Mary-yard, South Molton-street, Old Bond-street and Chapel-place respectively; 750 ft. of 12-in. and concrete sewer in Kensington Gore (for surface water only); 620 ft. and 185 ft. of 18-in. pipe concrete sewers in South Molton-street and Bond-street respectively; 155 ft. of 9-in. by 2 ft. 6-in. brick and concrete sewer in Leicester-street; and 150 ft. of new arch to 6 ft. 6-in. sewer in Old Bond-street.

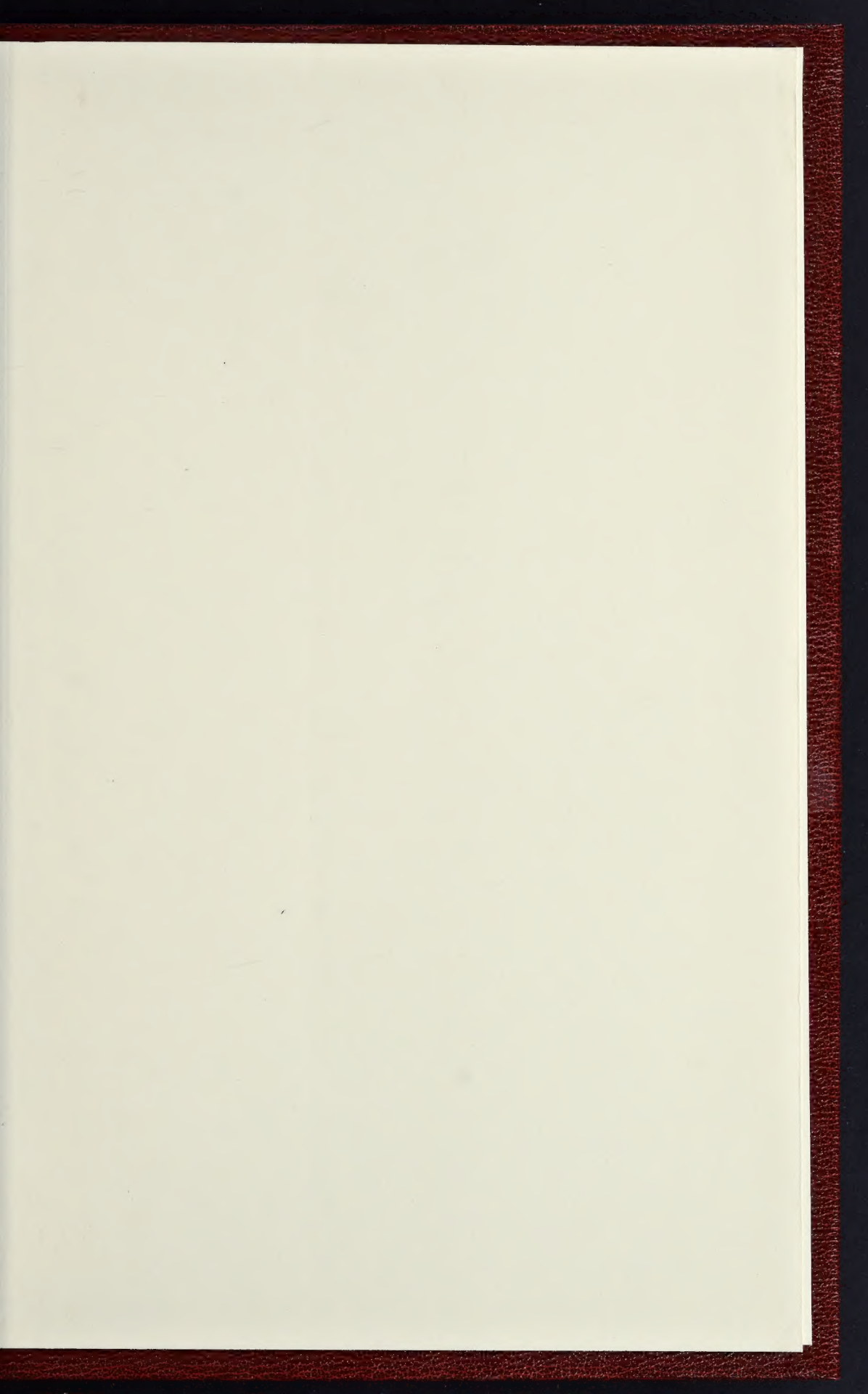
**NATIONAL REGISTRATION OF PLUMBERS.**—Baillie Duck, ex-Chairman of the Public Health Committee for the City of Glasgow, presided at the annual meeting of plumbers registered by the District Council for Glasgow and the West of Scotland, at Glasgow on Tuesday. The Report of the work of the Council referred to the arrangement for the plumbing classes carried on at the Glasgow and West of Scotland Technical College being in charge of a special committee consisting of representatives of the District Council for the National Registration of Plumbers, the Masters and Operatives' Associations, and representatives of the Governors of the College, the Health Committee of the Corporation, and the Chief Sanitary Inspector. At the close of the session an examination arranged by the College with the approval of the Scotch Education Department took place. It was a matter of congratulation that the Plumbers' Company recognised these examinations as equivalent to the examinations conducted under their graded syllabus of instruction for plumber, this being the first examination the Company has been able to accept as being consistent with the principles underlying the registration system.

#### CAPITAL AND LABOUR.

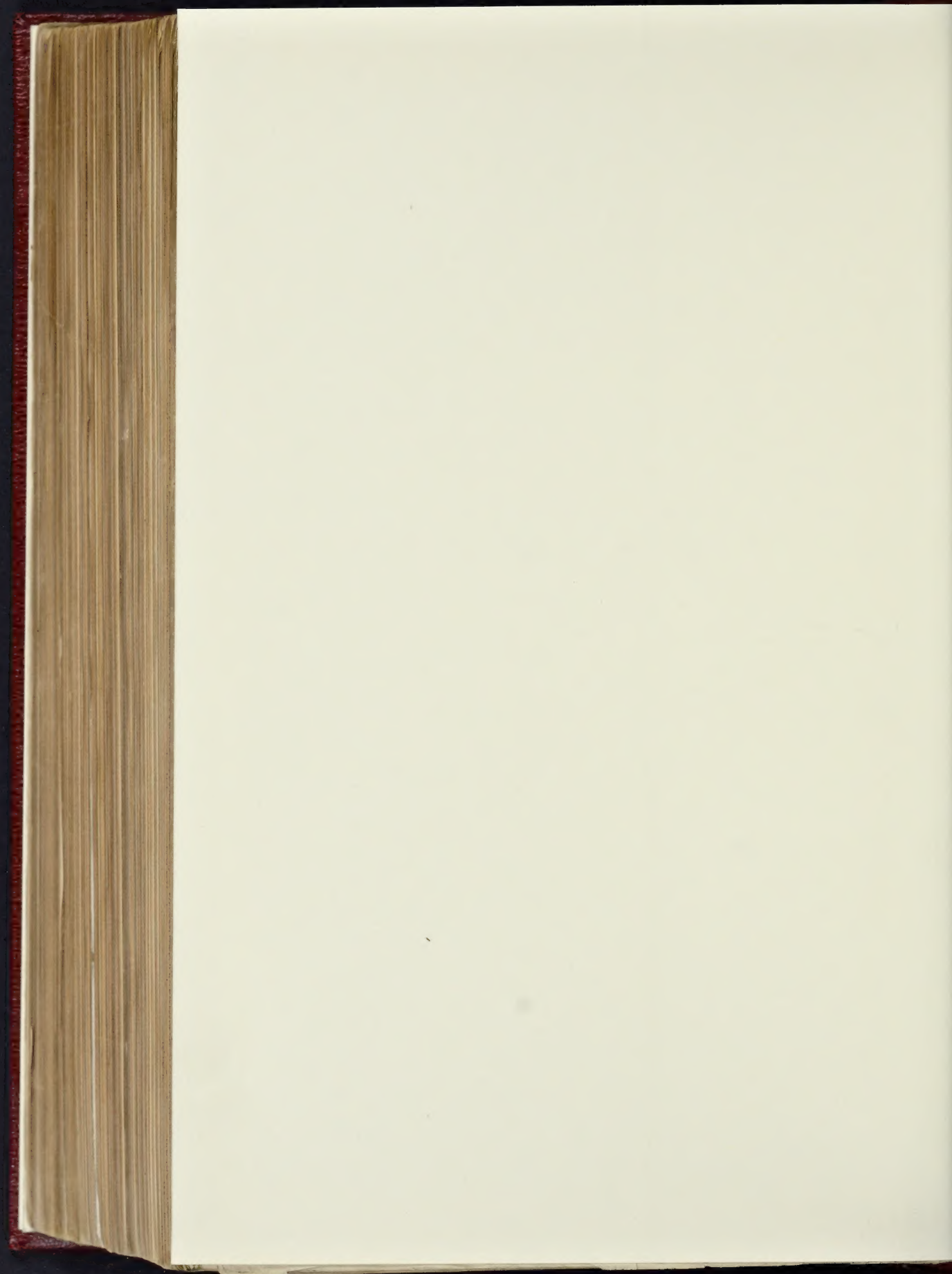
##### EMPLOYMENT IN THE BUILDING S.

According to returns supplied by seven employers' associations whose members estimated to employ about 37,000 building operatives of all classes, and by trade unions with aggregate membership of about 101,000, employment in the building trades generally was moderate in May, and about the same as a month ago, not











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